

# Psychosocial Characteristics of Oromucosal Diseases in Psychiatric Patients: Observational Study from Indian Dental College

Suresh K V, Channamallappa C Ganiger<sup>1</sup>, Yusuf A R Ahammed<sup>1</sup>, Mounesh C D Kumar<sup>2</sup>, Pramod R C<sup>3</sup>, Ajay G Nayak, Nupura Vibhute<sup>3</sup>

Departments of Oral Medicine and Radiology, <sup>1</sup>Orthodontics and Dentofacial Orthopaedics, <sup>2</sup>Oral and Maxillofacial Surgery, <sup>3</sup>Oral Pathology and Microbiology, School of Dental Sciences, Krishna Institute of Medical Sciences, Deemed University, Karad, Satara, Maharashtra, India

## Abstract

**Background:** Psychiatric diseases like anxiety, depression, schizophrenia and bipolar disorders can affect the mental and physical statuses of an individual. **Aim:** The study was to investigate the different oromucosal diseases (OMD) in psychiatric patients and to evaluate the correlation between these OMD to severity of anxiety and depression. **Materials and Methods:** A cross-sectional study was carried out during a six-month period. Patients reporting to psychiatry department with anxiety, depression, schizophrenia and bipolar disorder as diagnosed by an experienced psychiatrist, were subjected to complete oral examination by a skilled oral diagnostician to check for OMD like oral lichen planus (OLP), aphthous stomatitis (AS) and burning mouth syndrome (BMS). During the above mentioned time interval, 1320 patients with any of the above mentioned psychiatric diseases were included in this study. Of these, 278 had anxiety, 398 had depression, 295 had schizophrenia and 349 had bipolar disorder. Equal number of individuals reported to the Oral Medicine and Radiology department for routine oral screening with no mucosal diseases were included as control group. **Results:** In this study, statistically significant increase in the OMD of the psychiatric patients was recorded when compared with the control group. The OMD were significantly higher in patients with anxiety (20.86%) followed by patients with depression (9.04%), schizophrenia (7.7%), bipolar disorder (7.4%) and control group (5.17%), respectively. Most prevalent OMD in patients with anxiety was AS (12%) followed by OLP (5.7%), and BMS (2.87%) respectively. Patients with moderate to severe anxiety and depression showed significantly higher prevalence of these OMD compared to the ones with mild anxiety and depression. The AS and OLP were significantly more in the younger age group (18-49 year) and BMS was higher in 50-77 year age group in both the study and control groups. **Conclusion:** A positive association was established between psychological alterations and OMD. Emotional alterations may act as a precipitating factor that could influence the initiation and development of different OMD. Hence, better harmonization is essential between dentist and psychiatrists for comprehensive management of psychosomatic disorders of the oral mucosa.

**Keywords:** Anxiety, Aphthous stomatitis, Burning mouth syndrome, Depression, Lichen planus, Psychosomatic diseases

**Address for correspondence:** Dr. Suresh K V, Department of Oral Medicine and Radiology, School of Dental Sciences, Krishna Institute of Medical Sciences, Deemed University, Karad, Satara - 415 110, Maharashtra, India. E-mail: dr.suri88@gmail.com

## Introduction

Psychosomatic disorders are characterized by physiological changes originating from emotional

factors. Psychologically, the oral cavity is related directly or symbolically to the major human instincts and passions. Psychosomatic disorders account for around 10% of the global burden of diseases, and it may rise up to 15% by 2020. [1] These diseases cause physical and pathological changes in the body, including the oral cavity. The oromucosal diseases (OMD) with psychosomatic etiology have long been identified in medicine but so far these psychosomatic etiologies have not been confirmed. The OMD may arise as a direct expression of emotions or indirect result of psychological alterations.[2,3] Emotional alterations can

### Access this article online

Quick Response Code:



Website:

www.najms.org

DOI:

10.4103/1947-2714.145471

disturb hormonal, vascular and muscular functions, which may result in physiologic changes causing pain, burning sensation, ulcerations and decreased salivation. Although a wide spectrum of psychiatric disorders affects the orofacial region, unfortunately they are often unrecognized because of the common and limited nature of their presenting features.<sup>[4-6]</sup> The occurrence of these OMD in psychiatric patients has not been evaluated so far, and hence in this study an attempt was made to investigate the basic data on the prevalence of OMD and their distribution among people of different ages and sex.

## Materials and Methods

The present cross-sectional study was conducted at the Department of Psychiatry and Department of Oral Medicine & Radiology over a period of six months. Patients reporting to the psychiatry department for the first time and those diagnosed with anxiety, depression, bipolar disorders and schizophrenia by a senior psychiatrist were subjected to complete oral examination by a skilled oral diagnostician. A total of 1320 patients who met all the criteria were considered as study group. Similar number of individuals reported to Department of Oral Medicine and Radiology for routine oral screening with no known psychiatric disease were included as control group.

Subjects with any systemic diseases, those using tobacco and patients under treatment with psychoactive drugs were excluded from this study. Ethical clearance was obtained from the institutional ethical committee. Informed written consent was taken from all the enrolled patients.

Subjects were divided according to age as young and middle groups (18-49 years) and an older group (50-77 years). The clinical examination of the oral cavity was performed following the World Health Organization (WHO) guidelines, under artificial illumination on a dental chair, using diagnostic instruments to check for OMD.

The clinical diagnosis of the oral lichen planus (OLP) was established by the presence of a bilaterally symmetrical, lacelike gray-white, radiating reticular, annular, plaque-type lesions present at the time of the examination. Clinically diagnosed OLP were subjected to histopathological examination for confirmation.

The diagnosis of aphthous stomatitis (AS) was based on the patient's history and clinical findings. Patients reporting recurrent episodes of round or ovoid ulcers surrounded by erythematous halo and each episode of ulceration lasting for a few days to weeks were considered in this study. The ulcers had to be present at the time of the clinical examination.

Burning mouth syndrome (BMS) was recognized when oral burning or pain was present in the absence of detectable mucosal changes at the time of clinical examination.

## Results

Of the 1320 patients who were selected as study group, 278 were patients with anxiety, 398 were patients with depression, 295 patients were having schizophrenia and 349 patients were reported with bipolar disorder. Out of 278 anxiety patients, 58 patients (20.86%) were having oromucosal lesions. The AS, OLP and BMS like lesions were present in 36 out of 398 patients with depression (9.04%). In the schizophrenia group, 23 out of 295 patients, (7.7%) had been diagnosed with OMD. Out of 349 bipolar disorder patients, 26 people (7.4%) had OMD. Total of 5.17% of the control group also had OMD. There was a significant increase in OMD in psychiatric patients compared with the control group.

Comparison of OMD in all groups using Chi square test revealed statistically significant ( $P < 0.05$ ) results between psychiatric patients and control group. Patients with anxiety had higher OMD than patients with depression, bipolar disorder, schizophrenia and the control group. [Table 1].

### Prevalence of OMD in different group

In patients with anxiety, the prevalence of AS was 12%, OLP was 5.7% and BMS was 2.87%. While in patients with depression, the prevalence of AS was 4.02%, OLP was 2.01% and BMS was 3.01% whereas in schizophrenia patients, the prevalence of AS was 3%, OLP was 2.7% and BMS was 2%. In bipolar disorder patients, the prevalence of AS was 3.1%, OLP was 2.2% and BMS was 2%. In control group, the prevalence was 2.2%, 1.33% and 1.62% in AS, OLP and BMS, respectively [Table 2].

### Distribution of OMD depending on severity of anxiety and depression

Patients with moderate to severe anxiety and depression had significantly higher OMD than patients with mild anxiety and depression [Table 3].

### Age and gender distribution of OMD

In all the groups, OMD were significantly higher in female patients. The AS and OLP were significant in the younger age group 18-49 years, and BMS was seen in the older age group (50-77 years) [Tables 4 and 5].

Apart from these three oral diseases, majority of the psychiatric patients also showed other OMD like chronic periodontal diseases, herpes labialis, geographic tongue,

**Table 1: Distribution and comparison of OMD among different groups by using Chi square test**

Groups	Total number of patients (n)	Total patients with oral lesions	(%) of patients with oral lesions	P value	P value
Anxiety	278	58	20.86	P < 0.05	HS
Depression	398	36	9.04		
Schizophrenia	295	23	7.7		
Bipolar disorder	349	26	7.4		
Control group	1320	68	5.17		

HS = highly significant, P &lt; 0.05

**Table 2: Prevalence of OMD among different groups**

OMD	Anxiety (N = 278) (%)	Depression (N = 398) (%)	Schizophrenia (N = 295) (%)	Bipolar disorder (N = 349) (%)	Control group (N = 1329) (%)
AS	12	4.02	3	3.1	2.2
OLP	5.7	2.01	2.7	2.2	1.33
BMS	2.87	3.01	2	2	1.62

**Table 3: Distribution of OMD depending on severity of anxiety and depression**

OMD	Anxiety			Depression		
	Mild (%)	Moderate (%)	Severe (%)	Mild (%)	Moderate (%)	Severe (%)
AS	8 (23.5)	14 (41.1)	12 (35.2)	3 (18.7)	7 (43.7)	6 (37.5)
OLP	2 (12.5)	6 (37.5)	8 (50)	1 (12.5)	3 (37.5)	4 (50)
BMS	0 (0)	2 (25)	6 (75)	1 (8.3)	4 (33.3)	7 (58.3)

**Table 4: Gender-wise distribution of OMD**

OMD	Anxiety		Depression		Schizophrenia		Bipolar disorder		Controls	
	M (%)	F (%)	M (%)	F (%)	M (%)	F (%)	M (%)	F (%)	M (%)	F (%)
AS	14 (41.1)	20 (58.8)	7 (43.5)	9 (56.5)	3 (33.3)	6 (66.6)	5 (44.5)	6 (54.5)	12 (41.3)	17 (58.7)
OLP	4 (25)	12 (75)	3 (37.5)	5 (62.5)	3 (37.5)	5 (62.5)	4 (50)	4 (50)	8 (44.4)	10 (55.5)
BMS	2 (25)	6 (75)	4 (33.3)	8 (66.6)	3 (50)	3 (50)	4 (57.1)	3 (42.8)	8 (38.1)	13 (61.9)

**Table 5: Age-wise distribution different OMD**

OMD	Anxiety		Depression		Schizophrenia		Bipolar disorder		Controls	
	18-49 years (%)	50-77 years (%)	18-49 years (%)	50-77 years (%)	18-49 years (%)	50-77 years (%)	18-49 years (%)	50-77 years (%)	18-49 years (%)	50-77 years (%)
	AS	27 (79.4)	7 (20.5)	13 (81.2)	11 (73.3)	7 (77.7)	2 (22.3)	8 (72.7)	3 (27.3)	24 (82.7)
OLP	13 (81.2)	3 (18.7)	5 (62.5)	6 (66.6)	3 (37.5)	5 (62.5)	3 (37.5)	5 (62.5)	12 (66.6)	6 (33.3)
BMS	3 (37.5)	5 (62.5)	5 (41.6)	4 (36.3)	2 (33.3)	4 (66.7)	3 (42.8)	4 (51.2)	5 (23.8)	16 (76.0)

fissured tongue, dysgeusia, oral dyskinesia, angular cheilitis, lip or cheek bite and necrotizing ulcerative gingivostomatitis in order of decreasing prevalence.

## Discussion

Oral psychosomatic diseases occur in response to several biochemical disorders involving neurotransmitters in the brain, incomplete connections between oral region and undefined complaints due to cognitive

processes in higher centers of the brain. Several studies have attempted to elucidate the possible role of psychological state, emotional instability and personality modulation in precipitation of various OMD like AS, OLP and BMS, but no study has explored the prevalence of OMD in psychiatric conditions like anxiety, depression, schizophrenia and bipolar disorder.<sup>[2,4]</sup> It is proposed that psychological disturbances procreate the development and worsening of the oral diseases. Psychological alterations establish its impact on body by

the multidirectional and close interrelations among the nervous, immune and endocrine system.<sup>[4,5]</sup>

It has been noted that OMD frequently undergo periods of remissions and exacerbations that often clearly relate to the patients emotional status.<sup>[4]</sup> Since the oral mucosa is extremely complex and highly reactive to psychological influences, oral symptoms are the common psychosomatic manifestations.<sup>[7]</sup> Many studies have evaluated the prevalence of different OMD in general population. Few researchers have evaluated the stress, anxiety and depression levels in patients suffering from oral diseases. They concluded that significantly higher stress, anxiety and depression levels were found in the AS, BMS and OLP patients when compared to control groups.<sup>[3,5,8,9]</sup>

Dangore-Khasbage *et al.* evaluated the prevalence of AS, BMS, and OLP in institutionalized and non-institutionalized psychiatric patients and found that the prevalence of AS, BMS, and OLP was 19.33%, 20.66% and 5.3%, respectively, in all psychiatric patients.<sup>[1]</sup> In the present study prevalence rate was lesser because we considered only new psychiatric patients who were not under any previous medication. Shah *et al.* reported that the high prevalence of AS, BMS and OLP in psychiatric patients, can be attributed to the increased psychological stress that modifies immunological functions.<sup>[10]</sup> Psychological investigations have reported that the oral mucosa is a complex and vulnerable region that is very reactive to certain psychological influences. Hence, on the basis of the available literature, the reasons for increased prevalence of AS, BMS and OLP in psychiatric patients may be multiple and involve the interaction of biological and psychological systems.<sup>[7]</sup>

McCartan *et al.* conducted comprehensive reviews of OLP in the period 1980-2007. An overall age-standardized prevalence of 1.27% (0.96% in men and 1.57% in women) was calculated from their study.<sup>[11]</sup>

A more recent Indian study by Saraswathi *et al* reported a prevalence of 0.15% for OLP.<sup>[12]</sup> Another survey by Mathew *et al.* reported a prevalence of 1.2% in South Indian population.<sup>[9]</sup> Many previous studies reported prevalence of 1 to 2% in general population.<sup>[6,8]</sup> However the prevalence rate of OLP in our study was found to be higher than reported by the above mentioned studies. In the present study, the prevalence of AS was 12% in anxiety group, 4.02% in depression group, 3%, in schizophrenia group, 3.1%, in bipolar disorder patients and 2.2% in control group thereby suggesting a higher prevalence rate than that reported in the previous studies by Mathew *et al.* (2.01%),<sup>[9]</sup> Rivera-Hidalgo *et al.* (0.89%)<sup>[13]</sup> and Chattopadhyay.<sup>[14]</sup>

In regard to AS, prevalence rate observed in the present study was lower than that reported by most of the previous studies. The occurrence of AS in general population ranges between 5% and 20%.<sup>[6]</sup> A latest survey by Davatchi *et al.* in Tehran revealed a prevalence rate of 25.2%.<sup>[15]</sup> Szponar *et al.* in their 10-year retrospective observations reported a prevalence of 7.6%.<sup>[16]</sup>

A most recent survey of the Jordanian population reported a prevalence of about 78%.<sup>[17]</sup>

The severity and frequency of the episodes vary on a case-by-case basis; however, it usually decreases with age. Many epidemiologic studies and our own observations confirmed the higher incidence of AS in people with higher psychological alterations.

The prevalence rate of BMS observed in the present study was higher than 0.7% as reported by Lipton and Ship.<sup>[18]</sup> Bergdahl and Anneroth 0.8%.<sup>[19]</sup> Baharvand *et al.* 1.3%.<sup>[20]</sup> but researchers like Basker and Hakeberg 4.6%,<sup>[21]</sup> Bergdahl and Bergdahl, 3.7%.<sup>[22]</sup> and Femiano *et al.*, 13%.<sup>[23]</sup> have reported a higher prevalence rate.

Prevalence of BMS in menopausal women were 22.7% and 4.8% in non-menopausal women.<sup>[24]</sup> which is relatively high and in accordance with Bergdahl and Bergdahl, Hackerberg *et al.*, Savage *et al.*,<sup>[25]</sup> and Scala *et al.*<sup>[26]</sup>

The lower prevalence of BMS in this study may be attributed to the wide range of age of the patients in both sexes. When BMS was identified only on the basis of a prolonged burning sensation of the oral mucosa, a prevalence rate of 14.8% was estimated.<sup>[27]</sup> However, when diagnosis was arrived at by the use of more correct criteria, BMS prevalence fell to 0.8%.<sup>[19]</sup> In the present study psychological component in BMS has been identified. This is supported by studies that report greater levels of depression and anxiety in patients with BMS compared to control groups.

## Conclusion

Oral health is of great importance for psychiatric patients given their propensity to neglect it. It is the responsibility of the dentist to effectively provide adequate dental treatment for people with psychiatric disabilities. The results of the present study provide information on the distribution of OMD in psychiatric and general population. Oral lesions are detected more often in psychiatric patients than the healthy individuals with a sound mind. In addition to this fact a dental professional should also consider the possibility of psychosomatic factor in case of AS, OLP and BMS and appropriate referral should be accordingly considered.

## References

- Dangore-Khasbage S, Khairkar PH, Degwekar SS, Bhowate RR, Bhake AS, Singh A, *et al.* Prevalence of oral mucosal disorders in institutionalized and non-institutionalized psychiatric patients: A study from AVBR Hospital in central India. *J Oral Sci* 2012;54:85-91.
- Soto Araya M, Rojas Alcayaga G, Esguep A. Association between psychological disorders and the presence of Oral lichen planus, Burning mouth syndrome and Recurrent aphthous stomatitis. *Med Oral* 2004;9:1-7.
- Valter K, Boras VV, Buljan D, Juras DV, Susić M, Pandurić DG, *et al.* The influence of psychological state on oral lichen planus. *Acta Clin Croat* 2013;52:145-9.
- Maheshwari TN, Gnanasundaram N. Stress related oral diseases-a research study. *Int J Pharm Bio Sci* 2010;1:1-10.
- Schiavone V, Adamo D, Ventrella G, Morlino M, De Notaris EB, Ravel MG, *et al.* Anxiety, depression, and pain in burning mouth syndrome: First chicken or egg? *Headache* 2012;52:1019-25.
- Scully C, Porter S. Oral mucosal disease: Recurrent aphthous stomatitis. *Br J Oral Maxillofac Surg* 2008;46:198-206.
- Richter I, Vidas I, Turfiinovi P. Relationship of psychological characteristics and oral diseases with possible psychosomatic aetiology. *Acta Stomat Croat* 2003;35-9.
- Gallo Cde B, Mimura MA, Sugaya NN. Psychological stress and recurrent aphthous stomatitis. *Clinics (Sao Paulo)* 2009;64:645-8.
- Mathew AL, Pai KM, Sholapurkar AA, Vengal M. The prevalence of oral mucosal lesions in patients visiting a dental school in southern India. *Indian J Dent Res* 2008;19:99-103.
- Shah B, Ashok L, Sujatha GP. Evaluation of salivary cortisol and psychological factors in patients with oral lichen planus. *Indian J Dent Res* 2009;20:288-92.
- McCartan BE, Healy CM. The reported prevalence of oral lichen planus: A review and critique. *J Oral Pathol Med* 2008;37:447-53.
- Saraswathi TR, Ranganathan K, Shanmugam S, Sowmya R, Narasimhan PD, Gunaseelan R. Prevalence of oral lesions in relation to habits: Cross-sectional study in South India. *Indian J Dent Res* 2006;17:121-5.
- Rivera-Hidalgo F, Shulman JD, Beach MM. The association of tobacco and other factors with recurrent aphthous stomatitis in an US adult population. *Oral Dis* 2004;10:335-45.
- Chattopadhyay A, Chatterjee S. Risk indicators for recurrent aphthous ulcers among adults in the US. *Community Dent Oral Epidemiol* 2007;35:152-9.
- Davatchi F, Tehrani-Banihashemi A, Jamshidi AR, Chams-Davatchi C, Gholami J, Moradi M, *et al.* The prevalence of oral aphthosis in a normal population in Iran: A WHO-ILAR COPCORD study. *Arch Iran Med* 2008;11:207-9.
- Szponar E, Ślebioda Z, Mania-Końsko A. Recurrent aphthous stomatitis in patients attending the Department of Oral Mucosa Diseases of Poznań Medical University on the basis of 10 years observation. *Czas Stomatol* 2006;61:488-94.
- Safadi RA. Prevalence of recurrent aphthous ulceration in Jordanian dental patients. *BMC Oral Health* 2009;9:31.
- Lipton JA, Ship JA, Larach-Robinson D. Estimated prevalence and distribution of reported orofacial pain in the United States. *J Am Dent Assoc* 1993;124:115-21.
- Bergdahl J, Anneroth G. Burning mouth syndrome: Literature review and model for research and management. *J Oral Pathol Med* 1993;22:433-8.
- Baharvand M, Sabounchi SS, Jalali E, Maleki Z. Prevalence of burning mouth syndrome in four dental schools in Tehran. *Dent J Hamadan* 2010;1:21-4.
- Hakeberg M, Berggren U, Hagglin C, Ahlqwist M. Reported burning mouth symptoms among middle-aged and elderly women. *Eur J Oral Sci* 1997;105:539-43.
- Bergdahl M, Bergdahl J. Burning mouth syndrome: Prevalence and associated factors. *J Oral Pathol Med* 1999;28:350-4.
- Femiano F. Statistical survey of afferent pathologies during a 5-year study in the oral pathology Department at the Second University of Naples. *Minerva Stomatol* 2002;51:73-8.
- Baharvand M, Eshghpour M, Mortazavi H, Fallah Z. Comparison of burning mouth syndrome prevalence and its related factors between menopausal and non-menopausal women. *J Dent Mater Tech* 2014;3:16-22.
- Savage NW, Boras VV, Barker K. Burning mouth syndrome: Clinical presentation, diagnosis and treatment. *Australas J Dermatol* 2006;47:77-81.
- Scala A, Checchi L, Montevecchi M, Marini I, Giamberardino MA. Update on burning mouth syndrome: Overview and patient management. *Crit Rev Oral Biol Med* 2003;14:275-91.
- Tammiala-Salonen T, Hiidenkari T, Parvonen T. Burning mouth in a Finnish adult population. *Community Dent Oral Epidemiol* 1993;21:67-71.

**How to cite this article:** Suresh KV, Ganiger CC, Ahammed YA, Kumar MC, Pramod RC, Nayak AG, *et al.* Psychosocial characteristics of oromucosal diseases in psychiatric patients: Observational study from Indian dental college. *North Am J Med Sci* 2014;6:570-4.

**Source of Support:** Nil, **Conflict of Interest:** None declared.