

PSYCHOSOMATIC DISORDERS OF THE ORAL CAVITY- A REVIEW

Prashant B Patil^{1*} and Anusuya G Savalagi²

¹Prof and Head, ²PG Student, Department of Oral Medicine and Radiology, Navodaya Dental College and Hospital, Raichur-584103, Karnataka, India.

Article Info

Received 23/01/2015

Revised 16/02/2015

Accepted 19/03/2015

Key words:-

Psychosomatic disorders, Oro-facial diseases, Aetiology.

ABSTRACT

Psychosomatic or somatoform disorders are among the most common psychiatric disorders found in general practice. Psychosomatic disorders are the consequences of harmful effects that result from psychic influences on the organic control of tissues. Psychosomatic disorders are manifestations of physical imbalance in which emotional components have a strong influence. A wide spectrum of psychiatric disorders may influence the orofacial region, where unfortunately they remain unrecognized due to limited nature of their presenting features. We have made an attempt to put focus on relationship between psychosomatic factors like stress, anxiety, depression and the orofacial diseases.

INTRODUCTION

“MOUTH IS THE MIRROR OF ORAL CAVITY” says William Osler. Mouth is directly or symbolically related to major human instincts and passion [1]. The oral mucosa is highly reactive to psychological influences. Psychological disorders are defined as disorders characterized by physiological changes that originate at least in part, from emotional factors [2].

Historical Highlights

The word “PSYCHOSOMATIC” was first used in 1818 by a German physicist ‘Heinroth’ [3].

Felix Deutsch was probably the first author to introduce the term “psychosomatic medicine” [2,3]. Hippocrates (460-377 BCE) the father of clinical medicine, posited four bodily fluids (humors) that, when out of balance, led to various physical maladies [3]. The system “*psyche* – soul/*soma* – body” has been an essential philosophical theme for at least the last 2500 years. In ancient Greece, Anaxagoras (500-428 BCE) established a

distinction between the two. The term “stress” was coined by Selye [4].

Other Terminologies

Apart from psychosomatics, *psychoneuro immunology* is a common denotation. This complex word refers to the fact that this discipline studies the ways that the psyche (the mind and its content of emotions) interacts with the body’s nervous system and how both of them, in turn, form an essential link with our immune defences⁵. Some have called this new field *psychoneuro immunoendocrinology* to indicate that the endocrine, or hormonal, apparatus is also a part of our system of whole-body response [5].

The DSM Nosology For Psychosomatic Disorders:

The concept of psychological medicine, which dates back to the origin of medicine itself, was included in the first edition of “Diagnostic and Statically Manual, Mental Disorder” (DSM-1) in 1952 as “Psychosomatic Disorders”

In DSM-II, published in 1968, as Psycho Physiological Autonomic and Visceral Disorder. In 1980’s DSM-III has renamed it has a “Psychological Factor Affecting the Physical Conditions”. To make the category more clinically useful the DSM –IV contains a

Corresponding Author

Prashant B Patil

Email: - prashantomdr@gmail.com



subcategorization format that allows the clinician to specify the type of psychosocial or behavioral factor that affects the patient's medical condition [6].

Association between Psychosomatic Disorder and Oral Cavity

Stress also induces oral lesions [1]. A wide spectrum of psychiatric disorders may affect the orofacial region, where unfortunately they often remain unrecognized because of the common and limited nature of their presenting features [1,5]. These include pain, disturbances in jaw movement, burning sensation or altered salivation or ulceration. The association of emotional and mental suffering with the mouth may be interpreted in a number of ways, based on our understanding of the anatomical, physiological and developmental aspects of oral function. Not only do the lips, tongue and oral mucosa have exceptionally rich sensory innervations but also the muscles of emotional expression gain their principal insertions around the mouth. In infancy the mouth plays a vital role in exploration, feeding and establishing the affectional bond with the mother [5]. Freud postulated that not only do the oral stage of development determine important personality traits, but that problems at this stage lead to predisposition to certain depression in later life [5]. Thus from early embryonic development there is already a physical matrix that enables emotional factors to achieve great oral and facial significance [4].

CLASSIFICATION OF ORAL PSYCHOSOMATIC DISORDERS

There are numerous classifications; a simple working type classification [2] is given in Table 1.

Myofascial Pain Dysfunction Syndrome (MPDS)

Myofascial pain according to Travell and Simons is a pain that results from myofascial trigger points found in skeletal muscles [7]. The defining characteristic of myofascial pain is the finding of a trigger point. Precipitating factors may include wide mouth opening, local trauma, nail biting, and emotional upset.

There is a well-defined point of focal tenderness within a muscle. Moody et al, in a study of 52 MPD syndrome patients and a control group of equal number, found that approximately half of the MPD syndrome group showed clinical signs of greater stress than the control group.⁸ Mercuri et al subjected MPD patients to several different experimental stresses and recorded the electromyographic response in various muscles. They found that the masticatory muscles in MPD syndrome patients responded to induced stress with increased activity and that these muscles responded more than other skeletal muscles in the same patients [9]. In 1969 Laskin, building on the contributions of many others, proposed a "vicious cycle" model of myofascial pain in the orofacial region (Table 2).

It was suggested that factors such as emotional changes produced hyperactivity in the jaw muscles leading to fatigue, pain and injury in the muscles and joints [2].

Atypical Facial Pain (AFP)

Atypical facial pain (AFP) is a syndrome encompassing a wide group of facial pain problems. AFP can have many different causes but the symptoms are all similar. Facial pain, often described as burning, aching or cramping, occurs on one side of the face, often in the region of the trigeminal nerve and can extend into the upper neck or back of the scalp. The pain is usually a continuous dull ache with intermittent severe episodes, primarily affecting areas of the face other than joints and muscles of mastication.¹⁰ It is more common in women than in men; in the age of fourth to fifth decade of life [10].

It is frequently difficult to accurately study the psychological aspects of chronic pain syndrome since anxiety and depression are part of the clinical picture of all patients with chronic pain. It is also possible that combinations of both neuropathic and psychological mechanism are important in the etiology of this presently poorly understood facial pain syndrome. The proposed relationship between stress and AFP is described in Table 3.

Atypical Odontalgia (AO)

Atypical odontalgia is one of the most frustrating conditions that challenge dental clinicians. It was first reported by McElin and Horton in 1947 [10], and since then there have been many clinical reports in the literature. It presents as tooth pain or pain in the site where the tooth was extracted in the absence of clinical and radiological evidence of tooth pathology [10].

AO affects 10% of adults & 50% of elderly population. It is more common in women than in men; in the age of fourth to fifth decade of life. Trauma and psychological factors are implicated factors. Rees et al examined 44 patients with AO and found that 60% had history of depression or depressive symptoms and had other personality disorders [11]. Brook et al reported depression in 41% of 22 patients of AO [12]. The proposed hypothesis is shown in Table 4:

Burning Mouth Syndrome (BMS)

The International Association for study of pain defines BMS as "any form of burning or stinging sensation in the mouth in association with a normal mucosa in the absence of local or systemic disease"¹³. It has variously been called glossodynia, glossopyrosis, stomatodynia, stomatopyrosis, sore tongue, oral dysesthesia [14].

Women are 2.5 to 7 times more common affected than men [13]. 90% of female patients are postmenopausal women. Mean age is 61 years. Scala et al proposed criteria for diagnosis of BMS as i) Daily and deep bilateral



burning sensation of oral mucosa. ii) Burning sensation for 4-6 months. iii) Constant intensity or increasing intensity during the day. iv) No worsening but possible improvement on eating or drinking and no interference of sleep [15].

Because of the absence of organic causes, BMS is often regarded as a psychogenic condition [13]. Bergdahl et al demonstrated that patients in BMS exhibit low level of socialization & high level of anxiety & health state concern compared to control group [16]. Amenabar et al found that 50% of patients with underlying psychological disorder presented with worse symptoms of BMS than those without associated psychic factors [17].

It is hypothesized that chronic stress, anxiety and depression may cause changes in control of cortisol secretion. Permanent changes in the HPA axis resulting in changes to the level of glucocorticoid already produced along with constant modification in the level of gonadal steroid could help to trigger the pain. The primary trigger may be the damage to neural cells caused by abnormal cortisol secretion [13, 14].

Idiopathic Xerostomia

Xerostomia is defined as dry mouth resulting from reduced or absent salivary flow. Sreebny has defined xerostomia as “subjective feeling of oral dryness” [18]. Xerostomia is a common complaint among older adults and 30% of population aged 65 & more prevalent in postmenopausal women than men. Etiology is multifactorial [18].

The sensation of dry mouth may be regarded as a subjectively felt somatic symptom. Although it is likely to have a biomedical background, the possibility of psychosomatic nature cannot be excluded [19]. Mason and Glen (1967) have stated that as the secretion of saliva is regulated by ANS and is subjected to reflex stimulation from physical & psychic causes, then xerostomia may result from 4 basic causes [16] in which factor affecting salivary centre are primary cause which include:

1. Emotions, fear, excitement, stress
2. Depression
3. Organic diseases e.g. brain tremor, Parkinson's disease
4. Drugs.

The relationship between stress and salivary flow has been known for some time. Secretion of saliva is regulated by autonomic nervous system (ANS) and is subject to reflex stimulation from physical and psychic cause. The psychologic and physiologic stress is associated with particular situations and shows reduced flow rates of saliva, decreased pH, increased protein and amylase and also can cause increase in oral volatile sulfur compounds and variation in total ion concentration [13].

Dysgeusia

Taste disorders are distressing for patients. Taste disturbances can range from a total loss of taste to the

constant presence of phantom tastes, such as a bitter or metallic taste in the absence of any offending substance in the mouth.

Association between stress and taste might have a possible central mechanism; enhanced activation of multiple neurobiological pathways is involved in stress and appetite regulation [10].

Stress hormones may have a confounding effect on taste perception [19].

Relationship between Skin Disorders and Stress

Skin responds to different types of stressful stimuli and psychologic states. Stress intervenes through the hypothalamic- pituitary-adrenal (HPA) axis with the release of neuromediators from the nerve endings and dermal cells (neuropeptides, neurotrophins, lymphokines). There are connections among endocrine-nervous and immune systems (Table 6). Stress has been reported to cause decreased natural killer cell cytotoxicity, depressed mitogenic responses in lymphocytes, increased IgA levels, enhanced neutrophil phagocytosis and activation of interferon synthesis in lymphocytes [20].

Oral Lichen Planus (OLP)

Lichen planus is a relatively common mucocutaneous disease, first described clinically by Erasmus Wilson in 1863 and histologically by Dubreri in 1906. It is twice common in men than in women with prevalence rate of 1.5%, commonly seen in 5th, 6th decade of life [21].

Allen CM et al [22] stated that psychological intervention may be warranted given the fact that level of anxiety & salivary cortisol in OLP patients are high, supporting the relationship of OLP with stress.

S Chaudhary [23] suggested high level of stress, anxiety & depression play important role in causation of OLP. These stressors form the starting point for the initiation of various autoimmune diseases which have shown contributory to the pathogenesis of OLP in literature. The proposed hypothesis for relationship between stress and OLP [24] is shown in table 7.

Recurrent Aphthous Stomatitis (RAS)

RAS is the most common type of ulcerative disease of the oral mucosa, affecting 20% of general population. Onset of RAS usually is during childhood, with a tendency for ulcers to diminish in frequency and intensity with age. There are 3 variants described-minor, major, herpetiform. Etiology is multifactorial- trauma, stress, hormonal, immunologic, drugs etc.

In a study by Gallo et al [25], psychological stress was assessed through questionnaire and results showed RAS patients exhibited higher stress levels, than control group during their active episodes. Psychological stress is typically during situations such as exam period, dental treatment and periods of significant changes in life. Pathophysiology of stress in oral ulcer is shown in table 8.



Psoriasis

Psoriasis is a common, chronic, recurrent inflammatory disease of the skin, characterized by circumscribed, erythematous, dry, scaly plaques of varying sizes. The incidence of disease is 1-2% of the general population [26]. It can occur at any age but usually first develops during young adult life. The exact etiology of psoriasis is unknown, but it appears to be a multifactorial disease with both genetic and psychosomatic factors. Stress acts as a catalyst for the onset as well as exacerbation of psoriasis [26,27].

An outpatient skin clinic at King's College Hospital and the Psoriasis Association demonstrated that around 60% of those with psoriasis believe that stress/psychological factors are causal [26].

Depression may be severe enough that some patients will contemplate suicide. In one study of 217 patients with psoriasis, almost 10% reported a wish to be dead and 5% reported active suicidal ideation [27].

The neurogenic inflammation hypothesis of psoriasis was put forth by Farber *et al.* (Table 9).

Bruxism

Bruxism (la bruxomanie-1907) also known as tooth grinding is a stereotype oral motor disorder characterized by awake and/or sleep related grinding and/or clenching of the teeth. In a study by Marthol *et al* [28] on 20 sleep bruxers and 20 volunteers it was shown that sympathetic cardiac activity was more in bruxers than in non bruxers due to increased stress levels. Wincour *et al* [29] in his study concluded that bruxism is more prevalent in psychiatric than non psychiatric individuals and is more prevalent in day-time bruxers rather than sleep-bruxers. Bruxism differs from healthy individuals in the presence of depression, increased levels of hostility and stress sensitivity. Bruxing children are more anxious than non bruxers. Number of studies is published in the literature regarding the role of psychosocial factors in the etiology of bruxism but none of these describe the conclusive nature because of the absence of large scale longitudinal trials [28].

Chronic Biting of the Oral Mucosa

Chronic biting of the oral mucosa or Morsicatio mucosae oris is an innocuous self inflicted injury commonly seen in children suffering from developmental and psychological problems [30].

Biting of oral mucosa is a habit that is prevalent in 750 of every 1 million individuals. Females are affected more than males. It usually occurs as an unconscious psychogenic habit caused by a wide range of emotions. This mild form of self mutilation may sometimes emerge as a response to oral stimuli or as an attempt to gain attention from family members or caretakers and even may be precipitated by traumatic injury. This factitious injury in children is transient in nature and tends to wane with time; however, periods of stress may aggravate the

condition. The frequency and severity of biting behavior could be directly related to stress experienced [30]. These injuries usually present a vicious cycle where trauma leads to inflammation and inflammatory lesion further leads to more trauma due to persistent habit. The behavior goes unnoticed because it is asymptomatic [31].

Recurrent Herpes Labialis (RHL)

After causing a primary acute infection, HSV remains latent in nerve ganglions and epithelium of skin, and causes ulcers of lips/intraoral due to reactivation. Factors believed to trigger reactivation include immune suppression, sunlight, tissue damage and psychological stress [32].

In a meta-analysis of 300 studies of stress and immune function by Miller [33], it was concluded that not only does stress effect immunity but that the immune systems of those who were chronically ill were more prone to stress-related changes in the immune function. In this case, it appeared that those who suffered more frequent recurrences of cold sores were scoring significantly higher on standard measures of stress and negative mood.

Stress and Periodontium

The pioneers who suggested stress might play an important role as an etiological agent of periodontal disease were Dean (1945) and Schulger (1949) [34]. Stress, distress and coping behaviors are regarded as important indicators of periodontal disease. Psychosocial factors can modify the periodontal status through behavioral changes regarding oral hygiene, smoking, dietary intake, bruxism and drug abuse [34]. In addition, mechanisms through physiologic pathways may influence periodontal tissues through alteration in saliva, changes in gingival blood circulation, endocrine imbalances and altered host resistance. Stress hormones also alter cytokine production, which causes an imbalance between T helper phenotype with a shift to TH2 cell dominance, which is associated with progression of periodontitis [35]. Genco *et al*, offered a schematic model which demonstrates the potential role that psychosocial factors may play in initiating periodontitis [35].

Cancerophobia

It is the abnormal or persistence fear, phobia or anxiety that exceeds normal proportions that has no basis in reality. This disorder falls under hypochondriasis. It is a persistent fear in the patient's mind that they have contracted cancer. These are usually well read, educated patients who constantly change their toothpaste, often use a multitude of mouthwashes; in general are very concerned about their oral hygiene. They go from dentist to dentist seeking reassurance that all is fine. Cancerophobia has been noted to be associated with depression but exact pathogenesis is unclear. Cancerophobia is often seen in association with burning mouth syndrome [2].



Table 1. Working type classification for oral psychosomatic disorders

| |
|--|
| <p>I. Pain related disorders</p> <ol style="list-style-type: none"> 1. Myofascial pain dysfunction syndrome 2. Atypical facial pain 3. Atypical odontogenic pain 4. Phantom pain |
| <p>II. Disorders related to altered oral sensation</p> <ol style="list-style-type: none"> 1. Burning mouth syndrome 2. Idiopathic xerostomia 3. Idiopathic dysgeusia 4. Glossodynia 5. Glossopyrosis |
| <p>III. Disorders induced by neurotic habits</p> <ol style="list-style-type: none"> 1. Dental and periodontal diseases caused by bruxism 2. Biting of oral mucosa (self mutilation) |
| <p>IV. Immune/Dermatological disorders</p> <ol style="list-style-type: none"> 1. Oral lichen planus 2. Recurrent aphthous stomatitis 3. Psoriasis 4. Mucous membrane pemphigoid 5. Erythema multiforme |
| <p>V. Miscellaneous disorders</p> <ol style="list-style-type: none"> 1. Recurrent herpes labialis 2. Necrotising ulcerative gingivostomatitis 3. Chronic periodontal diseases 4. Cancerophobia |

Table 2. Association between stress and MPDS

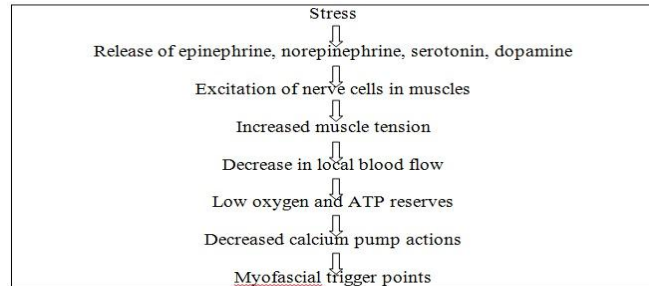


Table 3. Association between stress and orofacial pain

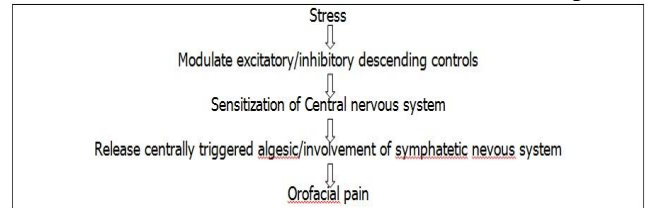


Table 4. Association between stress and AO

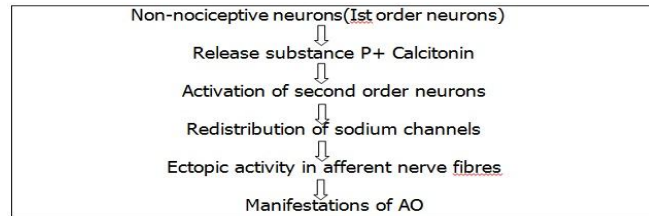


Table 5. Association between stress and taste

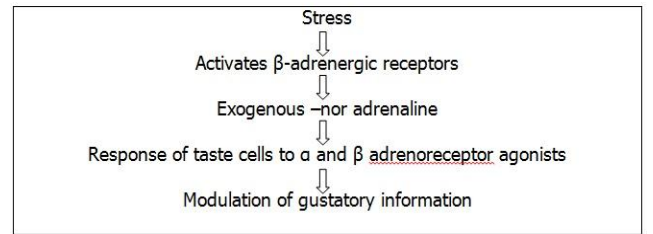


Table 6. Association between stress and skin diseases

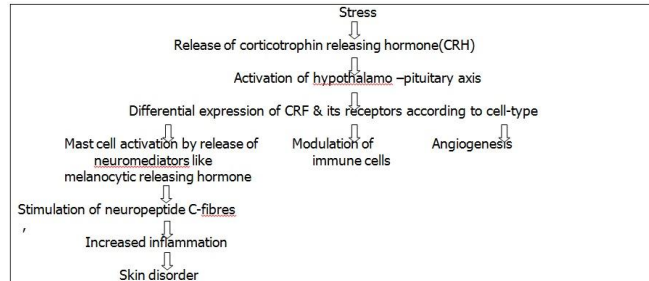


Table 7. Association between stress and Lichen planus

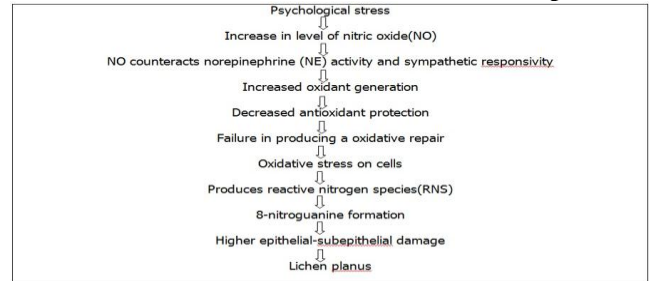


Table 8. Association between stress and oral ulcers

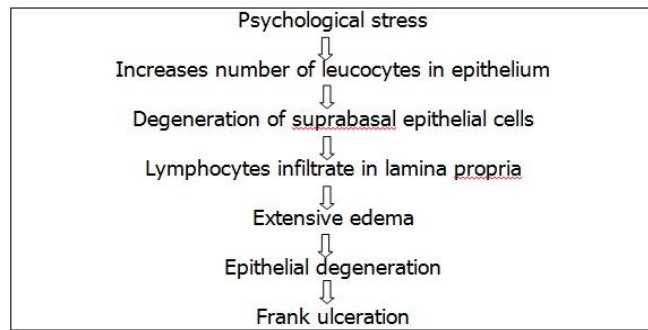


Table 9. Association between stress and Psoriasis

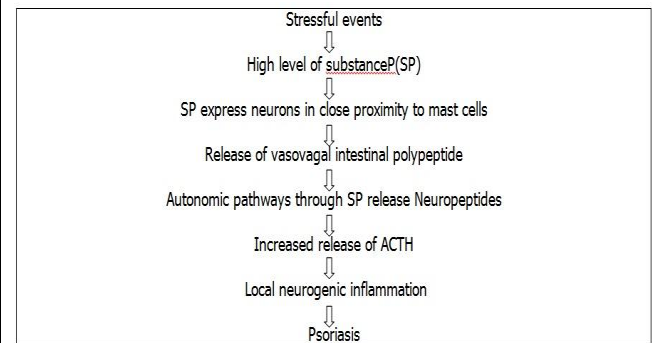


Table 10. Association between stress and periodontal diseases

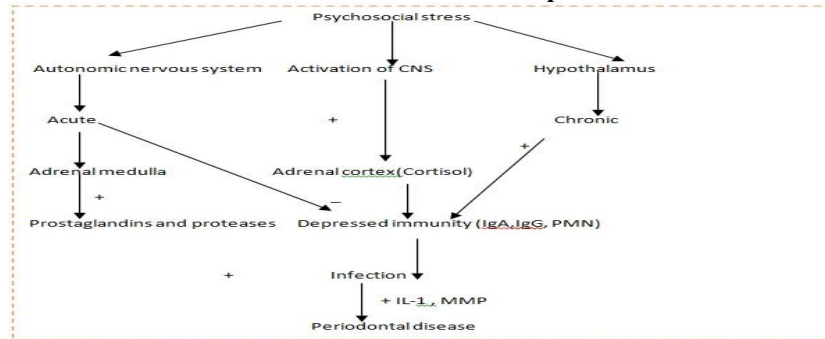


Table 11. Management of Psychosomatic Oral Diseases [2]:

| | |
|-----------------------------------|---|
| Pharmacotherapy | Antianxiety drugs– Diazepam (5 to 10 mg/day) Alprazolam. (0.25 to 0.5 mg/day) Antidepressants– Phenelzine (15 to 90mg/day), Isocarboxazid (10 to 40 mg/day) |
| Cognitive Behavioural Therapy | Based on the notion that cognitive appraisals of stressful events and the coping efforts related to these appraisals play a major role in determining the response to stress. Cognitive therapy lowers inflammation by changing the negative beliefs that up-regulate the stress and inflammatory response. |
| Relaxation Training | Reduces overall muscle tension |
| Meditation, Hypnosis, Biofeedback | Causes relaxation |

CONCLUSION

Psychosomatic illnesses' are physical illnesses that are aggravated by psychological factors. Psychological factors directly or indirectly can affect the overall and oral status of an individual. It is important to recognize the relationship between psychological factors

and oral cavity while treating oral psychosomatic disorders. An interdisciplinary approach involving the dentist, psychiatrist and oral physician with a long term follow up is the need of the hour. Let us believe in the old proverb “Sound mind, Sound body”.

REFERENCES

1. Kandagal VS, Shenai P, Chatra L, Yusuf A, Kumar M. (2012). Effect of stress on oral mucosa. *Biological and biomedical reports*. 1(1):13-16.
2. Shamim T. (2012). A simple working type classification proposed for the psychosomatic disorders of the oral cavity. *J Coll of Phy and Sur Pak*. 22(9); 612-4.
3. ZJ Lipowski. (1984). What does the word psychosomatic really mean? A historical and semantic enquiry. *Psychosomatic Medicine* , 46(2):153-5.



4. McCarthy PL, Shklar G.(1964). Diseases of oral mucosa-Diagnosis, Management and Therapy.1st ed. New York: Mc Graw Hill. 265-67.
5. Lucee Lupes de Molle. (2010). International encyclopedia of rehabilitation. University at Buffalo (Toronto). 1-10.
6. H Kaplan, BJ Sadock. (1989). Comprehensive textbook of psychiatry. Psychological factors affecting medical conditions. Williams & Wilkins; Baltimore.1463-67.
7. Travell JG, Simons DG. (1983). Myofascial Pain and Dysfunction: The Trigger Point Manual. Vol. 1. Baltimore: Williams and Wilkins.
8. Moody, PM, Calhoun, TC, Okeson, JP, Kemper, JT. (1981). Stress-pain relationship in MPD syndrome patients and non-MPD syndrome patients. *J Prosthet Dent.* 45:84–88.
9. Mercuri LG, Olson RE, Laskin DM. (1979). The specificity of response to experimental stress in patients with myofascial pain-dysfunction syndrome.*J Dent Res.* 58: 1866.
10. Melis M etal. (2003). Atypical Odontalgia.A review of literature. *Headache.* 43:1060-74.
11. Rees RT,Harris M. (1979). Atypical Odontalgia. *Br J Oral Surg.* 16:212-18.
12. Brooke RI. (1980). Atypical odontalgia. A report of twenty-two cases. *Oral Surg Oral Med Oral Pathol.* 49(3):196–199.
13. Abetz LM, Savage NW. (2009). Burning mouth syndrome and psychological disorders.*Aust Dent J.* 54:84-93.
14. Takenoshita M etal. (2010). Psychiatric diagnosis in patients with burning mouth syndrome and atypical odontalgia referred from psychiatric to dental facilities. *Neuropsychiatric Diseases and treatment.* 6:699-705.
15. Scala A, Checchi L, Montevecchi M, Marini I, Giamberardino MA. (2003). Update on burning mouth syndrome: overview and patient management. *Crit Rev Oral Biol Med.* 14:275-91.
16. Bergdahl M, Bergdahl J. (1999). Burning mouth syndrome: prevalence and associated factors. *J Oral Pathol Med.* 28: 350–4.
17. Amenabar JM etal. (2008). Anxiety and stress levels in patients with burning mouth syndrome. A case control study. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod.* 105 (4):460-5.
18. Sreebny LM. (2000). Saliva in health and disease: an appraisal and update. *Int Den J.* 50:140-161
19. Anttila SS, Knuttila LE, Sakki TK. (1998). Depressive symptoms as an underlying factor of the sensation of dry mouth. *Psycho Med.* 60: 215-18.
20. Manolache L, Petrescu-Seceleanu D. (2013). Stress involvement as trigger factor in different skin conditions. *World J Dermatol.* 2(3): 16-26
21. R Rajendran. (2005). Oral Lichen Planus. *J Oral Maxillofac Pathol.* 9(1):3-5.
22. Allen CM, Beck FM,Rossie KM, Kaul TJ. (1986). Relation of stress and anxiety to oral lichen planus. *Oral Surg Oral Med Oral Pathol.* 61(1):44-6.
23. S. Chaudhary. (2004). Psychological stressors in oral lichen planus. *Aus Dent J.* 49(4):192-195
24. Kapoor C. (2013). Triology of nitric oxide, mast cell and stress in pathogenesis of oral lichen planus. *J Ora Max Pathol.* 17(2):156-72
25. Gallo CB, Mimura MMA, Sugaya NN. (2009). Psychological stress and recurrent aphthous stomatitis. *Clinics.* 64(6):645-8.
26. Satyanarayana RTS.(2013). Psychosomatic paradigms in psoriasis: Psoriasis, stress and mental health. *Ind J Psy.* 55(4):313-15.
27. Richardson LS,N Kratochvil FJ,Zieper M. (2000). Unusual palatal presentation of oral psoriasis. *J Can Dent Assoc.* 66:80-2.
28. Manfredini D. (2009). Psychological factors in the etiology of bruxism. *J Oro Pain.* 23 (2):153-166.
29. E Winocur, N Uziel, T Lisha, C Goldsmith, I Eli. (2010). Self-reported Bruxism - associations with perceived stress, motivation for control, dental anxiety and gagging. *J Ora Rehabilitation.* 1-9.
30. Karacay S, Guven G, Sagdik D, Basak F. (2006). Treatment of habitual lip biting:A case report. *Turk J Med Sci.* 36(3); 187-89.
31. SK Bhatia, Kapor GA. (2013). Habitual biting of oral mucosa. *Contemp Clin Dent.* 4(3):386-9.
32. Faulkner S, Smith A. (2008). A prospective diary study of the role of psychological stress and negative mood in the recurrence of herpes simplex virus (HSV1). *Stress and Health.* John Wiley & Sons, Ltd.
33. SC Segerstrom, . GE Miller. (2013). Psychological stress and the human immune system: A meta-analytic study of 30 years of inquiry. *Psychological Bulletin.* 1:601–630.
34. Lacopino BA. (2009). Relationship between stress, depression and periodontal disease. *JCDA.* 75(5):329-30.
35. Chandna S, Bathla M. (2010). Stress and Periodontium: A review of concepts. *J Oral Health Comm Dent.* 4:17-22.

