

## Prevalence Of Homogenous And Non Homogenous Leukoplakia In A Private Dental Hospital

Research Article

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## Abstract

Leukoplakia is thickened, white patches inside the mouth, mostly non-cancerous premalignant lesions. It is classified in two main types: Homogenous and Non homogenous types. Homogenous leukoplakia may be a uniform white area, flat appearance and texture although there could also be superficial irregularities. Non homogenous leukoplakia has non uniform appearance, surface texture is irregular-flat, nodular or exophytic. The aim is to find the prevalence of homogenous and non homogenous leukoplakia in patients visiting Saveetha dental college and hospitals. It is a retrospective study. We reviewed patient records and analysed the info of 86000 patients between June 2019 and March 2020. The results were analysed using chi-square test. The statistical software used is SPSS by IBM. In total 96 cases were confirmed. Prevalence was found to be 0.23% and was more common in males than in females. Leukoplakia was more prevalent within the age group between 40-80 years. Homogenous type is more prevalent than non homogenous type. Within the bounds of study it is concluded that leukoplakia features a prevalence of 0.23% and it most ordinarily affects men older than 40 years. Homogenous type is more prevalent than non homogenous type.

**Keywords:** Leukoplakia; Homogenous; Non Homogenous; Prevalence; Pre Malignant Lesion.

## Introduction

Leukoplakia is thickened, white patches inside the mouth, mostly non cancerous premalignant lesion [4]. The patches cannot be scraped off. The World Health Organization (WHO) defined leukoplakia as "A predominantly white patch or plaque that can't be characterized clinically or pathologically as the other disorder.

Leukoplakia may be a descriptive term that ought to only be applied after other possible causes are ruled out [23, 32]. Tissue biopsy generally shows increased keratin build up with or without abnormal cells, but isn't diagnostic [6, 33]. In recent years there has been development of varied lesions, developmental anomalies and various malignancies [7]. Other conditions which will appear similar include yeast infections, lichen planus, and keratosis due to repeated minor [28, 33]. The lesions from a yeast infection can

typically be rubbed off while those of leukoplakia cannot [23].

## Classification

Oral Leukoplakia is classified in two main types: homogeneous type which appears as a flat white lesion and non-homogeneous type [34].

## Homogenous leukoplakia

Homogenous leukoplakia (also termed "thick leukoplakia") is typically well defined white patch of uniform, flat appearance and texture, although there could also be superficial irregularities [4, 20]. Homogenous leukoplakia is typically slightly elevated compared to surrounding mucosa, and sometimes features a fissured, wrinkled or corrugated surface texture, with the feel gener-

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ally consistent throughout the entire lesion [4, 27]. This term has no implications on the dimensions of the lesion, which can be localized or extensive [4, 35]. When homogenous leukoplakia is palpated, it's going to feel leathery, dry, or like cracked mud.

### Non-homogenous leukoplakia

Non-homogenous leukoplakia may be a lesion of non-uniform appearance. the colour could also be predominantly white or a mixed white and red. The surface texture is irregular compared to homogenous leukoplakia, and should be flat (papular), nodular [26, 16]. Non-homogeneous leukoplakias have a greater risk of cancerous changes than homogeneous leukoplakias [16].

### Etiology

The exact underlying explanation for leukoplakia is essentially unknown, but it's likely multifactorial, with the most factor being the utilization of tobacco [23, 31, 24, 35]. Other risk factors for formation inside the mouth include smoking, excessive alcohol, and use of betel nuts [33, 5]. It's far more common among smokers than among non-smokers [34].

### Signs and symptoms

Most cases of leukoplakia cause no symptoms, but infrequently there could also be discomfort or pain [4, 25]. The precise appearance of the lesion is variable. Leukoplakia could also be white, whitish yellow or green [17]. The dimensions can range from a little area to much larger lesions [2]. The foremost common sites affected are the buccal mucosa, the labial mucosa and therefore the alveolar mucosa, although any mucosal surface within the mouth could also be involved [4, 8, 6, 25]. The clinical appearance, including the surface texture and color, could also be homogenous or nonhomogeneous. Some signs are generally related to a better risk of cancerous changes.

### Treatment planning

At the primary , the ceasing of the risk activities like smoking is suggested. Further, the histopathological evaluation is required . The degree of dysplasia will guide the selection of the treatment. The surgical procedure can use conventional surgery or laser ablation, electrocauterization, or cryosurgery [17, 29]. The medical treatment uses local and systemic chemopreventive agents like

vitamin A , systemic beta carotene, lycopene , ketorolac , local bleomycin [17, 21]. Another possible choice is an attitude of "wait and see" to keep oral leukoplakia under clinical and histological surveillance with frequent visits and biopsies without other treatment. This follow-up can observe an early malignant transformation and subsequent specific treatment [17, 7, 22, 6, 18]. This study throws in some light that focuses to find out the prevalence of leukoplakia among south Indian population – a primary step in understanding the disorder. Thus the aim of the study is to analyse the prevalence of homogenous and non homogenous leukoplakia in patients visiting Saveetha Dental College.

### Materials and Methods

The study was administered in an institutional setting with the advantage being an outsized data availability and therefore the disadvantages being assessment of patients belonging to an identical geographic location. The ethical approval was provided by the Institutional ethical committee. The study included all the patients visiting Saveetha Dental College and hospitals (SDC) from June 2019-February 2020. Patients with clinically diagnosed leukoplakia were filtered and demographics of the info were studied. The collected data was subjected to photographic-cross verification.

Inclusion criteria was patients with clinically diagnosed leukoplakia. Cases which didn't fall into this inclusion criteria were excluded from the study. The study was supported non probability convenience sampling. To minimise the sampling bias, all the case sheets of patients with clinically diagnosed leukoplakia were reviewed and included.

We reviewed patient records and analysed the info of 86000 patients between June 2019 and March 2020. The data collected was statistically analysed using SPSS version 20.0. Descriptive statistics and chi square tests were performed and graphs were plotted to reach final results.

### Results And Discussion

The prevalence of leukoplakia varies round the world, but generally speaking it's not an uncommon condition [14]. Reported prevalence estimates range from less than 1% to more than 5% within the general population [30]. Leukoplakia is therefore the foremost common premalignant lesion that happens within the

**Figure 1. Bar graph depicting the prevalence of leukoplakia among male and female. X-axis shows the status of leukoplakia and Y-axis shows the number of patients in both genders. Blue bar represents male patients and green bar represents female patients. It shows that leukoplakia is more prevalent in males (95.79%).**

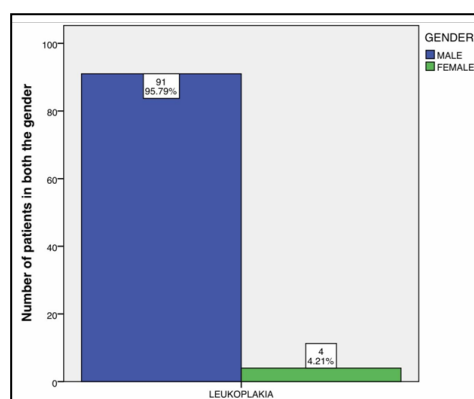


Figure 2. Bar graph depicting the Prevalence of leukoplakia among age groups. X-axis shows the status of leukoplakia and Y-axis shows the number of patients in the age groups. Blue bar are patients of age group 0-40 years and green bar are patients of age group 41-80 years. It shows that leukoplakia is more prevalent in patients of age group 41-80 years (74.74%).

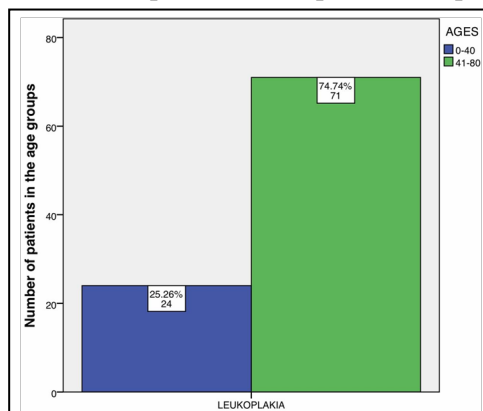


Figure 3. Bar chart depicting the prevalence of leukoplakia in patients visiting private dental hospital in 1 year. X axis represents the presence of leukoplakia in patients and Y axis represents the number of patients visiting private dental hospital in one year's time. White bar represents leukoplakia present in patients and the brown bar represents leukoplakia absent in patients. It shows that the prevalence of leukoplakia is 0.23%.

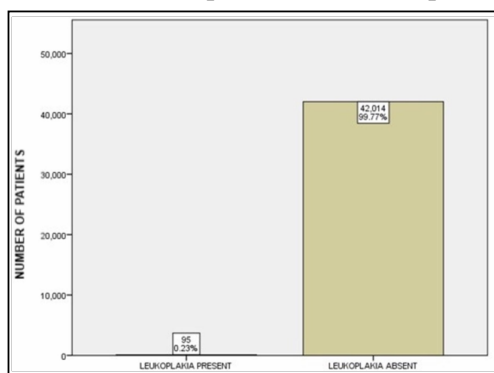
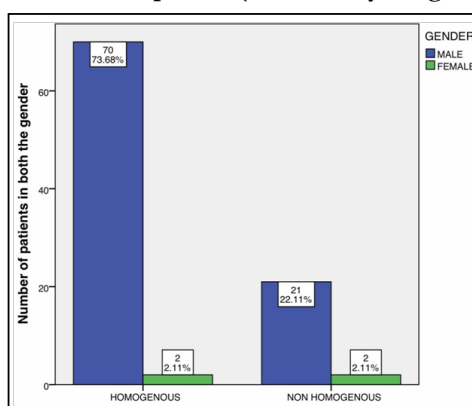


Figure 4. Bar graph depicting the association between gender and prevalence of homogenous and non homogenous leukoplakia in male and female. X-axis shows the types of leukoplakia - homogenous and nonhomogeneous and Y-axis shows the number of patients in both genders. Blue bar represents male patients and green bar represents female patients. It shows that both homogenous (73.68%) and nonhomogeneous (22.11%) leukoplakia are more prevalent in males. Association between homogenous and non homogenous leukoplakia among males and females and chi square test was done with p value 0.219, where  $p > 0.05$  (statistically insignificant).

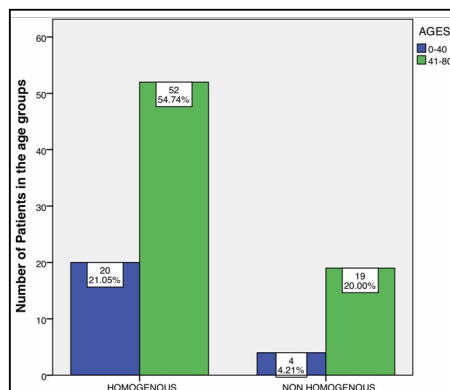


mouth [11]. In areas of the world where smokeless tobacco use is common, there's a higher prevalence [13]. within the year 1992, Gupta et al. found a good range of leukoplakia prevalence in various populations. In India, leukoplakia was found in 0.2% and 4.9% of the population [12]. Bánóczy 1983 found that the adult population prevalence varied between 0.6% and 3.6% [1]. Martorell-Calatayud et al. found the prevalence of Oral leukoplakia ranges from 0.4% to 0.7% of the population [19]. [11] Feller and Lemmer estimated the prevalence of Oral leukoplakia ranged

from 0.5% to 3.46%, %. Brouns et al. found the prevalence of Oral Leukoplakia is approximately 2% [3]. The present study shows the prevalence rate of 0.23%. There are multiple various prevalence rate across the world as there are conditions which can have certain changes with the changing geographic location and race/ethnicity. This might have been due to the definitive diagnostic criteria getting used within the other studies.

Bánóczy revealed the prevalence of leukoplakia within the age-

**Figure 5.** Bar chart depicting the association between age and prevalence among homogenous and non homogenous leukoplakia in male and female. X-axis shows the types of leukoplakia - homogeneous and nonhomogeneous and Y-axis shows the number of patients in the age groups. Blue bars are patients of age group 0-40 and green bars are patients of age group 41-80. It shows that both homogenous (54.74%) and non homogenous leukoplakia (20%) are more prevalent in patients of age group 41-80 years. Association between age and prevalence among homogenous and non-homogenous leukoplakia in males and females was done using chi square test, p value 0.318, where  $p > 0.05$  (statistically insignificant).



group of 51-60 years [1]. Espinoza 2003 reported the higher prevalence after 50 years aged [10]. Liu et al. conducted study on 218 patients and he found that peak incidence was the fifth decade of life [15]. All the results being almost like the results of this study.

Bánóczy revealed the prevalence of leukoplakia more in males than in females [1]. Espinoza 2003 reported the higher prevalence present in men [10]. Downer and Petti found leukoplakia to be significantly more prevalent in males [9]. All the results being almost like the results of this study.

Brouns et al. 2013 during a study found that homogeneous leukoplakia was more prevalent than non-homogeneous leukoplakia [3]. The result's almost like the results of this study. Since homogeneous leukoplakia are multifactorial the higher incidence of it occurring becomes difficult to be explained. It might be due to variation within the availability of tobacco products, consumption of tobacco with or without calcium hydroxide, duration and frequency of tobacco products combined with alcohol usage within the Indian population [1].

This study wasn't free from all limitations-it had its share of limitations. The criteria (inclusion and exclusion) were termed accordingly and no standardisation criteria was used. The results obtained were highly subjective. No information regarding the other systemic factors and factors not included within the exclusion and exclusion criteria was considered within the research. due to this, few patients who might suffer from leukoplakia could have been excluded.

## Conclusion

Within the limits of present study, it can be concluded that leukoplakia most commonly affects men older than 40 years and has a prevalence of 0.23%. Homogenous type is more common than non-homogenous type of leukoplakia. Further studies should be done with a large sample size and should focus on other factors such as medication intake, nutritional status as a next step. The patient should be made aware of this condition which will help in early diagnosis thus we can improve the quality of life of patients and create a better society.

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