EUROPEAN JOURNAL OF BIOMEDICAL AND PHARMACEUTICAL SCIENCES
http://www.ejbps.com

ISSN 2349-8870
Volume: 8
Issue: 9
365-370
Year: 2021

EFFECT OF PERIODONTAL DISEASE AND PERIODONTAL THERAPY ON ORAL HEALTH RELATED QUALITY OF LIFE IN PATIENTS WITH CHRONIC PERIODONTITIS

Dr. Saoji Manjiri B.* and Dr. Indurkar Maya S.[1]

*B.D.S, Department of Periodontology-154, Government Dental College and Hospital, Ghati, Jubli Park, Aurangabad, Maharashtra, India, Pin Code 431001.
[1]M.D.S. Periodontology, Department of Periodontology-154, Government Dental College and Hospital, Ghati, Jubli Park, Aurangabad, Maharashtra, India, Pin Code 431001.

***Corresponding Author: Dr. Saoji Manjiri B.**
B.D.S, Department of Periodontology-154, Government Dental College and Hospital, Ghati, Jubli Park, Aurangabad, Maharashtra, India, Pin Code 431001.

Article Received on 24/06/2021 **Article Revised on 15/07/2021** **Article Accepted on 05/08/2021**

ABSTRACT

Background: Oral health–related quality of life (OHRQoL) is a part of health-related QoL that focuses on oral health and orofacial distress. Periodontitis is an inflammatory disease affecting supporting structures of the teeth leading to loss of the periodontal ligament and alveolar bone. Periodontitis has been directly associated with OHRQoL, and treatment of the disease may amplify QoL, from a patient's perspective. **Aim:** To evaluate the impact of periodontal disease and periodontal therapy on oral health-related quality of life. **Methods:** The study was conducted between September 2019 to March 2021. 600 participants were enrolled in the study. Data was collected pertaining to demographic details, socioeconomic condition along with OHIP-14 questionnaire, to measure the impact of periodontal disease on oral health related quality of life. Scaling and root planning was performed for all participants in two appointments using ultrasonic and hand instruments. After a period of 4-5 weeks OHIP-14 questionnaire was provided for re-evaluation. **Results:** On baseline evaluation most, common complaint reported were occasional worsening of taste (20.53%) and unsatisfactory diet (26.99%) and frequently reported complaint was of painful aching in mouth and uncomfortable to eat food. After NSPT, OHIP-14 value for majority of participants reduced for almost all the domains of the questionnaire. **Conclusion:** Periodontal disease can adversely affect OHRQoL. Non-surgical periodontal therapy may not alone lead to complete resolution of periodontal disease but helps to enhance the QOL in periodontitis patient.

KEYWORDS: Oral health related quality of life, health related quality of life, chromic periodontitis, periodontal therapy.

INTRODUCTION

Health is defined as a state of complete physical, mental, and social well-being, and not merely lack of disease by the World Health Organization (WHO).[1] Quality of life (QoL), a multifaceted concept, is determined with an individual's subjective appraisal of both the positive and negative aspects of her or his life.[2] Oral health–related quality of life (OHRQoL) is a part of health-related QoL that focuses on oral health and orofacial distress. Numerous oral conditions have been correlated to decline in QoL and, in general, with the systemic health of an individual.[3-6] OHRQoL not only provides doctors and researchers with more information about the disease, but also quantifies the impact of certain disease on physical, psychological, and social aspect the individual, which is salutary for health risk factor tracing, treatment selection, and prognosis monitoring.[7]

Periodontitis is a common inflammatory disease induced by specific bacterial complexes present in the dental plaque biofilm affecting supporting structures of the teeth leading to loss of the periodontal ligament and alveolar bone. Recent systematic reviews have suggested that periodontal disease may exert an impact on the QoL, with a greater severity of the disease being related to a greater impact. [8,9] Periodontitis has been directly associated with OHRQoL, and treatment of the disease may amplify QoL, from a patient's perspective.[10]

To measure the impact of periodontal diseases on the quality of life, Oral Health Impact Profile-14 (OHIP-14) is used. OHIP-14 is a modification of OHIP-49 questionnaire introduced by Locker and Miller (1994). The original OHIP-49 is categorized items into seven domains and divided into Functional Limitation, Physical Pain, Psychological Discomfort, Physical Disability,

Psychological Disability, Social Disability, and Handicap. OHIP-14 consists of 14 questions two from each of seven domains of OHIP-49. The total OHIP-14 score is the overall sum score of the answers (0-56), with higher scores indicating poorer oral health related quality of life.[11,12]

The treatment of periodontal disease is categorized into non-surgical and surgical periodontal therapy. Various studies have shown contradictory reports on effect of periodontal therapy on OHRQoL.[13,14] In this part of the world where awareness and knowledge are limited among people, it is unclear whether periodontal disease have an influence on their social and psychological well-being. OHIP-14 can be used to assess the impact of periodontal disease from a patient's perspective and can detect changes in quality of life (QoL) before and after non-surgical periodontal therapy. [15] Therefore, the aim of this study was to evaluate the impact of periodontal disease and periodontal therapy on oral health-related quality of life.

MATERIALS AND METHODS

This cross-sectional study was conducted in department of Periodontology, Government dental college and hospital, Aurangabad. Maharashtra from September 2019 to March 2021.

Inclusion criteria

Age of participants ≥18 years
Patient with probing pocket depth of ≥ 5 mm with at least one tooth and clinical attachment loss of ≥3mm
Patients diagnosed with moderate-to-severe generalized/localized chronic periodontitis
Individuals who had not undergone any extensive periodontal therapy in the previous 6 months
Patients who were ready to undergo non-surgical periodontal therapy

Exclusion criteria

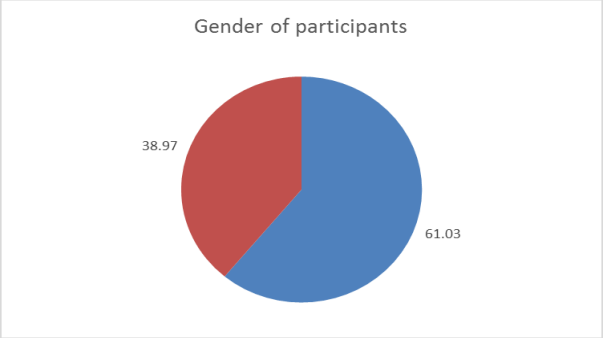
Patients diagnosed with aggressive periodontitis
Patients who had undergone periodontal therapy in last 6 months
Patients with habit history of alcohol, smoking and/or tobacco chewing
Patient wearing dentures or orthodontic appliances
Patients taking anti-inflammatory drug and/or antibiotics
Pregnant and lactating females

Comprehensive periodontal examination was carried out under artificial light using mouth mirror and periodontal probe (UNC-15). After baseline examination, a total of 600 participants were enrolled in the study. Written informed consent was obtained from all the participants prior to the start of the study. Data was collected using an ordered questionnaire pertaining to demographic detail and information about socioeconomic characteristics. Socioeconomic characteristic was assessed using modified kuppuswamy scale (2020).[16] To measure the impact of periodontal disease on oral health related quality of life oral health impact profile - 14 was used. For usage in local population OHIP-14 questionnaire was translated from original English language into Hindi/Marathi. Participants were asked to answer the OHIP-14 questions on a five-point Likert scale from 0 to 4 with 0 - never, 1 - hardly ever, 2 - occasionally, 3 - fairly often, and 4 - very often.

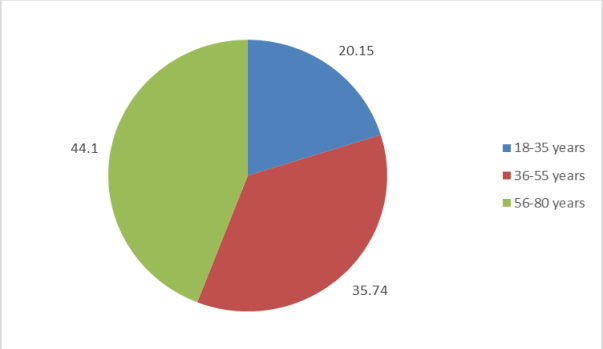
OHIP-14 was self-completed by all participants. Oral health education and oral hygiene instructions were given to all the participants followed by scaling and root planning in two appointments using ultrasonic and hand instruments. For those complaining of mobility and caries, extraction and restorative procedure were carried out respectively. Patients were also motivated for home care measures like brushing teeth twice daily, use of dental floss or interdental brush, mouth wash and tongue cleaner. After a period of 4-5 weeks all the participants were reviewed and OHIP-14 questionnaire was provided for re-evaluation. Appropriate periodontal therapy and periodontal surgery was planned for those with residual pocket depth of >5mm.

RESULTS

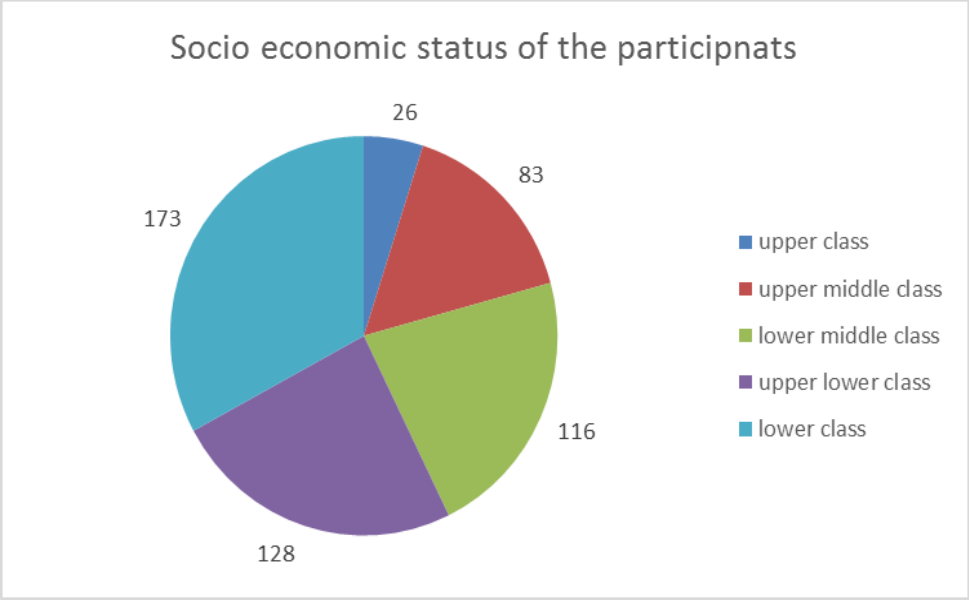
600 patients with periodontitis were initially included in the study. However out of 600 patients 74 failed to complete the follow up and hence were dropped out from the study. The demographic information about gender and age of the participants is presented in Graph 1 and graph 2 respectively. The data regarding socioeconomic status of the population is presented in graph 3.



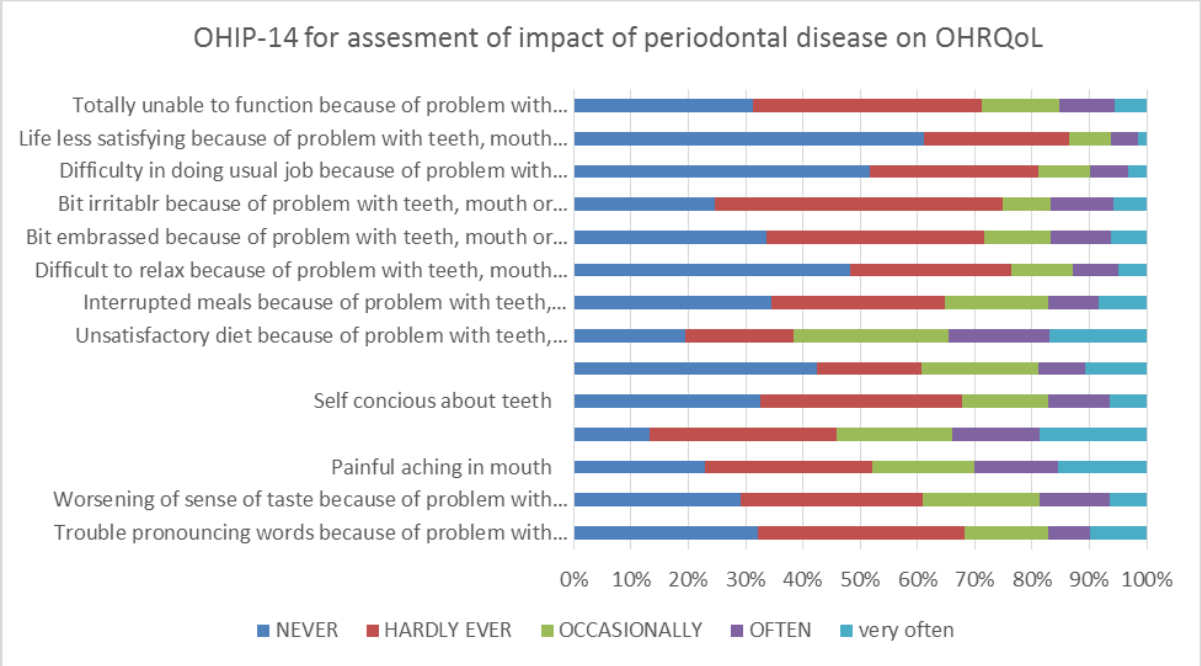
Graph 1: Amongst all the paticipants 61.03% were men and 38.97% were women.



Graph 2: Amongst all the participants 20.15% were from age group 18-35 years, 35.74% were from age group 36-55 years and 44.1 % were from 56-80 years.

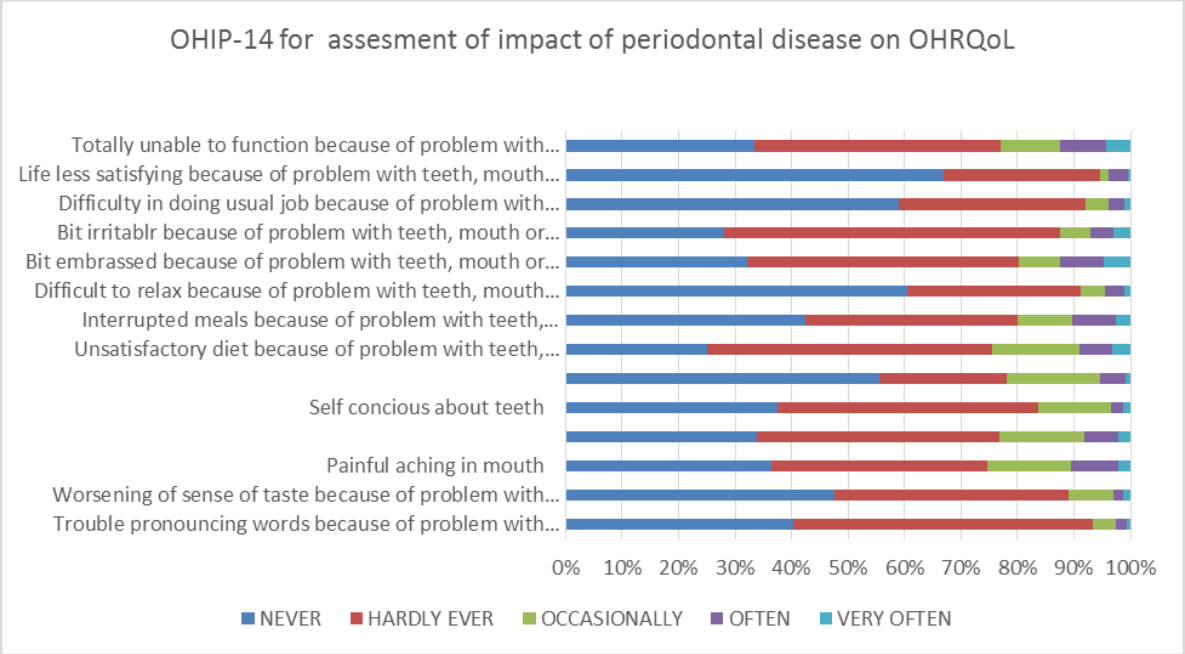


Graph 3: It depicts the socioeconomic characteristics of the participants using Modified kuppuswamy scale (2020). Out of 526 participants, 26 participants were from upper class, 83 were from upper middle class, 116 were from lower middle class, 128 were from upper lower class and 173 were from upper lower socioeconomic class.



Graph 4: OHIP-14 questionnaire for assessment of initial patient response pertaining to impact of periodontal disease on oral health related quality of life.

On baseline evaluation it was observed that score "**never**" was reported by majority of participants pertaining to the domain of tension about teeth (42.39%), difficulty to relax (43.34%), difficulty in doing usual job (51.71%) and less satisfying life (61.21%). Score of "**hardly ever**" was reported by majority of participants for domain of trouble in pronouncing certain words (36.12%). feeling of embarrassment (38.02%), irritability (50.19%) and inability to function (40.11%). Also, most common complaint reported was "**occasional"** worsening of taste (20.53%) and unsatisfactory diet (26.99%). Score of **"often**" to "**very often**" was reported in domain of uncomfortable eating of food and painful aching in mouth.



Graph 5: OHIP-14 questionnaire for assessment of patient response pertaining to impact of non-surgical periodontal therapy on oral health related quality of life.

After NSPT, OHIP-14 value for majority of participants reduced to "**never or hardly ever**" for almost all the domains of the questionnaire. The score of "**occasional to very often**" was reported by lesser number of participants post NSPT compared to the baseline result.

DISCUSSION

The present study intended to inspect the impact of periodontal disease and non-surgical periodontal therapy on OHRQoL. This study confirms that demographic and socioeconomic characteristics have a detrimental impact on the oral health-related quality of life. Nearly half of the study participants were from age group between 55-80 years and presented with more severe periodontitis compared to other age group. High prevalence of periodontal disease in older individual can be ascribed to poor oral hygiene, lack of oral health promotion programs and policies aimed at the older population.[17] In addition, the high concentration of periodontal breakdown in older people could be because of the collective effect of untreated periodontal disease over a period of time rather than the effect of age on periodontal disease.[18] Aging is known to impair the immune and inflammatory responses which in turn contribute to periodontal tissue destruction in older population.[19] Poor periodontal health in older people has been previously illustrated in a study conducted in Indonesia, and it was reported that there was a significant correlation between the older age and periodontal disease.[20] Data from National Health and Nutrition Examination Surveys from U.S. showed that 40.7% of 65 years and older individual experienced attachment loss of ≥6 mm, and 22.7% demonstrated periodontal pockets ≥5 mm.[21]

In this study modified kuppuswamy scale was used to evaluate the socioeconomic characteristic and it was seen that most of the participants were from upper lower(128) and lower socioeconomic group(173) while very few were from upper class(26). In upper lower and lower socioeconomic group head of the house presented with low educational qualification which was responsible for lower perception and awareness about importance of oral health and oral health care. In addition, inadequate income deprived this individual from access to dental care and timely dental visits. In literature various studies have shown an inverse relationship between the severity of periodontal disease and income of individual.[22] Borrell et al. indicated that low-income subjects had significantly higher odds of (odds ratio 1.8) having severe periodontal disease than high-income subjects.[23] Similarly, the report of the third National Health and Nutrition Examination Survey (NHANES III) from U.S. showed that individuals living in low socioeconomic area were 1.81 times more likely to have periodontitis compared to those living in the high socioeconomic neighborhood.[24] Korean National Health and Nutrition Examination Survey IV (2007-209) also found similar trends of increased periodontal disease among low-income individuals.[25] literature has consistently shown inequalities about periodontitis among individuals of varying income backgrounds.[26,27]

On recording baseline OHIP-14 score in periodontitis participants, it was seen that periodontal disease has a negative impact on OHRQOL. The result of this study was in agreement with findings from most of the other studies[9, 28-30] showing poorer OHRQoL in periodontal disease individuals. Most common finding of this study were worsening of taste, painful aching in mouth leading to unsatisfactory diet, interrupted meal and loss of

function. It was observed that various domain of oral health impact profile are interlinked and are interdependent on each other. Alteration of one domain directly or indirectly affects the other domain and overall OHRQoL. On post treatment reevaluation i.e after NSPT it was seen that response of patient on OHIP-14 scale changed from often and occasional to hardly ever or never. There was a reduction in severity of periodontal manifestation after NSPT. This was similar to result from other recently conducted study.[13,28,29,32,33]

The data from this study confirms that periodontal disease is not a silent killer but a complex multifactorial disease which adversely affect the OHRQoL. Conventional non-surgical periodontal therapy helps to enhance the OHRQoL but achieving complete resolution of periodontal disease with non-surgical periodontal therapy alone is difficult.

People perceptions of OHRQoL may change over time and an information bias may exist which is a limitation of this type of study.

CONCLUSION

This study indicates that periodontal disease can adversely affect OHRQoL. Moreover, the severity of periodontitis increases with advancing age. Socioeconomic inequalities exist between different groups of society and it act as a barrier for equal opportunities to dental care. Therefore, Non-surgical periodontal therapy may not alone lead to complete resolution of periodontal disease but helps to enhance the QOL in periodontitis patient. Proper education and awareness about oral health can lead to decrease in number of oral health problem. It will not only help in correction and interception of the periodontal disease but will also help in prevention of further progression of the disease and associated complication

REFERENCES

1. World Health Organization: Oral Health. Fact sheet no. 318. April. 2012.
2. The World Health Organization Quality of Life Assessment (WHOQOL): development and general psychometric properties. Soc Sci Med, 1998; 46: 1569-85.
3. Masud M, Al-Bayaty F, Muhamed NAH, Alwi AS, Takiyudin Z, Hidayat M. Gingival recession and dentine hypersensitivity in periodontal patients: is it affecting their oral health related quality of life? J Int Dent Med Res., 2017; 10: 909–14.
4. Wagner TP et al. Gingival recession and oral health-related quality of life: a population-based cross-sectional study in Brazil. Community Dent Oral Epidemiol, 2016; 44: 390-9.
5. Sun L, Wong HM, McGrath CP. Relationship Between the Severity of Malocclusion and Oral Health Related Quality of Life: A Systematic Review and Meta-analysis. Oral Health Prev Dent, 2017; 15: 503-517.
6. Dahl KE, Wang NJ, Ohrn K. Does oral health matter in people's daily life? Oral health-related quality of life in adults 35-47 years of age in Norway. Int J Dent Hyg, 2012; 10: 15-21.
7. Allen PF. Assessment of oral health related quality of life. Health Qual Life Outcomes, 2003; 1: 40.
8. Ferreira MC, Dias-Pereira AC, Branco-de-Almeida LS, Martins CC, Paiva SM. Impact of periodontal disease on quality of life: a systematic review. J Periodontal Res., 2017; 52: 651-665.
9. Buset SL, Walter C, Friedmann A, Weiger R, Borgnakke WS, Zitzmann NU. Are periodontal diseases really silent? A systematic review of their effect on quality of life. J Clin Periodontol, 2016; 43: 333-44.
10. Goel K, Baral D. A Comparison of Impact of Chronic Periodontal Diseases and Nonsurgical Periodontal Therapy on Oral Health-Related Quality of Life. Int J Dent, 2017; 2017: 9352562.
11. Slade GD, Spencer AJ. Development and evaluation of the Oral Health Impact Profile. Community Dent Health, 1994; 11: 3-11.
12. Locker D. Measuring oral health: a conceptual framework. Community Dent Health, 1988; 5: 3-18.
13. zcelik O, Haytac MC, Seydaoglu G. Immediate post-operative effects of different periodontal treatment modalities on oral health-related quality of life: a randomized clinical trial. J Clin Periodontol, 2007; 34: 788-96.
14. Saito A et al. Potential impact of surgical periodontal therapy on oral health-related quality of life in patients with periodontitis: a pilot study. J Clin Periodontol, 2011; 38: 1115-21.
15. Needleman I, McGrath C, Floyd P, Biddle A. Impact of oral health on the life quality of periodontal patients. J Clin Periodontol, 2004; 31: 454-7.
16. Wani RT. Socioeconomic status scales-modified Kuppuswamy and Udai Pareekh's scale updated for 2019. J Family Med Prim Care., 2019; 8: 1846-49.
17. Petersen PE, Kandelman D, Arpin S, Ogawa H. Global oral health of older people--call for public health action. Community Dent Health, 2010; 27: 257-67.
18. Genco RJ. Current view of risk factors for periodontal diseases. J Periodontol, 1996; 67: 1041-9.
19. Hajishengallis G. Periodontitis: from microbial immune subversion to systemic inflammation. Nat Rev Immunol, 2015; 15: 30-44.
20. Tadjoedin FM, Fitri AH, Kuswandani SO, Sulijaya B, Soeroso Y. The correlation between age and periodontal diseases. J Int Dent Med Res., 2017; 10: 327-32.
21. Eke PI, Dye BA, Wei L, Slade GD, Thornton-Evans GO, Borgnakke WS, Taylor GW, Page RC, Beck JD, Genco RJ. Update on Prevalence of Periodontitis in Adults in the United States: NHANES 2009 to 2012. J Periodontol, 2015; 86: 611-22.

22. Borrell LN, Crawford ND. Socioeconomic position indicators and periodontitis: examining the evidence. Periodontol 2000, 2012; 58: 69-83.
23. Borrell LN, Beck JD, Heiss G. Socioeconomic disadvantage and periodontal disease: the Dental Atherosclerosis Risk in Communities study. American journal of public health, 2006; 96: 332-9.
24. Borrell LN, Burt BA, Warren RC, Neighbors HW. The role of individual and neighborhood social factors on periodontitis: the third National Health and Nutrition Examination Survey. J Periodontol, 2006; 77: 444-53.
25. Lee HS, Kwon SO, Yon M, Kim D, Lee JY, Nam J, Park SJ, Yeon JY, Lee SK, Lee HY, Kwon OS, Kim CI. Dietary total sugar intake of Koreans: Based on the Korea National Health and Nutrition Examination Survey (KNHANES), 2008-2011. J Nutr Health, 2014; 47: 268-276.
26. Borrell LN, Crawford ND. Social disparities in periodontitis among United States adults 1999-2004. Community Dent Oral Epidemiol, 2008; 36: 383-91.
27. Sabbah W, Tsakos G, Chandola T, Sheiham A, Watt RG. Social gradients in oral and general health. J Dent Res., 2007; 86: 992-6.
28. Jowett AK, Orr MT, Rawlinson A, Robinson PG. Psychosocial impact of periodontal disease and its treatment with 24-h root surface debridement. J Clin Periodontol, 2009; 36: 413-8.
29. Shanbhag S, Dahiya M, Croucher R. The impact of periodontal therapy on oral health-related quality of life in adults: a systematic review. J Clin Periodontol, 2012; 39: 725-35.
30. Jönsson B, Öhrn K. Evaluation of the effect of non-surgical periodontal treatment on oral health-related quality of life: estimation of minimal important differences 1 year after treatment. J Clin Periodontol, 2014; 41: 275-82.
31. 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: 113-20.
32. Wong RM, Ng SK, Corbet EF, Keung Leung W. Non-surgical periodontal therapy improves oral health-related quality of life. J Clin Periodontol, 2012; 39: 53-61.
33. Mendez M, Melchiors Angst PD, Stadler AF, Oppermann RV, Gomes S. Impacts of supragingival and subgingival periodontal treatments on oral health-related quality of life. Int J Dent Hyg., 2017; 15: 135-141.