Periodontal Status and Oral Health Related Quality of Life- A Research Study

*[1]Dr. AnantRaghav Sharma, [2]Dr. MilindWasnik, [3]Dr. Harsh G Shah, [4]Dr. Manu Gupta, [5]Dr. Mimansha Patel, [6]Dr. Pragya Sharma

[1]Reader, Department Of Periodontics
Pacific DentalCollege, Debari, Udaipur, Rajasthan
aanantraghavsharma@gmail.com

[2]Associate Professor & Head, Deapartment Of Public Health Dentistry, Government Dental College And Hospital, Raipur (C.G.)
drmilind.pcd@gmail.com

[3]Reader, Deapartment Of Public Health Dentistry
Ahmedabad Dental College and Hospital, Ahemdabad, Gujrat
harsh_079@yahoo.co.in

[4]Senior Lecturer, Department Of Oral and Maxillofacial Surgery, Eklavya Dental College and Hospital, Kotputli
Manugupta787@gmail.com

[5]Reader, Department of Oral Pathology and Microbiology,
Triveni Dental College, Bodri, Bilaspur(C.G.)
mimanshapatel_24@yahoo.com

[6]Senior Lecturer, Department Of Periodontics,
Shree BankeyBihari Dental College and Research Center, Masuri, Ghaziabad (U.P.)
pragyasw8@gmail.com

Corresponding Author: Dr. AnantRaghav Sharma (aanantraghavsharma@gmail.com)

Abstract:

Objective- Oral health-related quality of life (OHQoL) is a multifactorial term that takes into account functional, psychological, social, and pain/uneasiness in relation to orofacial problems. The goal of this research was to see how periodontal status and educational level affected OHQoL in patients referred to Dental Hospital.

Methodology- A total of 145 patients from Pacific Dental College, Debari, Udaipur, Rajasthan, participated in this cross-sectional analysis. OHQoL was measured using the OHQoL UK questionnaire, which was translated into Hindi and given to patients at random. A clinician examined the periodontal attachment loss. ANOVA was used to analyze the data using SPSS software 23.0. Statistical significance was described as a P value of less than 0.05.

Results-The participants in this research were 145 adults (61 men and 84 women) between the ages of 17 and 70. There was a statistically significant relationship with periodontal disease severity and OHQoL scores (P 0.05).In terms of psychological variables, the mean QoL score in patients with extreme periodontitis was significantly lower than in patients with moderate periodontitis (P 0.05). Furthermore, patients with a higher level of education had a statistically significant (P = 0.0001) higher mean QoL score.

Conclusion- According to the impact of periodontal disease severity on QoL, necessary intervention should be made for timely diagnosis and treatment in order to enhance QoL.

Keywords- Quality of life, periodontal disease, Clinical attachment level.

Introduction:

Quality of life (QoL) is a multifactorial particular hypothesis that is linked to the effect of health and disease on everyday activities. Oral diseases are one of the utmost common conditions that cannot be differentiated from overall disorders in terms of their effects on QoL.[1-3]Patient-centered consequences are more likely to be applicable to patients than conventional clinical indicators of illness, so assessing the effect of oral conditions on QoL is a significant aspect of healthcare.[4–8] Oral health-related QoL (OHQoL) takes into account a number of factors such as functional, psychological, and social factors, as well as pain/uneasiness related to orofacial conditions.[3–9–13]

Periodontitis is a widespread inflammatory disease induced by various bacterial complexes found in the biofilm of the dental plaque. The periodontal ligament and alveolar bone can be lost if the supporting structures of the teeth are affected. Clinically, pocket development and/or gingival recession are established. Extreme periodontitis[14]affects just 5-15 percent of the general population, but it can have a detrimental effect on a patient's OHQoL.[15-21]Particular OHQoL should be assessed to determine periodontal treatment effectiveness,[4,22] as reported by Saito et al. review, that found traditional non-surgical periodontal rehabilitation improved QoL in Japanese.[23]

OHQoL can be measured using various methods.[3,24,25] One of the most commonly used instruments to measure the effects of oral conditions on QoL is the OHQoL-United Kingdom (OHQoL-UK).[26] This measurement was established using the public's opinions of OHQoL's main areas in the United Kingdom. It comprises a variety of items that address the consequence of oral health on various aspects of everyday life, both positively and negatively (bidirectionally).[27]The negative outcomes of periodontal disease on aspects of daily life and health-related QoL were demonstrated using mean OHQoL-UK scores in the Needleman et al. report.[15]

The aim of this research was to measure the effect of severity of periodontal disease on OHQoL in patients transferred to Pacific Dental College, Debari, Udaipur, Rajasthan, using the OHQoL-UK questionnaire since no studies have used this questionnaire in India and the association between periodontal status and QoL has not yet been measured by this questionnaire.

Methodology:

Patients referred to Pacific Dental College, Debari, Udaipur, Rajasthan, were included in the research. The current research involved patients who did not have any systemic diseases. Based on the ordinary questionnaire and a = 0.3 gotten from previous research, 150 samples were needed to achieve a statistically significant level of P 0.05 and 80 percent statistical test power. The purpose of the research was clarified to the participants, and their informed consent was obtained.

The research contained of two parts: a self-reported questionnaire inquiry and a clinical test. The OHQoL-UK questionnaire, which was translated into Hindi, was used to evaluate the effect of oral health on patients' life satisfaction. Forward translation from English to Hindi and then backward translation from Hindi to English were also used in the translation process. It was compared to the original text, and two periodontology experts verified its accuracy. In a pilot study, 30 patients were tested to see if the Hindi version was reliable. The OHQoL-UK questionnaire has 16 questions separated into four categories (symptoms, physical, psychological, and social dimensions). "Very poor (Score 1), bad (Score 2), ineffective (Score 3), decent (Score 4) and very good (Score 5)" were the answer categories for each question. As a result, combining responses from each of the 16 items will result in total OHQoL-UK scores ranging from 16 (the worst possible OHQoL) to 80 (the best possible OHQoL) (best OHQoL possible). Inner accuracy was measured by Cronbach's reliability coefficient, which ranged from 0.60 to 0.77 for various questions. Subjects also filled out a self-administered questionnaire related to their personal background and educational level in addition to the OHQoL-UK questionnaire.

Then, as part of his or her regular evaluation by one of the study's clinicians, each patient had a periodontal test, which included measuring periodontal attachment levels with Williams' periodontal probe. Chronic periodontitis was graded as mild, moderate, or extreme depending on the volume of clinical attachment loss (CAL): mild = 1 or 2 mm CAL, moderate = 3 or 4 mm CAL, and severe 5 mm CAL.[28] Following that, every participant was guided about how to continue with their dental care. ANOVA was used to analyze the data using the statistical program SPSS 23.0. Statistical significance was described as a $P \leq 0.05$.

Results:

Five questionnaires were omitted from the total of 150 due to missing details. In the age group of 17 to 70 years, 61 men (42.07 percent) and 84 women (57.93 percent) replied to the questionnaires.

The 145 participants had mild, moderate, and severe periodontitis, with 27.02 percent having mild periodontitis, 36.48 percent having moderate periodontitis, and 36.48 percent having severe periodontitis. There was a statistically significant link with periodontal disease severity and OHQoL scores (P 0.05). The

mean QoL score of patients decreased as periodontal attachment loss increased, that was statistically important in the psychological factor (P 0.05), but not in the other three characteristics (symptoms: P = 0.155, physical: P = 0.117, and social: P = 0.062).In terms of psychological variables, the mean QoL score in patients with extreme periodontitis was significantly lower than in patients with moderate periodontitis (P 0.05). (Table 1).

Table 1: Mean, standard deviation and *P* value of each domain of OHQoL in periodontal patients.

| OHQoL-UK questionnaire domains	Severity of periodontal disease	Mean	Standard Deviation	*P* value
Symptoms	Mild	9.0000	0.96077	
	Moderate	9.0545	1.02593	0.155
	Severe	8.6852	1.14635	
	Total	8.9060	1.06125	
Physical	Mild	22.3250	2.46397	
	Moderate	22.3818	2.17299	0.117
	Severe	21.5185	2.47051	
	Total	22.0537	2.38176	
Psychological	Mild	22.2000	1.95067	
	Moderate	21.2037	2.27687	0.034
	Severe	21.0370	2.38678	
	Total	21.4122	2.27357	
Social	Mild	16.1250	2.22097	
	Moderate	16.1818	2.13516	0.062
	Severe	15.2407	2.41798	
	Total	15.8255	2.29197	
Total	Mild	69.6500	5.89894	
	Moderate	68.8333	5.95819	0.041
	Severe	66.4815	7.08371	
	Total	68.1959	6.47513	
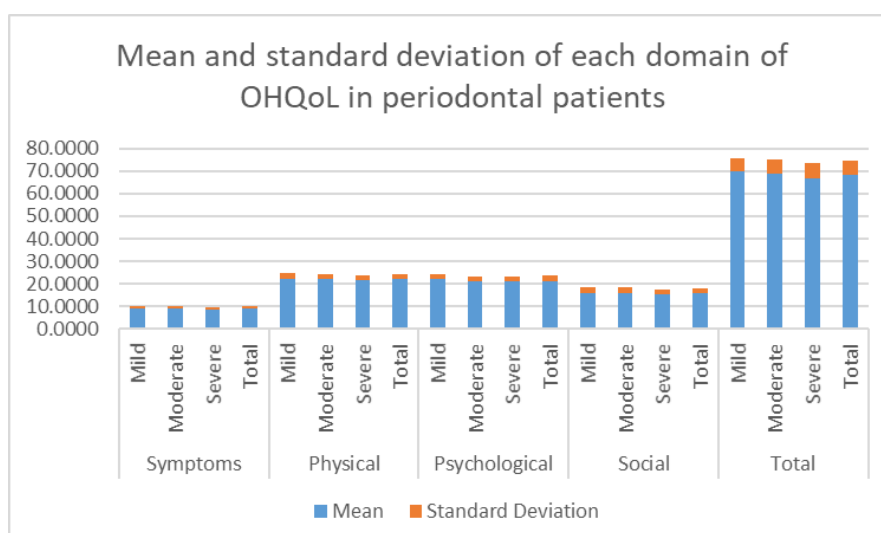
Figure 1: Mean and standard deviation of each domain of OHQoL in periodontal patients

In this research, 50 percent of the 145 patients had lower than a diploma, 34 percent had lower than a bachelor's degree, and 16 percent had a bachelor's degree or higher. Patients with a higher educational rating had a higher mean QoL score (P = 0.0001), which was statistically important in all aspects (symptoms: P =

0.049, physical: P = 0.004, psychological: P = 0.004, and social: P = 0.0001). Patients with less than a diploma degree had a inferior mean QoL score than the other classes (P 0.05). Furthermore, patients with a higher educational level had a statistically significant (P = 0.0001) higher mean QoL score.

Discussion:

The aim of this research was to evaluate the effect of periodontal status on OHQoL in 145 subjects using the OHQoL-UK questionnaire, that tests both the positive and negative parts of the relationship with periodontal health and QoL.[15,21]

Numerous clinical trials on the effects of periodontitis on OHQoL have been performed. Comparing their findings is difficult because they used a number of approaches to describe periodontal status and determine OHQoL.[9,15,20,21,29-32] In most observational studies[16,18,31,33-37], there was a correlation between extreme or moderate periodontitis and OHQoL, but in Mario et al. research, there was no straight link with periodontal status and mean OHIP score.[38]

In a research by Durham et al.,[39] patients suffering from chronic periodontitis had significantly lower OHQoL than healthy patients in physical, functional and psychological espects. The effect of periodontal diseases on patient QoL was mild in the physical pain and psychological impairment domains in Ng and Leung[16] and Al Habashnehet al.[33] studies. In comparison to research by Ng and Leung[16] and Arajo et al.,[31] the incidence of periodontal disease was not significantly correlated with functional inhibition subscales in the analysis done by Al Habashneh et al.[33] In this research, there was a statistically significant relationship with periodontal disease incidence and OHQoL score in terms of psychological factors (P 0.05). Periodontitis had a substantial outcome on OHQoL prevalence and incidence, but not on its extent, according to Lawrence et al.[34]

When compared to other oral diseases and disorders, periodontitis in the early stages with few symptoms has a lower effect on QoL.[40] The mean QoL score in severe periodontitis cases were significantly lower (P = 0.05) than in patients with mild periodontitis, but not in patients with moderate periodontitis, as seen in this research.

Periodontal wellbeing, both self-reported and clinically observed, is sensitive to the generic OHQoL measure.[41] While the influence of oral health on QoL was assessed using the OHQoL-UK scale, the prevalence of impact was high. In identifying self-reported signs and clinical evidence of periodontitis, the instrument showed discriminative validity.[15] As a result, it appears to be a better applicant for a fast and simple OHQoL assessment for periodontitis.

In the study by Moeintaghavi et al., patients with a basic school education had more oral effects on regular output scores than those with a secondary school education, suggesting bad oral health, which is consistent with our findings.[42] In addition, the research by Slade et al. discovered that educational status had a significant effect on OHQoL.[37]

The primary drawback of this research is that patients who come in for an initial periodontal examination often have issues with their gums, teeth and dentures, which may influence OHQoL measurements. Another disadvantage is the study's cross-sectional design, which determines exposure and result at the same time, and the time sequence is also difficult to identify. Furthermore, people's views of QoL can change over time, and this type of research may have a knowledge bias.

Though, the study population were referred to the Department of Periodontology, they had supplementary oral health problems than the general population, which could restrict the generalizability of our findings.

Since various OHQoL tools may have produced diverse results, it's probably best to figure out which one is the most successful for studying the influence of periodontal diseases on OHQoL.

QoL was negatively impacted by periodontal disease, and its effects were more in patients with extreme periodontal disease. Such results have important consequences for using OHQoL tests as objective clinical criteria in prevention services, periodontal disease detection, treatment, and subsequent periodontal care evaluation. Furthermore, to enhance QoL, oral health education should be included in general health promotion programs.

Conclusion:

Patients with serious periodontitis had a substantially lower mean QoL score than those with moderate periodontitis. Patients with a higher educational rating often have a higher average QoL score. According to the influence of periodontal disease incidence and educational level on QoL, appropriate intervention should be made for initial diagnosis and care in order to improve QoL.

References:

1. Fontanive V, Abegg C, Tsakos G, Oliveira M. The association between clinical oral health and general quality of life: A population-based study of individuals aged 50-74 in Southern Brazil. Community Dent Oral Epidemiol 2013;41(2):154-62.
2. Locker D, Quiñonez C. To what extent do oral disorders compromise the quality of life? Community Dent Oral Epidemiol 2011;39(1):3-11.
3. Naito M, Yuasa H, Nomura Y, Nakayama T, Hamajima N, Hanada N. Oral health status and health-related quality of life: A systematic review. J Oral Sci 2006;48(1):1-7.
4. Allen PF. Assessment of oral health related quality of life. Health Qual Life Outcomes 2003;1(1):40.
5. Meadows KA. Patient-reported outcome measures: An overview. Br J Community Nurs 2011;16(3):146-51.
6. Slade GD. Assessment of oral health related quality of life. In: Inglehart MR, Bagramian RA, editors. Oral Health- Related Quality of Life, Carol Stream, IL: Quintessence Publishing Co., Inc.; 2002. p. 29-46.
7. Locker D. Oral health and quality of life. Oral Health Prev Dent 2003;2:247-53.
8. Locker D, Allen F. What do measures of „oral health-related quality of life" measure? Community Dent Oral Epidemiol 2007;35(6):401-11.
9. Inglehart MR, Bagramian R. Oral Health-Related Quality of Life. Chicago: Quintessence Publication; 2002.
10. Locker D. Measuring oral health: A conceptual framework. Community Dent Health 1988;5(1):3-18.
11. Hebling E, Pereira AC. Oral health-related quality of life: A critical appraisal of assessment tools used in elderly people. Gerodontology 2007;24(3):151-61.
12. Gift HC, Redford M. Oral health and the quality of life. ClinGeriatr Med 1992;8(3):673-83.
13. Slade GD. Derivation and validation of a short-form oral health impact profile. Community Dent Oral Epidemiol 1997;25(4):284-90.
14. Pourabbas R, Kashefimehr A, Rahmanpour N, Babaloo Z, Kishen A, Tenenbaum HC, *et al*. Position paper: Epidemiology of periodontal diseases. J Periodontol 2005;76(8):1406-19.
15. Needleman I, McGrath C, Floyd P, Biddle A. Impact of oral health on the life quality of periodontal patients. J ClinPeriodontol 2004;31(6):454-7.
16. Ng SK, Leung WK. Oral health-related quality of life and periodontal status. Community Dent Oral Epidemiol 2006;34(2):114-22.
17. Cunha-Cruz J, Hujoel PP, Kressin NR. Oral health-related quality of life of periodontal patients. J Periodontal Res 2007;42(2):169-76.
18. López R, Baelum V. Oral health impact of periodontal diseases in adolescents. J Dent Res 2007;86(11):1105-9.
19. Cascaes AM, Peres KG, Peres MA. Periodontal disease is associated with poor self-rated oral health among Brazilian adults. J ClinPeriodontol 2009;36(1):25-33.
20. Jowett AK, Orr MT, Rawlinson A, Robinson PG. Psychosocial impact of periodontal disease and its treatment with 24-h root surface debridement. J ClinPeriodontol 2009;36(5):413-8.
21. Lopes MW, Gusmão ES, de VasconcelosAlves R, Cimões R. The impact of chronic periodontitis on quality of life in Brazilian subjects. ActaStomatol Croat 2009;43(2):89-98.
22. McGrath C, Bedi R. The value and use of „quality of life" measures in the primary dental care setting. Prim Dent Care 1999;6(2):53-7.
23. Saito A, Hosaka Y, Kikuchi M, Akamatsu M, Fukaya C, Matsumoto S, *et al.* Effect of initial

periodontal therapy on oral health-related quality of life in patients with periodontitis in Japan. J Periodontol 2010;81(7):1001-9.

24. Corson MA, Boyd T, Kind P, Allen PF, Steele JG. Measuring oral health: Does your treatment really make a difference. Br Dent J 1999;187(9):481-4.

25. Bae KH, Kim HD, Jung SH, Park DY, Kim JB, Paik DI, *et al.* Validation of the Korean version of the oral health impact profile among the Korean elderly. Community Dent Oral Epidemiol 2007;35(1):73-9.

26. McGrath C, Bedi R. An evaluation of a new measure of oral health related quality of life – OHQoL-UK(W). Community Dent Health 2001;18(3):138-43.

27. Grath CM, Bedi R, Gilthorpe MS. Oral health related quality of life – Views of the public in the United Kingdom. Community Dent Health 2000;17(1):3-7.

28. Armitage GC. Development of a classification system for periodontal diseases and conditions. Ann Periodontol 1999;4(1):1-6.

29. Reisine ST, Fertig J, Weber J, Leder S. Impact of dental conditions on patients" quality of life. Community Dent Oral Epidemiol 1989;17(1):7-10.

30. Aslund M, PjeturssonBE, Lang NP. Measuring oral health-related quality-of-life using OHQoL-GE in periodontal patients presenting at the University of Berne, Switzerland. Oral Health Prev Dent 2008;6(3):191-7.

31. Araújo AC, Gusmão ES, Batista JE, Cimões R. Impact of periodontal disease on quality of life. Quintessence Int 2010;41(6):e111-8.

32. Andersson P, Hakeberg M, Karlberg G, Ostberg AL. Clinical correlates of oral impacts on daily performances. Int J Dent Hyg 2010;8(3):219-26.

33. Al Habashneh R, Khader YS, Salameh S. Use of the Arabic version of oral health impact profile-14 to evaluate the impact of periodontal disease on oral health-related quality of life among Jordanian adults. J Oral Sci 2012;54(1):113-20.

34. Lawrence HP, Thomson WM, Broadbent JM, Poulton R. Oral health-related quality of life in a birth cohort of 32-year olds. Community Dent Oral Epidemiol 2008;36(4):305-16.

35. Brennan DS, Spencer AJ, Roberts-Thomson KF. Quality of life and disability weights associated with periodontal disease. J Dent Res 2007;86(8):713-7.

36. Bernabé E, Marcenes W. Periodontal disease and quality of life in British adults. J ClinPeriodontol 2010;37(11):968-72.

37. Slade GD, Spencer AJ, Locker D, Hunt RJ, Strauss RP, Beck JD. Variations in the social impact of oral conditions among older adults in South Australia, Ontario, and North Carolina. J Dent Res 1996;75(7):1439-50.

38. Mariño R, Schofield M, Wright C, Calache H, Minichiello V. Self-reported and clinically determined oral health status predictors for quality of life in dentate older migrant adults. Community Dent Oral Epidemiol 2008;36(1):85-94.

39. Durham J, Fraser HM, McCracken GI, Stone KM,John MT, Preshaw PM. Impact of periodontitis on oral health-related quality of life. J Dent 2013;41(4):370-6.

40. Thomson WM. Oral health and oral health-related quality of life. J Dent Health 2011;61:142-8.

41. Whitehead SP, Watts TL. Short-term effect of Keyes" approach to periodontal therapy compared with modified Widman flap surgery. J ClinPeriodontol 1987;14(10):599-604.

42. Moeintaghavi A, Arab H, Sargolzaei N, Dorri M, Darvishzadeh F, Alizadeh M. Oral health-related quality of life: A cross-sectional survey among adult patients in Mashhad, Iran. J Dent Mater Tech 2013;2(4):114-20.