

## Prevalence of Burning Mouth Syndrome(Bms) in Patients Visiting a Private Dental College in Chennai

Research Article

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## Abstract

Burning mouth syndrome can be defined as a complex disorder that is characterised by persistent burning sensation in the oral mucosa in the absence of any objective signs. The aim of the study is to analyse the prevalence of burning mouth syndrome in patients visiting a private dental college in Chennai. A retrospective study was done using the case records of patients visiting the dental hospital from June 2019 - December 2019. Case sheets containing information on burning mouth syndrome were retrieved and analysed. In total, 9 cases were confirmed. Prevalence was found to be 0.02% and more common in females than in males. In males, the most common age group was 41-50 years whereas in females the most common age group was 51-60 years. However, there was no statistically significant ( $p>0.05$ ) association between presence of burning mouth syndrome and age or gender. Within the limits of the study, it can be concluded that burning mouth syndrome has a prevalence of 0.02% and is most commonly seen in women older than 50 years.

**Keywords:** Burning; Burning Mouth Syndrome; Prevalence Studies; Tongue.

## Introduction

Burning mouth syndrome can be defined as a complex disorder that is characterised by persistent burning sensation in the oral mucosa in the absence of any objective signs [1]. It can be characterised as chronic orofacial pain without any visible changes in the mucosa or presence of any lesions such as stomatodynia, glossodynia, neuropathic pain [2-4]. Burning mouth syndrome is found to be more prevalent in elderly women who are more prone to have hormonal imbalance. The condition is probably of multifactorial origin, [5-7] often idiopathic and a clear understanding about the exact etio-pathogenesis remains unclear [8, 9]. The most common sites which have been reported to be affected by burning mouth syndrome are the tongue, lips, hard palate and soft palate. The most common reported symptoms in addition to burning sensation are altered taste sensation and xerostomia or dry mouth [10].

As the etiopathogenesis of the disease remains unclear, there is

no definitive cure for the disease, all the medication and treatment options are only palliative and for symptomatic relief.

## Classification of burning mouth syndrome:

Different classification types of burning mouth syndrome have been proposed by numerous people based on different diagnostic criteria. Lamey and Lewis have suggested classifying burning mouth syndrome into 3 subtypes according to pain intensity [11].

- **Type I:** Pain free waking - burning sensation developing in late morning with severity gradually increasing during the day. This affects 35% of the patients.
- **Type II:** Type II consists of continuous symptoms throughout the day. 55% of the patients are affected by this type.
- **Type III:** This type is characterised by intermittent symptoms with pain free periods during the day. This type affects the least

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Received: July 30, 2021

Accepted: August 11, 2021

Published: August 18, 2021

**Citation:** Ilankizhai RJ, Manjari Chaudhary, Madhu Laxmi M. Prevalence of Burning Mouth Syndrome(Bms) in Patients Visiting a Private Dental College in Chennai. *Int J Dentistry Oral Sci.* 2021;8(8):4040-4044. doi: <http://dx.doi.org/10.19070/2377-8075-21000825>

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number, only 10 % of the population [12-14]. Scala et al classified burning mouth syndrome into two categories.

- **Primary** : Idiopathic - local or systemic causes cannot be identified.
- **Secondary** : This type results from local and systemic factors.

### Clinical features

It is extremely difficult to establish the true prevalence of Burning mouth syndrome as there are no definitive diagnostic criteria and poor awareness about the disease among oral health care professionals and dentists. The prevalence reported from various international studies ranges from 0.6- 15% [15]. Burning mouth syndrome most commonly affects middle aged and older women and the prevalence in such women increases upto 12-18% [12]. There have been no reported cases of burning mouth syndrome in children and adolescents [14]. Other epidemiological studies have reported a global prevalence of 0.5% [16].

The clinical features of burning mouth syndrome is highly variable and depends on each and every person thus making it extremely difficult to formulate a definite diagnostic criteria. The symptoms can mainly be burning or stinging sensation as well as tingling, numb feeling, altered sensation and metallic taste in the tongue. As mentioned earlier, the most common sites of the oral cavity affected would be the tongue, followed by anterior portion of hard palate and labial mucosa [1].

### Etiology

The complex clinical behaviour of burning mouth syndrome has made it difficult to trace the etiology and pathogenesis of the disease. Salivary gland dysfunction also plays an important role in burning mouth syndrome cases. Some of the possible theories would be a) Abnormal interaction between sensory functions of facial and trigeminal nerve(17) b) Disturbances in the autonomic innervation and oral blood flow(18) c) Chronic anxiety or stress results in hormonal imbalance [19].

### Diagnosis and treatment planning

Burning mouth syndrome is a challenging condition in terms of both diagnosis and management [20]. In general, in order to provide the best treatment possible [21, 22], these 3 approaches can be followed namely behavioural therapy, systemic medication and topical medication. Proper reassurance [23] and counselling regarding diet [24, 25] is of prime importance in treatment of burning mouth syndrome.

Burning mouth syndrome is a complex disorder making it difficult to diagnose as well as treat. A thorough understanding of its etiology and clinical features of the syndrome combined with better advancements in pharmacological interventions would help in better management of the syndrome [26, 27] This study throws on some light that focuses on determining the prevalence of burning mouth syndrome among the south Indian population - a first step in understanding the disorder. Thus, the aim of the study is to analyse the prevalence of burning mouth syndrome in patients visiting saveetha dental college. Previously our team has a rich experience in working on various research projects across multiple disciplines [28-42]. Now the growing trend in this area

motivated us to pursue this project.

### Materials and Methods

The study was carried out in an institutional setting with the advantage being a large data availability and the disadvantage being assessment of patients belonging to a similar geographic location. The study included all the patients visiting a private dental college in Chennai from June 2019- December 2019. Prior permission to use the data for the study was obtained from the Institutional Review Board of the University (SDC/SIHEC/2020/DIASDA-TA/0619-0320)

A total of 9 case sheets containing information on patients with symptoms of burning mouth syndrome were filtered and the demographics of the data studied. The collected data was subjected to photographic cross verification.

### Inclusion criteria

Patients with oral discomfort or burning sensation without any prominent dental cause or complaints with superficial pain in the tongue. No signs of anemia, no pain from eating. No pain on palpation of the tongue

### Exclusion criteria

Any nutritional deficiencies, any systemic disorder like diabetes mellitus. Allergies, autoimmune and Central nervous system disorders.

The data collected were statistically analysed using SPSS version 20.0. Descriptive statistics and chi-square tests were performed and graphs were plotted to arrive at a final result. A p value of less than 0.05 was considered to be statistically significant.

### Results & Discussion

Out of the total 40,000 patients who visited a private dental college in Chennai from June 2019- December 2019, 9 patients were reported to have burning mouth syndrome, thus the prevalence rate was found to be 0.02%. The mean age of the population was found to be 46.5 yrs as shown in table 1. Females were more commonly affected than males as shown in table 2.

In males, the most common age group was 41-50 years, whereas in females the most common age group was 51-60 years as shown in Graph 1 and Graph 2.

Graph 3 represents the distribution of different age groups among males and females having burning mouth syndrome. It can be reported that the disease more commonly occurs in females above 50 years , however there was no statistically significant (p value - 0.3 >0.05) association between presence of burning mouth syndrome and age or gender as determined by Pearson's chi square test.

Burning mouth syndrome is characterised by a burning sensation in the oral cavity although the oral mucosa is clinically normal. The complexity of the disorder has made it difficult to assess the prevalence and define the clinical features of the disorder. The

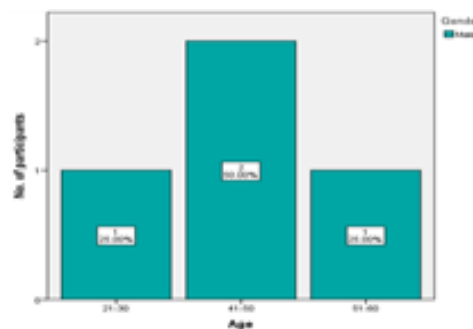
Table 1. The table represents the mean age of patients with maximum and minimum age. The mean age of the participants was 46.5 years with the minimum age being 26 yrs and maximum age being 69 years.

	N	Mini- mum	Maxi- mum	Mean	Standard deviation
Age	9	26	69	46.56	14.301
Valid N	9				

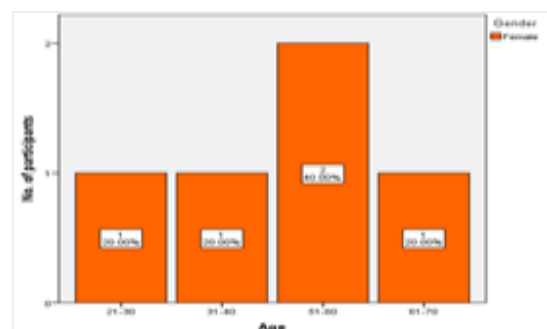
Table 2. The table represents the frequency distribution of males and females. Out of the 9 patients with burning mouth syndrome, 55.6% were females and 44.4% were males.

	Frequen- cy	Percent	Valid per- centage	Cumula- tive percent
Females	5	55.6	55.6	55.6
Males	4	44.4	44.4	44.4
Total	9	100	100	

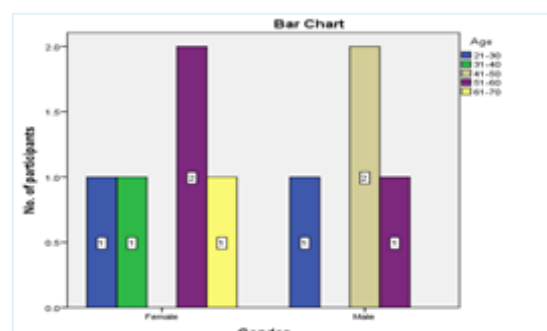
Graph 1: The proportional bar chart represents the different age groups among males. The X axis represents the different age groups and the Y axis represents the number of participants in each category. Majority of males with burning mouth syndrome fall in the age group of 41-50 years(50%).



Graph 2: The proportional bar chart represents the different age groups among females. The X axis represents the different age groups and the Y axis represents the number of participants in each category. Majority of females with burning mouth syndrome fall in the age group of 51-60 years (40%).



Graph 3: The proportional bar chart represents the distribution of different age groups among males and females having burning mouth syndrome. The X axis represents the gender and the Y axis represents the number of participants in each category; 21-30(blue); 31-40(green); 41-50(beige) 51-60(grape vine)and 61-70(yellow). Pearson's chi square association was done. [Pearson's chi-square value-4.2; p value-0.3(>0.05)]. Though burning mouth syndrome is more likely to occur in females in the age group 51-60 years and in males in the age group 41-50 years, no statistically significant association was seen between age, gender and the occurrence of the lesion.



lack of proper definitive diagnostic criteria has led to multiple various prevalence rates across the globe keeping aside the fact that any condition will have certain changes with the changing geographic location and with race and ethnicity.

Bergdahl et al., [16] reported that the prevalence is 0.5 % in the general population and prevalence in women ranged between 0.6% in the age group of 30-39 yrs to 12.2% in older women. Scala et al (13) reported the global prevalence to be around 0.7-4.6%. The present study shows a prevalence rate of 0.02% which is much lower than the previous studies. This might have been due to the definitive diagnostic criteria being used. The previous studies may have used a different diagnostic criteria with only subjective burning sensation as the inclusion criteria.

However Kohorst et al., [43] reported that burning mouth syndrome predominantly affected females above 50 years and it has a significantly low prevalence rate of 1 in 1000 patients, both of the results being similar to the results of our study.

This study was not free from all limitations; it had its share of limitations. The criteria (inclusion and exclusion) were formed accordingly and no standardised criterion was used. The results obtained were also highly subjective. No information regarding the other systemic factors and factors not included in the inclusion and exclusion criteria were considered in the research. Due to this, few patients who might have suffered from burning mouth syndrome could have been excluded. Our institution is passionate about high quality evidence based research and has excelled in various fields [44-54]. We hope this study adds to this rich legacy.

## Conclusion

Burning mouth syndrome, due to its complex nature has not been reported sufficiently and even the health care professionals, lack clear understanding and knowledge about the disorder. This study is the first step towards creating proper data regarding the demographics of the disorder and creating awareness among the patients as well as the health care professionals. The results show that burning mouth syndrome mostly affects women older than 50 years of age and has a prevalence of 0.02%. Further studies should be conducted with a larger sample size and should focus on other factors such as medication intake, nutritional status and effect of local and systemic disorders on this complex disorder as a next step.

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