European Annals of Dental Sciences
Official Publication of Ankara University, Faculty of Dentistry

EADS, 2022, 49 (Suppl), S57–60

e-ISSN : 2757-6744
doi : 10.52037/eads.2022.0025

Article Received : October, 2 2021
Article Accepted : May, 10 2022

CONGRESS PROCEEDING

Impact of Non-Surgical Periodontal Therapy on Quality of Life of Periodontitis Patients

Hassan Behravan [1]*, Canan Önder [2], Şivge Kurgan [2], Merve Altıngöz [3], Cem Gürgan [4] and Meral Günhan [2]

[1]Private practice, İstanbul, Turkey and [2]Department of Periodontology, Ankara University, Faculty of Dentistry, Ankara, Turkey and [3]Department of Periodontology, Lokman Hekim University Faculty of Dentistry, Ankara, Turkey and [4]Department of Periodontology, Nuh Naci Yazgan University Faculty of Dentistry, Kayseri, Turkey

*Corresponding Author; smerve.unal@yahoo.com

Abstract

Purpose: Oral Health Impact Profile (OHIP-49) and a shorter version of that (OHIP-14) are the most comprehensive, accessible, and common scales to measure the impact of the treatment on quality of patient's life. Our aim was to evaluate the effect of non-surgical periodontal therapy on quality of generalized chronic periodontitis patients' life by using the Turkish version of the OHIP-14 scale (OHIP-14-TR).
Method: 58 patients (21 women and 37 men) diagnosed with generalized chronic periodontitis and requiring non-surgical periodontal therapy were recruited in this study. All patients were asked to fill in a form containing demographic, socio-economic information, reason of dental visit and oral hygiene habits. Clinical periodontal parameters (Plaque index (PI), gingival index (GI), probing pocket depth (PPD), clinical attachment loss (CAL), and bleeding on probing (BOP)) were recorded at baseline, and 1 month after treatment. Non-surgical periodontal therapy, including scaling and root planing, was completed in two appointments over the course of one week. OHIP-14-TR questionnaires have been filled out before and after treatment.
Results: There were significant decreases in all periodontal parameters and OHIP-14-TR one month after non-surgical periodontal treatment ($p<0.001$). There were significant positive correlations with OHIP-14-TR, PI, and GI (respectively; $p=0.024$. $p=0.026$). On the contrary there were no correlations between OHIP-14-TR, and BOP, PPD, and CAL ($p>0.05$). Significant positive correlation was found between physical pain, and BOP and PPD. After periodontal treatment, BOP, PPD, and physical pain decreased.
Conclusion: Non-surgical periodontal treatment was found to be successful in improving patients' quality of life, according to the findings of this study.

Key words: Chronic periodontitis; Quality of life; Oral Health Impact Profile; Periodontal treatment.

Introduction

World Health Organization defined 'Health' as 'A state of complete physical, mental and social well-being and not merely the absence of disease or infirmity' in 1948. In the same year, WHO defined 'quality of life' as an individual's sense of their position in life in relation to their objectives, expectations, standards, and concerns in the context of the culture and value systems in which they live. Oral health has been proven to have a major impact on appearance, breath, comfort, sleep, social life, and quality of life. Oral health is a default standard for contributing to physical, psychological, and social health, enabling individuals to take part in selected social roles, eating, communicating, and socializing without discomfort and intraoral tissues.[1] Oral health-related quality of life is the individual's personal perception of how oral health affects their quality of life and general health. Factors affecting quality of life and oral health-related quality of life are personal characteristics, psychological state, socio-demographic factors, factors affecting lifestyle, and judgements of the social environment. The health standard-based assessment is essential to indicate health. Therefore, nowadays for determining evaluating the impact of intraoral problems on health and quality of life, some surveys are being used. Although there were no scales measuring the relationship between oral health and quality of life twenty years ago, today there are several surveys evaluating the impact of oral problems on health and quality of life.[1,2] Among the scales the most comprehensive, accessible, and most

How to cite: Behravan H, Onder C, Kurgan S, Altingoz M, Gurgan C, Gunhan M. Impact of Non-Surgical Periodontal Treatment of Generalized Chronic Periodontitis on Quality of Life. EADS. 2022;49(Suppl):S57-60

common are the Oral Health Impact Profile OHIP-49 and OHIP-14. It is a scale that is personally perceived by individuals, measures the social impact of oral diseases on general health, and is used all over the world. The main benefit of this scale is that the questions are presented by patients rather than researchers or dentists.[2] OHIP-49, which had 49 questions was shortened to include 2 questions from each of the 7 titles. Shorten version OHIP-14 was created and approved by Slade, which includes 14 questions and had the same validity and reliability.[1,2] These scales include selection of treatment needs and type of treatment which can provide valuable information for evaluating treatment outcomes and monitoring the patient's condition. On this point, studies have been conducted to evaluate the effect of periodontal disease and its treatment on quality of life.[3–6] In a study by Balcı et al. the Turkish version of the OHIP-14 scale (OHIP-14-TR) was created and implemented.[7] The aim of this study was to evaluate the effect of periodontal status on quality of life of individuals with periodontal disease at baseline and 1 month after non-surgical periodontal treatment using the OHIP-14-TR.

Methods

The study consisted of fifty-eight patients who referred to Ankara University Faculty of Dentistry Department of Periodontology for periodontal treatment. Being over 25 years old, having at least 15 teeth (excluding third molars), and being diagnosed with generalized chronic periodontitis were prerequisites for inclusion. (Affected areas more than 30%, PPD ≥5mm (at least 8 areas), CAL ≥5mm (At least 4 areas), and BOP ≥30%). Patients with systemic disease requiring antibiotic prophylaxis for periodontal treatment, patients with any systemic disease associated with periodontal therapy and/or medication, patients who had received periodontal treatment in the previous 6 months, and female patients who were pregnant or potentially pregnant during the study were all excluded. Clinical periodontal parameters as PI, GI, PPD, BOP, and CAL were recorded. The study was reviewed and approved by the Ethics Committee for the use of human subjects in research, Ankara University Faculty of Dentistry (No:35/2, on 14.05.2012). Participants were asked to complete a questionnaire that included demographic information (age, gender), socioeconomic status (education, marital status, income), the reason for applying to faculty, oral hygiene habits (brushing, interdental cleaning, use of oral rinse), the frequency of dental examinations, and the use of removable dentures. Oral health-related quality of life was assessed using the OHIP-14-TR scale. All periodontal measures (PI, GI, PPD, BOP, and CAL) as well as OHIP-14-TR scores were recorded again in the control session, one month after periodontal treatment.

Descriptive analyses were performed by using SPSS for Windows 15. Data were expressed as mean ± SD and median (IQR). Mann Whitney U and Wilcoxon test were used for statistical analyses. Correlation between OHIP-14 and periodontal clinical parameters was performed using Spearman's correlation.

Results

A total of 58 patients, 21 women (36.2%) and 37 men, with a mean age of 45.07±7.28 were included in the study. 49 of the participants were married and 9 of them were single. 3 patients were uneducated, 14 patients had completed primary school, 22 patients had completed high school, 13 patients had completed university, and 6 patients had completed higher graduate education. While 17 patients had a monthly income of less than 1000 TL, just three patients had a monthly income of 4000-5000 TL. 36 patients (62.1%) applied to faculty for gingival problems, 15 patients (25.9%) for dental problems, 4 patients (6.9%) for a prosthesis requirement, and 3 patients (5.2%) for control. Gingival bleeding was reported in 54 of 58 individuals, with 39 patients having no teeth mobility and 19 having teeth mobility Table 1. After non-surgical periodontal treatment, all periodontal parameters (PI, GI, PPD, CAL and BOP) were decreased significantly when compared to pre-treatment values ($p<0.001$). Post-treatment OHIP-14-TR values were also significantly decreased ($p<0.001$). Functional limitation, physical pain, psychological discomfort, physical disability, psychological disability, social disability, and handicap values were decreased significantly after treatment compared to baseline. ($p<0.001$) Table 2. While statistically significant correlations were found between PI, GI, and OHIP-14-TR ($p<0.05$); no significant correlations were found between BOP, PPD, CAL and OHIP-14-TR ($p>0.05$). Statistically significant positive correlations were found between physical pain and BOP, also between physical pain and PPD ($p<0.05$). No statistically significant relationship was found between gender, educational status, income level and OHIP-14-TR ($p>0.05$). While the decrease in OHIP-14-TR was 61.54% in patients without gingival bleeding; the decrease in OHIP-14-TR was found to be 75% in those with gingival bleeding. The decrease in OHIP-14-TR was statistically significantly higher in patients with gingival bleeding than in those without bleeding ($p<0.05$). While the decrease in OHIP-14-TR was 85.71% in patients who did not have any complaints of mobility; the decrease in OHIP-14-TR was found to be 69.23% in those with bleeding complaints. The decrease in OHIP-14-TR after treatment in patients with mobility was statistically significantly higher than in patients without mobility ($p<0.05$). The decrease in OHIP-14-TR was significantly higher in patients who did not use removable prosthesis ($p<0.05$). In smokers, the decrease in OHIP-14-TR was 73.68%, and in non-smokers it was 78.46%. The decrease in OHIP-14-TR was greater in non-smokers, but this difference was not statistically significant ($p>0.05$).

Table 1. Demographic and socio-economic status of patients

		N	%
Gender	Female	21	36.2
	Male	37	63.8
Marital status	Married	49	84.5
	Single	9	15.5
Education	Uneducated	3	5.2
	Primary school	14	24.1
	High school	22	37.9
	University	13	22.4
	Higher education	6	10.3
Income	Less than 1000 TL	17	29.3
	1001-1999 TL	17	29.3
	2000-2999 TL	17	29.3
	3000-3999 TL	4	6.9
	4000-4999 TL	3	5.2
	More than 5000 TL	-	
Reason for applying faculty	Gingival problems	36	62.1
	Dental problems	15	25.9
	Prosthesis	4	6.9
	Control	3	5.2

Discussion

In this study, the relationship of non-surgical periodontal treatment with quality of life and oral health was evaluated over a 1-month period using the OHIP-14-TR scale. The findings of this study reveal that there is a statistically significant relationship between periodontal disease clinical symptoms and quality of life. According to our results, it can be said that periodontal treatment provides

Table 2. Clinical Periodontal Parameters, and OHIP-14-TR Questionnaire Before and After Non-surgical Periodontal Treatment

	Before Treatment Median (min-max)	After Treatment Median (min-max)	p
PI*	1.83 (1.28-2.68)	0.48 (0.29-0.91)	**<0.001**
GI*	1.61 (1.01-2.84)	0.47 (0.25-0.81)	**<0.001**
PPD*	4.37 (3.34-5.11)	3.34 (2.51-4.01)	**<0.001**
CAL*	4.65 (3.51-5.75)	4.04 (3.13-4.77)	**<0.001**
	Before Treatment **Mean ± Sd**	**After Treatment** **Mean ± Sd**	**p**
BOP**	69.4±6.7	26.1±7.4	**<0.001**
	Before Treatment **Median (min-max)**	**After Treatment** **Median (min-max)**	**p**
OHIP-14-TR*	12 (1-32)	3 (0-16)	**<0.001**
Functional Limitation*	0 (0-4)	0 (0-2)	**<0.001**
Physical Pain*	2 (0-7)	0 (0-3)	**<0.001**
Psychological Discomfort*	1.5 (0-4)	0 (0-2)	**<0.001**
Physical Disability*	1.5 (0-4)	0 (0-2)	**<0.001**
Psychological Disability*	2.5 (0-6)	1 (0-3)	**<0.001**
Social Disability*	2 (0-5)	0 (0-3)	**<0.001**
Handicap*	0 (0-6)	0 (0-3)	**<0.001**

Abbreviations: PI, plaque index; GI, gingival index; PPD, probing pocket depth; CAL, clinical attachment loss; BOP, bleeding on probing. *Data were expressed as medians and IQRs. ** Data were expressed as mean ± SD. Statistically significant ($p<0.05$).

a significant improvement in individuals' perception of quality of life.[1,2] Periodontal disease is a common oral health problem of varying severity and prevalence in the community. It causes destruction of the tooth support tissues including the periodontal attachment and alveolar bone, also may cause tooth loss in severe cases. Due to inflammation and periodontal tissue destruction, periodontal disease causes clinical symptoms such as bleeding, tooth mobility and halitosis, therefore have an impact on daily life.[1,2] The reliability of the Turkish version of OHIP-14 (OHIP-14-TR) was observed to be close to the golden standard and perfect. OHIP-14-TR correlates with different clinical conditions and has excellent internal consistency (Cronbach Alpha=0.91). These physio metric features are important for health scales and these features make the OHIP-14-TR suitable for evaluating oral health-related quality of life in Turkish population.[7] It is reported that the evaluation of the effects of non-surgical treatment on quality of life of generalized periodontitis patients with OHIP-14 scale in early period after periodontal treatment is important for understanding the effect of periodontal treatment on patients and thus for motivating patients to maintain their oral hygiene. Özçelik et al. emphasized that conditions such as pain, anxiety and reluctance that can be seen in the maintenance phase can be avoided with early post-treatment patient follow-up.[8] In our study, all periodontal parameters and OHIP-14-TR scale were repeated at first month after the non-surgical periodontal treatment to evaluate the short-term effects of the therapy. The possibility of lack of motivation occurring in the long-term evaluation, which could have an unfavorable effect on OHIP-14-TR, was eliminated by selecting a one-month short-term evaluation period. While Gürgan et al.[9] evaluated PI and GI scores on the 7th day after non-surgical periodontal treatment; Zambon et al. evaluated PI on the 5th day.[10] Zambon et al. (1989) also evaluated PPD and CAL on the 28th day after bilateral flap surgery.[10] In the literature the relationship between bleeding and mobility and quality of life has not been studied separately. However, it has been accepted as a remarkable fact that periodontal treatment reduces gingival bleeding and mobility complaints caused by periodontal disease, and thus improves quality of life.[4] In various studies, it was shown an improvement in tooth function after non-surgical periodontal treatment.[3,5] Psychological improvement[3,6] and reduction in physical pain[5,6] has been also reported after non-surgical treatment. A decrease in these values indicates a decrease in the OHIP-14 value, which may be attributed to an improvement in quality of life. We can also conclude that while BOP and PPD decreased after treatment, physical pain also decreased. So, the relationship between these parameters was found to be statistically significant. As a result, the relationship between these variables was found to be statistically significant. Clinical periodontal parameters were not correlated with OHIP-14-TR scores in our study. This may be because people may only become aware of a problem as the disease progresses. From this point of view, it is possible to conclude that patients are not sufficiently aware of their oral health. Both periodontal status and periodontal treatment have a remarkable impact on daily life and quality of life. Periodontal status has been shown to have an impact on patients' quality of life, with individuals who do not have severe periodontal disease having a better quality of life.[4] To have idea about patients' expectations about oral health, it is important to understand the concept of periodontal disease and the impact of periodontal treatment. Furthermore, it is critical to assess the impact of periodontal disease on patients' lives in order to provide periodontal treatment based on the patient's needs and to raise awareness of the importance of periodontal care in society.[4]

Conclusion

Several studies show that, clinical periodontal status is closely related to quality of life. Evaluation of the impact of non-surgical periodontal treatment on patients' quality of life is necessary to draw public attention to the importance of periodontal health. We can conclude that non-surgical periodontal treatment improves quality of life and provides significant recovery.

Author Contributions

HB recorded the clinical data. CO contributed to study design, helped to record clinical data, analyzed the clinical data and helped interpret the results. SK contributed to study design, analyzed the clinical data and helped interpret the results. MA contributed to study design, recorded the clinical data, and wrote the manuscript with input from other authors. CG contributed to study design and helped interpret the results. MG contributed to study design, directed the implementation of the research, helped interpret the results and was the study coordinator. All authors reviewed and approved the submitted final manuscript.

Conflict of Interest

Authors declare that they have no conflict of interest.

Authors' ORCID(s)

H.B. 0000-0003-2350-0457
C.O. 0000-0002-8995-6361
S.K. 0000-0002-7868-4217
M.A. 0000-0002-9709-6226
C.G. 0000-0003-0811-008X
M.G. 0000-0002-3848-6195

References

1. Slade GD, Spencer AJ. Development and evaluation of the Oral Health Impact Profile. Community Dent Health. 1994;11(1):3–11.
2. Slade GD. Derivation and validation of a short-form oral health impact profile. Community Dent Oral Epidemiol. 1997;25(4):284–90. doi:10.1111/j.1600-0528.1997.tb00941.x.
3. Aslund M, Suvan J, Moles DR, D'Aiuto F, Tonetti MS. Effects of two different methods of non-surgical periodontal therapy on patient perception of pain and quality of life: a randomized controlled clinical trial. J Periodontol. 2008;79(6):1031–40. doi:10.1902/jop.2008.070394.
4. Ng SK, Leung WK. Oral health-related quality of life and periodontal status. Community Dent Oral Epidemiol. 2006;34(2):114–22. doi:10.1111/j.1600-0528.2006.00267.x.
5. 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. doi:10.1902/jop.2010.090663.
6. 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(1):53–61. doi:10.1111/j.1600-051X.2011.01797.x.
7. Balci N. Periodontal hastalığın yaşam kalitesi üzerine etkisi [Thesis]. Ankara University; 2011.
8. Ozcelik 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(9):788–96. doi:10.1111/j.1600-051X.2007.01120.x.
9. Gürgan CA, Zaim E, Bakirsoy I, Soykan E. Short-term side effects of 0.2% alcohol-free chlorhexidine mouthrinse used as an adjunct to non-surgical periodontal treatment: a double-blind clinical study. J Periodontol. 2006;77(3):370–84. doi:10.1902/jop.2006.050141.
10. Zambon JJ, Ciancio SG, Mather ML, Charles CH. The effect of an antimicrobial mouthrinse on early healing of gingival flap surgery wounds. J Periodontol. 1989;60(1):31–4. doi:10.1902/jop.1989.60.1.31.