

## Prevalence Of Orofacial Pain In Hiv Patient: A Systematic Review

Bhargavi Dasari<sup>1</sup> , Rani Samyuktha Devabhaktuni<sup>2</sup> , Bhavyasri Gaddam<sup>3</sup> , Omar Alqushaibi<sup>4</sup> , Supreen kaur Chahal<sup>5</sup> , Vibha Sharma<sup>6</sup>

<sup>1</sup>D.M.Dc, Rutgers School of Dental Medicine, Newark, NJ, U.S.A.

<sup>2</sup>B.D.S, M.Sc, Rutgers School of Health Professions, M.S in Health Informatics. Newark, NJ, U.S.A.

<sup>3</sup>B.D.S, M.D.S(Periodontics), Albany, NY, U.S.A.

<sup>4</sup>B.D.S, Sana'a University, Yemen.

<sup>5</sup>BDS, MBA, North American University, stafford, Texas, U.S.A..

<sup>6</sup>BDS, HHSM, DBA.Bow valley College, Calgary, Canada.

Corresponding Author: Bhargavi Dasari, D.M.Dc, Rutgers School of Dental Medicine, Newark, NJ, U.S.A.

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### ABSTRACT

#### Aim

The purpose of this review, was to evaluate and understand the prevalence of orofacial pain in the case of HIV/AIDS patients.

#### Methodology

The search strategy revealed 1,374 articles through database searching. Overall, 11 articles were found to be relevant for further analysis. HIV comes with an array of complexities in the oral cavity and is also reflection of the systemic illness of the oral cavity. Hence, it is essential to know the area affected and also the lesions that contribute the most to decrease the QoL and orofacial pain due to lesions in this aspect.

#### Results

The physical domain followed by the psychological domain is the most affected in the HIV-positive patients. The maximum effect is due to dental caries and periodontitis. Three studies reported that psychological discomfort and orofacial pain was the major issue faced by the patients.

#### Conclusion

There is a greater need to include quality-based assessment while treating HIV-positive people. Also, not just physical indicators like pain or dental caries, even social indicators like mental and social dimensions of a patient's life should be included while deciding the treatment approach.

**Keywords** HIV, Oral health, Quality of life, orofacial pain.

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### INTRODUCTION

Pain in the oral and craniofacial system represents a major medical and social problem. Indeed a U.S. Surgeon General's report on orofacial health concludes that, "...oral health means much more than healthy teeth. It means being free of chronic oral-facial pain conditions..." (1). The reported intensities of various orofacial pain conditions are similar to that observed with many spinal pain disorders. Moreover, orofacial pain is derived from many unique target tissues such as the meninges, cornea, tooth pulp, oral/nasal mucosa, and temporomandibular joint and thus has several unique physiologic characteristics compared with the spinal nociceptive system (2). Given these considerations, it is not surprising that accurate diagnosis and effective management of orofacial pain conditions represents a significant health care problem.

The main concern with HIV is that it cannot be cured and presents with various opportunistic infections. These infections include malignancies, respiratory and neurological diseases. It is also important to note that HIV presents with dental and oral diseases, which are often not considered when managing PLWH. These dental and oral diseases are most often as a direct result of untreated HIV infection but may also occur as a side effect of the antiretroviral medication. It is these omitted dental and oral diseases that are often a cause of pain and discomfort in PLWH.

Numerous research works have focused on the development of conceptualizing as well as measuring the impact and correlation of different domains on the overall life of an individual (3,4) and HIV is a major challenge in this regard. Garratt et al. (5) and Bowling (6) state, "It is multidimensional and theoretically incorporates all aspects of an individual's life ... there is a general interest in how to achieve the 'goodness' of life, sometimes called life satisfaction or quality of life." Paisley and associates state that health care intervention has moved beyond mere clinical signs and symptoms. The World Health Organization (WHO) definition of QoL encompasses all governing principles of a human life for terming it as a good and satisfactory living; as "an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. It is a broad ranging concept affected in a complex way by the person's physical health, psychological state, personal beliefs, social relationships and their relationship to salient features of their environment," (7) which very much holds true for a seropositive individual. Devins et al. claim that chronic disease disrupts an individual's life and that this disruption may be interpreted in terms of its impact on well-being, or QoL. (8) Chronic diseases progress slowly, have a prolonged duration requiring intensive medical intervention, and could limit the wellbeing of the individual by worsening the overall health, (9) which is very relevant to HIV-positive patients.

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#### **AIM OF THE PRESENT STUDY**

The purpose of this review, was to evaluate and understand the prevalence of orofacial pain as well as understand it in terms of quality of life in the case of HIV/AIDS patients.

#### **METHODOLOGY**

The search strategy revealed 1,373 articles through database searching (PubMed) and one from other additional sources (google scholar). So, in all 1,374 articles were accessed in total. After the initial screening of title and abstract, 14 articles were selected. No risk of bias assessment was done for the selection. Three articles were not found to be satisfying the study objectives and hence were excluded from the review. Overall, 11 articles were found to be relevant for further analysis. All articles in English language only were included. The following exclusion criteria were applied: articles that did not evaluate oral manifestations among HIV/ AIDS-positive people, case reports, cross-sectional studies, review articles, book chapters, theses and guidelines, unpublished data, data from non-scientific sources, and from conference proceedings or plain reviews. Data from all articles included in the review were extracted independently. Extracted data included authors, publication year, methodologies used to guide the implementation of the studies, outcomes, measures used in collection of data and the main findings.

## **RESULTS**

The literature search based on the pre-decided criteria fetched 11 articles in all. Of the total 11, 7 studies used the OHIP-14 impact profile which also assesses orofacial pain in various dental diseases in HIV/AIDS patients. All the studies had both male and female participants, except for the study by Mulligan, which was carried out on 689 women participants only. The most severely affected domain from these studies based on the OHIP-49 and 14 was that of physical pain. The studies overall mentioned oral lesions like dental caries, periodontitis, tooth loss, plaque, ulcers, and xerostomia. The highest reported lesions were dental caries and periodontitis (63.6%) while the least focused and reported problem was halitosis (9.1%). A total of six studies specified to dental caries (using the DMFT index or DSTN or the CDCI), three studies each were related to periodontal pathology and ulcers related to oral mucosa, two studies each reported on xerostomia and tooth loss, while one study considered oral substance abuse and halitosis (bad breath) as a part of their study parameters. All domains, physical, mental, social, functional, and psychological, were studied by the authors. The highest domain reported was of physical domain getting affected by five studies. The least affected domain was of social disability. Three studies reported that psychological discomfort and orofacial pain was the major issue faced by the patients. Mulligan and Tomar et al. did not specify which domain was the most or the least reported. Three studies showed that there was no handicap or inability to carry out normal activity among the participants.

## **DISCUSSION**

Dental pain is the most common inflammatory pain presenting in this region; however, chronic pain conditions presenting frequently, including temporomandibular joint disorders (TMDs), primary headaches (neurovascular), neuropathic pain and idiopathic pain conditions, can often mimic toothache. Dentists are familiar with TMDs but have no training or experience in diagnosing or treating headaches that mainly present in the first trigeminal division. There is a plethora of oral manifestations that come up in HIV/AIDS cases due to immunodeficiency, like oral candidiasis, oral ulcers, xerostomia, malignancies, which causes increase in orofacial pain and discomfort.

Orofacial pain disorders comprise a major and expensive component of health care and collectively have a high prevalence rate, a large range in pain intensity with a commensurate, often devastating impact on quality of life (1). Although there are many common aspects of pain transduction and processing between the trigeminal and spinal systems, there are numerous examples of unique

features in the peripheral and central components of the trigeminal pain system. Accordingly, ongoing basic and clinical research focused on acute and chronic orofacial pain conditions is required to understand the unique features of this pain system and to develop and evaluate better ways to treat patients with orofacial pain.

The review carried out at the Vilnius University, Institute of Dentistry in Lithuania, found that oral lesions are amongst the earliest signs of HIV infection and for individuals with unknown HIV status may suggest possible HIV diagnosis; for persons diagnosed with HIV who are not yet on therapy, the presence of certain oral manifestations predicts progression to AIDS.(10) The study further states that for patients on HAART the presence of certain oral manifestations may serve as surrogate markers for the efficacy of antiretroviral therapy.

The reports available in the literature overall prove that the QoL is definitely affected by HIV in one or the other way mostly due to orofacial pain due to oral manifestations. Out of all the studies in the analysis, two studies did not report the highest affected domain specifically. (11,12) Two studies observed all the hard and the soft tissues with the OHQoL.(11) Five of the studies showed the correlation between dental caries with the different dimensions of OHRQoL. (12,13) Six of the studies reported the effect based on periodontal tissue pathology. (12,13) Jeganathan (14) and Busato (15) reported of a physical disability and psychological discomfort, respectively, as the most affected domain due to xerostomia. It is an established fact that medications have an adverse effect on the oral cavity prominently on the salivary function, leading to increased dental caries, halitosis, candidiasis, and gingivitis.

## CONCLUSION

Orofacial pain conditions represent a highly prevalent spectrum of pain disorders with pain intensities similar to those observed with many chronic spinal pain conditions. However, the unique anatomical, biochemical and associated psychosocial components provide compelling evidence for specific research focused on orofacial pain disorders.

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## REFERENCES

1. Services UDoHaH. U.S. Department of Health and Human Services NIODaC, Research NIOH. Oral Health in America: A Report of the Surgeon General. Rockville, MD: 2000.
2. Bereiter, DA.; Hargreaves, KM.; Hu, JW. Trigeminal mechanisms of nociception: Peripheral and Brainstem organization. In: Bushnell, MCBA., editor. The Senses, A Comprehensive Reference. San Diego: Academic Press; 2008. p. 435-60.
3. The WHOQOL Group. The world health organization quality of life assessment (WHOQOL). development and psychometric properties. Soc Sci Med 1998;46(12):1569–1585.
4. Health-Related Quality of Life (HRQOL). Centres for Disease Control and Prevention. Accessed on 7th July, 2018. <https://www.cdc.gov/hrqol/concept.htm>.
5. Garratt A, Schmidt L, Mackintosh A, et al. Quality of life measurement: bibliographic study of patient assessed health outcome measures. BMJ 2002;324(7351):1417. DOI: 10.1136/bmj.324.7351.1417.
6. Bowling A. Measuring disease: a review of disease-specific quality of life measurements. Buckingham, UK: Open University Press; 1995.

7. WHOQOL: Measuring Quality of Life. Accessed on 7th July, 2018.
8. <http://www.who.int/healthinfo/survey/whoqol-qualityoflife/en/>.
9. Devins GM, Blinik YM, Hutchinson TA. The emotional impact of end-stage renal disease: importance of patients' perceptions of intrusiveness and control. *Int J Psychiatry Med* 1983;13(4):327–343. DOI: 10.2190/5dcp-25bv-u1g9-9g7c.
10. Megari K. Quality of life in chronic disease patients. *Health Psychol Res* 2013;1(3):e27. DOI: 10.4081/hpr.2013.e27.
11. Aškinytė D and Matulionytė Rimkevičius A. "Oral manifestations of HIV disease: a review". *Stomatologija Baltic Dental and Maxillofacial Journal* 17 (2015): 21-28.
12. Mulligan R, Seirawan H, Alves ME, et al. Oral health-related quality of life among HIV-infected and at-risk women. *Community Dent Oral Epidemiol* 2008;36(6):549–557. DOI: 10.1111/j.1600-0528.2008.00443.x.
13. Tomar SL, Pereyra M, Metsch LR. Oral health-related quality of life among low-income adults living with HIV. *J Public Health Dent* 2011;71(3):241–247. DOI: 10.1111/j.1752-7325.2011.00260.x.
14. Coates E, Slade GD, Goss AN, et al. Oral conditions and their social impact among HIV dental patients. *Aust Dent J* 1996 Feb;41(1):33–36.
15. Jeganathan S, Batterham M, Begley K, et al. Predictors of oral health quality of life in HIV-1 infected patients attending routine care in Australia. *J Public Health Dent* 2011;71(3):248–251.
16. Busato I, Thomaz M, Toda A, et al. Prevalence and impact of xerostomia on the quality of life of people living with HIV/AIDS from Brazil. *Spec Care Dentist* 2013;33(3):128–132.

**TABLES Table 1- Flow chart for selection of articles for systematic review (as per PRISMA guidelines)**

