



www.bioinformation.net
Volume 20(7)



Research Article

Received July 1, 2024; Revised July 31, 2024; Accepted July 31, 2024, Published July 31, 2024

DOI: 10.6026/973206300200754

BIOINFORMATION 2022 Impact Factor (2023 release) is 1.9.

Declaration on Publication Ethics:

The authors state that they adhere with COPE guidelines on publishing ethics as described elsewhere at <https://publicationethics.org/>. The authors also undertake that they are not associated with any other third party (governmental or non-governmental agencies) linking with any form of unethical issues connecting to this publication. The authors also declare that they are not withholding any information that is misleading to the publisher in regard to this article.

Declaration on official E-mail:

The corresponding author declares that lifetime official e-mail from their institution is not available for all authors

License statement:

This is an Open Access article which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly credited. This is distributed under the terms of the Creative Commons Attribution License

Comments from readers:

Articles published in BIOINFORMATION are open for relevant post publication comments and criticisms, which will be published immediately linking to the original article without open access charges. Comments should be concise, coherent and critical in less than 1000 words.

Disclaimer:

The views and opinions expressed are those of the author(s) and do not reflect the views or opinions of Bioinformation and (or) its publisher Biomedical Informatics. Biomedical Informatics remains neutral and allows authors to specify their address and affiliation details including territory where required. Bioinformation provides a platform for scholarly communication of data and information to create knowledge in the Biological/Biomedical domain.

Edited by Swati Kharat

Citation: Jivrajani *et al.* Bioinformation 20(7): 754-756 (2024)

Prevalence of stress associated oral mucosal disorders among patients from Southern Rajasthan, India

Srujal Jivrajani^{1,*}, Kavita Verma¹, Saurabh Goel¹, Abhishek Jayaswal¹, Rinky Kukreja² & Mili Dube²

Department of Oral Medicine and Radiology, Pacific Dental College and Research Center, Udaipur, Rajasthan, India; Department of Pedodontics and Preventive Dentistry, Pacific Dental College and Research Centre, Udaipur, Rajasthan, India; *Corresponding author

Affiliation URL:

<https://www.pacificdentalcollege.com/>

Author contacts:

Srujal Jivrajani - E-mail: srujaljivrajani@gmail.com
 Kavita Verma - E-mail: kavita.m.verma@gmail.com
 Saurabh Goel - E-mail: drsaurabh_2008@yahoo.com
 Abhishek Jayaswal - E-mail: jaiswal68.aj@gmail.com
 Rinky Kukreja - E-mail: dr.rinky.kukreja@gmail.com
 Mili Dube - E-mail: drmilisharmaofficial@gmail.com

Abstract:

Data on the prevalence of stress associated oral mucosal lesions/conditions such as Oral lichen planus, Aphthous ulcers, Burning mouth syndrome, Headache, Xerostomia, Halitosis, Myofacial pain Dysfunction syndrome amongst population of Southern Rajasthan is of interest to dentists. Cross sectional study had been conducted on 5214 patients from 18-60 years age group who visited the Department of the Oral Medicine and Radiology, Pacific Dental College and Research Centre, Bedla, Udaipur. Findings such as burning of oral mucosa, presence of vesicles and ulcers, striation in oral cavity, limitation of jaw movement, muscular pain were assessed for the establishment of diagnosis. Prevalence of stress associated oral mucosal lesions/conditions like Oral lichen planus, Aphthous ulcers, Burning mouth syndrome, Headache, Xerostomia, Halitosis, Myofacial pain Dysfunction syndrome was reported to be 12%, 17%, 3%, 21%, 6 %, 23 and 18% respectively. Besides stress management therapy, Professional consultation along with proper investigation and medicinal treatment is required.

Keywords: Stress associated oral mucosal lesions/conditions, aphthous ulcers, burning mouth syndrome, myofacial pain dysfunction syndrome.

Background:

Stress was originally derived from the Latin word "stringi" which means, "to be drawn tight." Stress is a psycho physiological response of the organism to a perceived challenge or threat as defined by Brevik *et al.* in the year 1996. Stress is not what happens to someone, but how someone reacts to what happens [1]. It can also be defined as adoptive response of an organism to a threatening stimulus, which provides the link between the psychological and physiological processes that are associated in the onset of disease [2]. Both physical and psychological stress affect different aspects of the immune system, partly by increasing serum catecholamines and corticosteroids [3] and as a side effect to prolonged exposure to these chemical changes body develops endocrinal ,metabolic homeostatic immunological disturbances leading to diseases such as hypertension, diabetes mellitus, cardiovascular disease, periodontal emotional stress syndrome, osteoporosis, rheumatoid arthritis, inflammatory bowel disease, preterm delivery are related stress either as a physiological response to stress or as a behavioral response [4]. The oral cavity represents an organ of the expression as it is connected specifically or emblematically to the significant human senses and interests and is charged with a high psychologic potential. Certain diseases which affect the oral mucosa may be the direct or indirect expression of emotions or conflicts [5, 6]. Hence, Stress has a direct relation with oral lesions and conditions (directly proportional), i.e., there are many studies which state that, oral lesions become more prominent when the level of stress rises above the threshold. For example Lichen Planus, Recurrent aphthous stomatitis, where severity of oral lesions increases along with increase in level of stress [7, 8]. Therefore, it is of interest to determine the prevalence of stress associated oral mucosal lesions/conditions such as Oral lichen planus, Aphthous ulcers, Burning mouth syndrome, Headache, Xerostomia, Halitosis,

Myofacial pain Dysfunction syndrome amongst population of Southern Rajasthan

Materials and Methods:

A cross sectional study had been conducted on 5214 patients from 18-60 years age group who visited the Department of the Oral Medicine and Radiology, Pacific Dental College and Research Centre, Bedla, Udaipur after obtaining ethical clearance from the ethical committee. An informed consent had been taken for all the patients. They were subjected to thorough case history related to stress and a detailed clinical examination of the oral cavity was carried out under artificial light. On intra oral examination findings such as burning of oral mucosa, presence of vesicles and ulcers, striation in oral cavity, limitation of jaw movement, muscular pain and some routine parameters included in the establishment of diagnosis for the conditions such as Oral lichen planus, Aphthous ulcers, Burning mouth syndrome, Headache, Xerostomia, Halitosis, Myofacial pain Dysfunction syndrome was done according to diagnostic criteria [9]. Patient having habit history of tobacco, areca nut or alcohol, having drug history, any graft placement or restoration, taking any treatment for oral lesions or suffering from carcinoma had been excluded from the study Following establishment of diagnosis, each patient was informed about the condition, its precancerous potential.

Results and Discussion:

The data on qualitative characteristic was presented using (%). Results illustrated that out of 5214 cases; the prevalence of stress associated oral mucosal lesions/conditions was reported to be 25.4 % being observed in 1325 cases. Amongst them 38% were reported to be males and 62% were females. Results were in accordance to that reported by Muhaidat *et al.* [10] who documented that females are more prone to stress and emotional situations which can affect their immune response. They seek

medical examination more frequently than males. The hormonal changes during pregnancy and menstruation also play a role. Chaturvedi *et al.* [11] reported that women in both public and private sector were found to be more stressful in comparison to men as they play a dual role and need to keep a work and life balance between both personal and professional life. Maximum number of cases reported with stress associated oral mucosal lesions/conditions had been falling in the age group of 20-25 years and least number of cases had been reported in the age group exceeding 50 years. It can be explained on the basis of a study reported by Almeida *et al.* [12] which determined that older adults reported fewer interpersonal tensions, were more likely to report tensions with spouses, were less likely to report tensions with children, experienced less stress, and were less likely to argue and more likely to do nothing in response to tensions than were younger adults. Prevalence of stress associated oral mucosal lesions/conditions like Oral lichen planus, Aphthous ulcers, Burning mouth syndrome, Headache, Xerostomia, Halitosis, Myofascial pain Dysfunction syndrome was reported to be 12%, 17%, 3%, 21%, 6%, 23% and 18% respectively. Results could be described on the basis that Psychological stress affects the normal nerve–endocrine–immune pathway of the human body, leading to over-activation of the hypothalamus–pituitary–adrenal (HPA) axis and sympathetic nerve–adrenal medulla. The hypothalamus–pituitary–gonad (HPG) axis is regulated by the HPA axis, which can inhibit or over activate endocrine and immune systems, and the secretion of corresponding hormones, cytokines and proteins changes accordingly. This may damage the oral mucosa and induce disorders such as lichen planus, Aphthous ulcers etc [13]. Since, Stress is unavoidable process and is increasing day by day in everyone's life. Oral problems like Myofascial pain Dysfunction syndrome, Aphthous ulcers, Oral lichen planus and burning mouth syndrome etc. which start as a result of biochemical/ metabolic/hormonal/immunological/behavioral changes in body due to stress and need special medical attention besides stress management therapy.

Conclusion:

Consequences of stress are far beyond temporary feelings of pressure. It affects body systemically. While we can't avoid stress but we can learn to manage it and develop skills to cope-up with such events or situations. The key is to develop an awareness of how you interpret, and react to such circumstances. Professional intervention at early stage can be a life saver in many cases [14]. Thereby, further studies should be conducted to determine the association of stress and its mechanisms in occurrence of oral maxillofacial lesions/conditions so that effective management for the patient can be done.

Financial support: NIL

Conflict of Interest: None

References:

- [1] Selye H. *Stress in Health and Disease*. 1976 Butterworths Boston USA PUBLISHER NAME MISSING
- [2] Koolhaas JM *et al.* *Neuroscience & Biobehavioral Review* 2011 **35**: 1291. [PMID: 21316391].
- [3] Breivik T *et al.* *European Journal of Oral Sciences* 1996 **104**: 327. [PMID: 8930578]
- [4] Page RC. *Ann Periodontol* 1998 **3**:108. [PMID: 9722695].
- [5] Richter I *et al.* *Acta Stomat Croat* 2003 **37**:35. [<https://hrcak.srce.hr/2574>].
- [6] Sanadi RM & Vandana KL. *J Indian Acad Oral Med Radiol* 2005 **17**:8. [DOI:10.4103/0972-1363.169188].
- [7] Peruzzo DC *et al.* *J Periodontol*. 2007 **78**:1491. [PMID: 17668968].
- [8] Nagabhushan D *et al.* *JIAOMR*. 2004 **16**: 197. [DOI:10.4103/0972-1363.169513]
- [9] Kramer IRH *et al.* *Community Dent Oral Epidemiol* 1980 **8**:1. [PMID: 6929240].
- [10] David B & Almeida M. *Psychology and Aging* 2005 **20**:330. [PMID: 16029096]
- [11] Zuhair H *et al.* *Pakistan Oral & Dental Journal* 2013 **33**: 42.
- [12] Chaturvedi V. *Int. J. Buss. Mgt. Eco. Res.* 2011 **2**:168.
- [13] Zhou H & Lin X. *Journal of International Medical Research* 2023 **51**:1. [PMID: 38150546].
- [14] Bhushan K *et al.* *IJRID* 2014 **4**:43. [PMID: 27590184].