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# Prevalence of Oral Leukoplakia among Small Scale Factory Workers of Panchkula District, Haryana, India: A Descriptive Study

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**INTRODUCTION:** Leukoplakia is described as a non scrappable whitish lesion and finds its prevalence high in the south Asian continent.

**AIM:** To assess the prevalence of leukoplakia among small scale factory workers of district Panchkula, Haryana, India

**MATERIALS AND METHODS:** A descriptive, cross-sectional study was carried among 522 small scale factory workers in district Panchkula, Haryana, India. The diagnosis of presence of oral leukoplakia was evaluated and documented by the two examiners, using ADA type III examination and using the WHO standard recording form for oral mucosal diseases with clinical diagnosis based on the criteria as provided by the WHO and modified by Axell. Descriptive statistics were applied to describe the results.

**RESULTS:** The study subjects had male predominance(73.9%). The mean age was reported as 56±5.2, and the prevalence of oral leukoplakia was seen among 7.1% (37) of the total population. Of the 37 people diagnosed, homogeneous leukoplakia was seen in 22 (59.5%)workers, while non-homogeneous leukoplakia was seen among 15 (40.5%) workers with buccal mucosa (18, 48.7%) as the most frequent site for occurrence of leukoplakia.

**CONCLUSION:** Public health education programs are advised among the small scale workers of Panchkula district so as to prevent the high occurrence of leukoplakia and other tobacco related lesions among them.

**KEYWORDS:** Leukoplakia, Prevalence, Small scale workers, Tobacco.

## INTRODUCTION

The prevalence of oral cancers in India is on the rise and is considered as one of the major Public Health concerns across the globe.<sup>1</sup> One of the main risk factors for the development oral mucosal lesions including oral pre-cancer and cancer is tobacco use which is quite prevalent in the south Asian subcontinent.<sup>2,3</sup>

An alarming fact is that among all cancers, the Oral cancer prevalence in western countries is about 3-5%, its prevalence in India is about 30% and this could be attributed to easy availability and an increase in consumption of tobacco and its products among the younger generation.<sup>4</sup>

The commonest oral precancerous lesions are: oral leukoplakia, erythroplakia, nicotina palati and oral sub mucous fibrosis (OSF).<sup>5</sup>

Leukoplakia is seen as whitish, non scrappable patch in oral cavity commonly found on buccal mucosa, gingiva and tongue with prevalence rates ranging from 0.5-5.2% in India. <sup>6</sup>

Oral cancer harms one's quality of life and can often lead to death. Since oral leukoplakia is a precancerous lesion that has overall 3.5% potential of malignant transformation,<sup>7</sup> the present study was conducted to assess the prevalence of leukoplakia among small scale factory workers of district Panchkula, Haryana, India.

## MATERIALS AND METHOD

A descriptive, cross-sectional study to assess the prevalence of Oral Leukoplakia (homogeneous and non-homogeneous) was

carried among 522 small scale factory workers in district Panchkula, Haryana, India through convenience sampling. The study was conducted from 20th March 2016 to 31st July, 2016. After obtaining an ethical clearance, prior consent was taken from the owners of these small scale industries. A written, informed consent in Hindi (the preferred language of the state) was taken from the workers after explaining them about the aims and objectives of the study.

The diagnosis of presence of oral leukoplakia was evaluated and documented by the two examiners, who were duly calibrated by a gold standard examiner using ADA type III examination during the day. Lesions were recorded using the WHO standard recording form for oral mucosal diseases with clinical diagnosis based on the criteria as provided by the WHO<sup>8</sup> and modified by Axell<sup>9</sup> and including the clinical distinction between homogeneous and non-homogeneous types of leukoplakia. Data was entered into Microsoft excel and descriptive statistics were applied.

## RESULTS

The demographic profiles of the study population is described in table 1. The study subjects had a majority of male population (73.9%) as compared to females (26.1%). The mean age was reported as  $56 \pm 5.2$ , and the prevalence of oral leukoplakia was seen among 7.1% (37) of the total population.

The main two types of leukoplakic lesions were homogenous and non-homogeneous. It was observed that of the 37 people diagnosed, homogeneous type of lesion was seen in 22 (59.5%) workers, while non-homogeneous leukoplakia was seen among 15 (40.5%) workers. (Figure. 1)

Table 2. Depicts the distribution of the intraoral locations of leukoplakia. It was highlighted that the most frequent location for leukoplakia was the buccal mucosa (18,

48.7%), followed by the commissures (5, 13.5%), labial mucosa (4, 10.8%) and tongue (3, 8.1%).

## DISCUSSION

The present study documents the prevalence of leukoplakia among small scale factory workers in Panchkula as 7.1%. This prevalence is in agreement to Patil PB et al. (8.2%)<sup>3</sup> and Bhowate et al.(11.5%),<sup>10</sup> but in contradiction to Bratic B et al.(2.2%),<sup>11</sup> KM Lay et al.(.03%)<sup>12</sup> and Hogewind et al(1.4%).<sup>13</sup> Such differences could be attributed to differences in demographic patterns, cultural beliefs and differences in patterns of tobacco consumption among different people.

The findings of the present study that homogeneous leukoplakia is more common than non-homogeneous version is in agreement to various authors.<sup>11,13-15</sup> It is of common belief among the scientific community that non-homogeneous leukoplakias are considered to carry a considerably higher risk for malignant transformation as compared to homogeneous leukoplakia.

The involvement of buccal mucosa as the most common site for leukoplakia is in agreement with various authors.<sup>3,16,17</sup> This shows and confirms to a generalized pattern of leukoplakia affected sites.

The mean age of the study population was  $56 \pm 5.2$  and was supported by Axel T et al.<sup>18</sup> and Bouquot J et al.<sup>19</sup> that oral leukoplakia is more commonly seen in men over 40 years of age. However, Kumar YS documents 44% prevalence of potentially malignant disorders in their study subjects aged less than 40 years and this shows an increase in the prevalence of oral lesions among the younger generation.<sup>20</sup>

This study is prone to limitations, namely pertaining to the small sample size of the study population however, the nature of the

study in itself was exploratory and provides data for further studies among small scale factory workers of Panchkula District, Haryana, India.

## CONCLUSION

The high prevalence of oral leukoplakia lesions indicates the need for further studies and provision of oral health motivation and tobacco cessation programs to small scale workers of district Panchkula, Haryana, India to reduce the burden of tobacco and its associated conditions.

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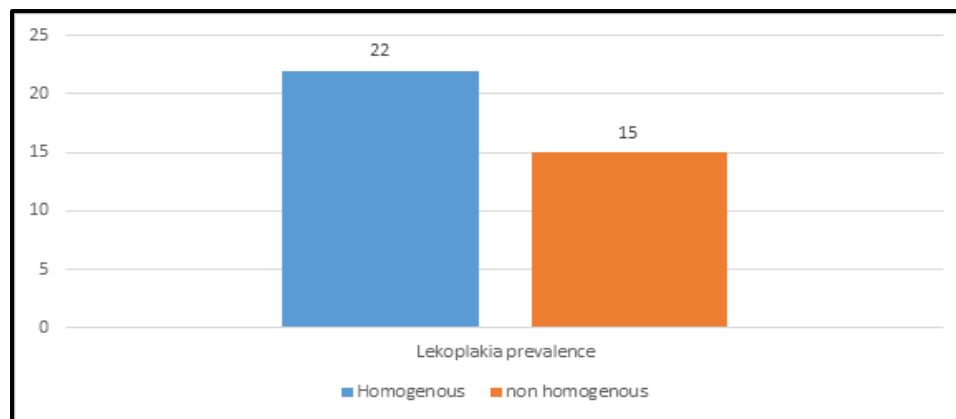
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## LEGENDS

Characteristic	Males	Females	Total
Gender	386(73.9%)	136(26.1%)	522
Mean age	59±6.4	49±9.7	56±5.2
Appearance of leukoplakia	<b>Normal appearance</b>	<b>Leukoplakia</b>	<b>Total</b>
	485(92.9%)	37(7.1%)	522

**Table 1.** Demographic profile of the study population



**Figure 1.** Occurrence of leukoplakia among the study subjects

<b>Characteristic</b>	<b>n</b>	<b>%</b>
Buccal mucosa	18	48.7
Commisure	5	13.5
Tongue	3	8.1
Vermillion border	2	5.4
Labial Mucosa	4	10.8
Alveolar ridge	1	2.7
Floor of the mouth	4	10.8
<b>Total</b>	<b>37</b>	<b>100</b>

**Table 2.** Distribution of lesions associated with oral leukoplakia according to site among the study subjects.