

Oral manifestations of exam/prof induced stress

Ammara ismail, Fatima Javed, Memoona Ismail

ABSTRACT

Stress affects mind and body in various ways. There are different types of stress. This study emphasizes on stress due to exams and its effects on oral cavity. Multiple conditions are seen as a result of stress during exams. Out of 109 candidates 91% were affected. Pathophysiology of various conditions is also discussed.

KEY WORDS

Stress, oral ulcers, bruxism, gingivitis

INTRODUCTION

In a medical or biological context stress is a physical, mental, or emotional factor that causes bodily or mental tension¹. Stress can also be defined as a state of mental or emotional strain or tension resulting from adverse or demanding circumstances². Stress can be classified as external (from the environment, psychological, or social situations) or internal (illness, or from a medical procedure). Exam induced stress falls in category of external stress. Exams induced stress manifests itself in various forms e.g. Low energy, headaches, upset stomach including diarrhea, constipation and nausea; aches, pains, and tense

muscles, chest pain and rapid heartbeat, insomnia, frequent colds and infections, nervousness and shaking, ringing in the ear, cold or sweaty hands and feet, excess sweating, dry mouth and difficulty swallowing, clenched jaw and grinding teeth³.

Since oral mucosa is extremely reactive to emotional influences like stress, anxiety; oral diseases may arise as a direct expression of emotions, or indirect result of psychological alterations⁴. Following conditions usually arise in oral cavity as a result of exam induced stress.

Pericoronitis: Acute or chronic inflammation of the gingiva around the crown of a partially erupted tooth, usually the third molar. [peri- + L. corona, crown, + G. -itis, inflammation]⁵.

Teeth Clenching: is defined as squeezing your teeth together firmly.

Bruxism: The habit of unconsciously gritting or grinding the teeth especially in situations of stress or during sleep⁶.

Halitosis: An unpleasant odor from the mouth, commonly referred to as bad breath⁷.

Gingivitis: means inflammation of the gums (gingiva).

Aphthous ulcers: Also called canker sores are small, shallow lesions that develop on the soft tissues in your mouth or at the base of your gums⁸.

Dry mouth: is a condition of not having enough saliva to keep mouth wet.

Dysgeusia: is altered taste sensation in mouth.

Burning mouth syndrome: is an idiopathic condition characterized by a continuous burning sensation of the mucosa of the mouth, typically involving the tongue, with or without extension to the lips and oral mucosa⁹.

Biting of oral mucosa (self mutilation): habitual unconscious biting of oral mucosa under stress.

Material and Methods

This observational cohort study was conducted among dental students of Punjab medical college Faisalabad. Those students were included who had appeared in at least one annual professional exam. Each student voluntarily participated in this study. The study was conducted using a descriptive questionnaire. The questionnaire aimed at collecting demographic details and data regarding oral conditions acquired by students during professional exam due to anxiety/stress. Questionnaire was distributed to 120 dental students. Data was analyzed. Descriptive statistics were calculated.

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Oral Manifestations of Exam/Prof induced Stress

Name: _____ Age: _____ Gender: _____

Year of study (BDS): 2nd/ 3rd / 4th

For each of the following statements, choose the response that suits most:

- Did you ever experience pain or swelling in third molar region during your prof?
 - ☐ Yes
 - ☐ No
- Do you find yourself clenching your teeth and pain in muscles at times of stress because of exams?
 - ☐ Yes
 - ☐ No
- Do you face problem of oral ulcers?
 - ☐ Yes
 - ☐ No
- Which region in oral cavity is involved mostly?
a) Buccal mucosa b) Labial mucosa c) Tongue d) Soft palate
- Do you experience dryness of mouth?
 - ☐ Yes
 - ☐ No
- Do you suffer from altered taste sensation in mouth during exams?
 - ☐ Yes
 - ☐ No
- Do you experience burning sensation in oral mucosa?
 - ☐ Yes
 - ☐ No
- Do you develop bleeding gums and bad breath?
 - ☐ Yes
 - ☐ No
- Do you grind your teeth during sleep (Bruxism)?
 - ☐ Yes
 - ☐ No
- Any other condition? Elaborate please if any.

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- Do any of these conditions subside after exams or it persists?
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Results

109 questionnaires were returned with a response rate of 90.8%. Students of 2nd, 3rd & final year shared their experience. Of 109 respondents 21 remained asymptomatic during exams. 84.09% female and 15.9% male respondents suffered anxiety induced oral problems. Table 1 describes the gender distribution of oral conditions. Figure 1 highlights the incidence of individual oral conditions. Figure 2 shows the anatomical distribution of aphthous ulcers in oral cavity. Incidence of of aphthous ulcers is highest at labial mucosa i.e. 45%.

Table 1.

Sr. no.	Gender	Total no.	No. of affected students	%age of affected students
1	Male	16	14	15.9
2	Female	93	74	84.09

Figure 1.

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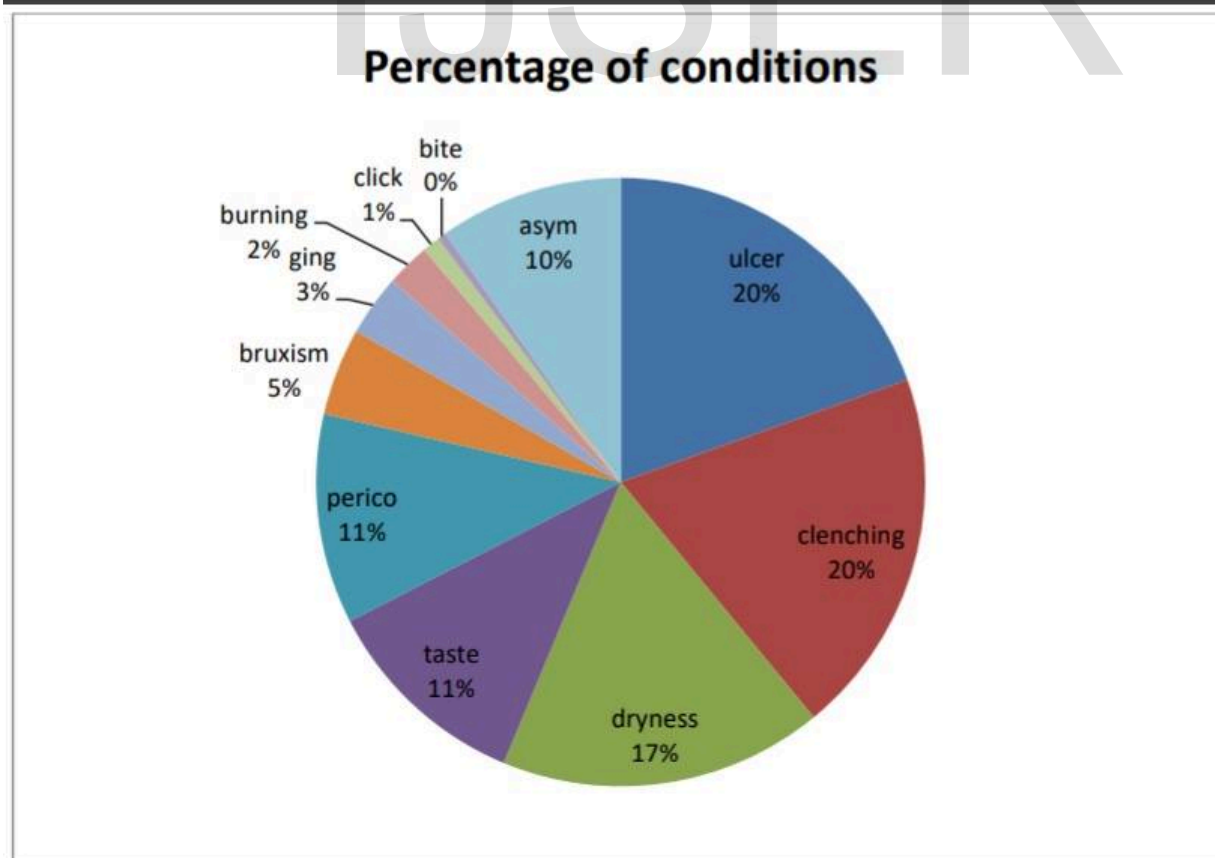
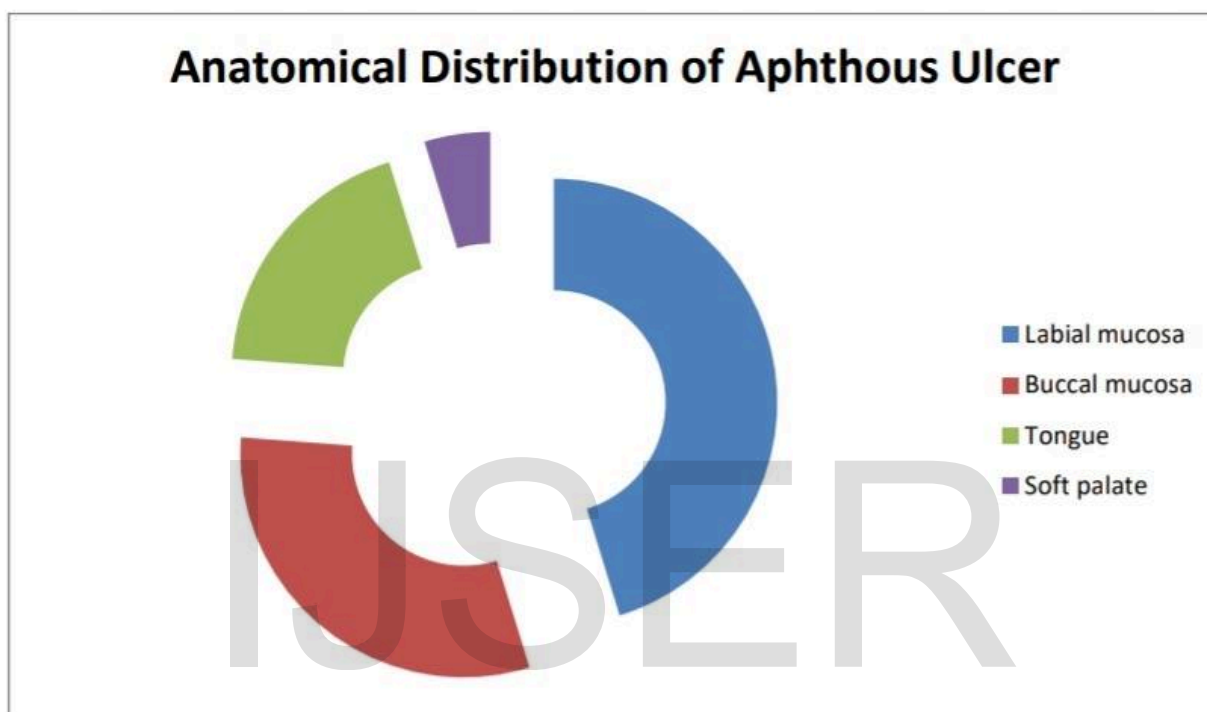


Figure 2.



Discussion

The Health and Safety Executive says around 9.9 million working days are lost each year to stress, depression or anxiety. Occupations with some of the highest rates of work-related stress are education, health and social care, public administration and defense¹⁰.

This research study proves that individuals suffering from exam induced stress are at greater risk of developing periodontal diseases. Chronically elevated levels of the stress hormone cortisol may impair the immune system and allow bacteria to invade the gum¹¹. Gingiva and underlying periodontal tissue cannot respond adequately to the local irritation of bacterial plaque and calculus. The loss of tissue resistance has been attributed to stress.

Oral ulcers are one of the consequences of stress. Recurrent aphthous ulcers affect 2-66% of the international population¹². The incidence of oral ulcers is higher in females than male. Although the clinical characteristics of recurrent aphthous ulcer are well defined, the precise etiology and the pathogenesis of recurrent aphthous ulcer remain unclear. Recurrent aphthous ulcer is a multifactorial condition, and it is likely that immune-mediated destruction of the epithelium is the common factor in recurrent aphthous ulcer pathogenesis. Host risk factors are genetics, hematinic deficiency and immune dysregulation. The prime risk factor observed in this study was stress induced immune dysregulation resulting in oral ulcers. Cytotoxic action of lymphocytes and monocytes on the oral epithelium seems to cause the ulceration. Upon histologic analysis, recurrent aphthous ulcer consists of mucosal ulcerations with mixed inflammatory cell infiltrates. T-helper cells predominate in the preulcerative and healing phases, whereas T-suppressor cells predominate in the ulcerative phase.

Bruxism and jaw clenching are 2nd most prevalent oral manifestations of stress among dental students. Stress causes you to tighten facial and jaw muscles or clench teeth. This might result in spasm of muscles leading to TMJ problems. TMJ click is often found along with bruxism which can be collectively attributed as Temporomandibular Pain & Dysfunction Syndrome.

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