

Evaluation of Surgical and Non-Surgical Periodontal Treatment on Oral Health Related Quality of Life

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Abstract

The periodontal clinical measures of the effects of surgical and non-surgical techniques have been widely described, but the subjective parameters after the procedures need to be well investigated, focusing their direct influence on the quality of life of these individuals. This observational study aims to evaluate the impact of periodontal disease on the quality of life of individuals submitted to surgical and non-surgical periodontal treatment through the application of the OHIP-14 questionnaire. Sixty patients were interviewed, of which 30 were from the surgical treatment group and 30 were from the non-surgical treatment group. The subjects included in the study underwent surgical periodontal treatment with flap for access to scaling and non-surgical periodontal treatment with scaling and root straightening. The OHIP-14 questionnaire was applied at two times, 7 days and 30 days after treatment. The results of the surgical periodontal treatment group after 7 days showed a significant impact on quality of life, after 30 days did not show improvement in the quality of life, affecting the subgroup, and the results of non-surgical periodontal treatment after 7 days showed a small impact in quality of life after 30 days revealed an increase in quality of life. We concluded that the surgical periodontal treatment did not show benefits to the quality of life of the individuals, affecting more subgroup already the non-surgical periodontal treatment showed significant improvement in the quality of life of the individuals included in this study. Being the non-surgical treatment, the periodontal treatment of first choice more indicated and with greater chances of success.

Keywords: Periodontitis; Periodontal treatment; Periodontal index; Quality of life; Questionnaires.

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INTRODUCCION

Quality of life was defined by the World Health Organization as "the individual's perception of their position in life in the context of the culture and value system to which they live and in relation to their goals, expectations, standards and concerns".

More and more healthcare professionals and researchers agree that the patient's perspective is important and should be considered beyond clinical outcomes, but also when evaluating the success of a treatment. Quality of life related to oral health can be defined as "the absence of negative impacts of the oral condition on social life and a positive sense of self-confidence of the oral condition" [1].

Several instruments have been developed to identify and evaluate how oral problems interfere with individuals' lives, influencing their quality of life. Among these instruments, the Oral Health Impact

Profile 14 (OHIP-14), a reduced version of the OHIP-49 version, was widely used in English and later adapted and validated in the Portuguese language [2, 3]. It contains seven subgroups, each of which has two questions. The answers have as reference the last 12 months and each answer has a weight that will be added to the end of the questionnaire. The sum of the points represents the impact of oral health on the quality of life of adults and the higher the sum the greater negative impact [4].

It is known that the main cause of the high prevalence of periodontal disease is in the lack of information of the individuals in relation to the etiology and to the development of periodontopathies. The transmission of these concepts should be given by the dentists themselves, whether they are periodontists or not. Other factors that influence not seeking a specialized service lie in the financial issues and fear many have of dental treatment. When carrying out any therapeutic procedure, some information about the

problem is essential, and this is especially the case in the control of periodontal disease, in which the patient must take responsibility for his oral health and well being. Periodontal disease is the most common oral disease that causes progressive destruction of the periodontal tissues, which can lead to tooth loss and thus generate functional problems, directly affecting the patient's quality of life and well-being. The self-perception of an individual is of paramount importance, making possible the awareness of his / her own health condition and contributing to the dentist surgeon to know the patients in a broader way, and thus, to be able to help them in their health needs, and consequently improve their quality of life [5].

The impacts of periodontal health on people's lives have been described decades ago. In 1996, Leão *et al.*, conducted a study to evaluate the impact of periodontal health on people's lives. The mean was tested using a sample of 662 people, aged 35-44 years, of two social classes and both sexes, were examined using the DMFT index, gingival conditions, and a periodontal health questionnaire (DIDL) to evaluate how oral health is perceived by individuals and how the mouth and teeth affect people. It was verified that 60% of the sample presented mobility, gingival retraction and bleeding, regardless of sex and social class, reporting dissatisfaction in the quality of life. They concluded that this self-perception of the individuals can help the professional to compare the clinical situation with the needs to maintain good levels of quality of life of a population [4].

Ng and Leung developed a study to evaluate the impact of periodontal status on health-related quality of life using the OHIP-14 questionnaire. A sample of 767 individuals were selected for a study at the University of Hong Kong that examined the association between psychological and clinical factors and level of periodontal insertion. Individuals were asked to complete the Chinese version of the Oral Health Impact Profile (OHIP-14S) and a checklist of self-reported periodontal disease symptoms during the previous 12 months. The responses to the items were recorded on a 5-point scale: 0 = never; 1 = rarely; 2 = occasionally; 3 = frequently; 4 = always. OHIP-14 scores and subgroups were significantly associated with self-report of periodontal symptoms. A comparison of the OHIP-14 scores and the periodontal symptoms revealed significant differences in relation to the subscales of functional limitation, pain, psychological discomfort, physical and psychological disability. A better understanding of the consequences of periodontal disease and the treatment of patients' perceptions can help to ensure that treatment assessment and planning are adequately addressed in patients' needs and concerns [6].

In 2012, Shanbhag *et al.*, also concluded through a systematic literature review that oral health

directly impairs quality of life prior to therapy and that forms of non-surgical therapy improve the quality of life of adults with periodontal disease, since surgical therapies do not demonstrate additional benefits. Shanbhag *et al.*, evaluated the impact of periodontal therapy on adult quality of life using eleven studies (seven case-series prospective controlled trials, one before-and-after and three randomized controlled trials) were included in the review. It is therefore of great value to observe the patient fully, not only by clinical parameters, and thus contribute to the quality of life of the individuals [7].

For this to be possible, it is necessary to seek a dentistry that does not only value the use of clinical resources for diagnosis and treatment, but rather takes into consideration the way the patient perceives his or her health condition [2, 3].

In general, clinical measures of the effects of oral diseases have been widely described, but subjective parameters need to be well investigated, focusing their direct influence on the quality of life of these individuals. Moreover, few studies have been conducted on the influence of these aspects on quality of life.

This study aims to evaluate the impact of periodontal disease and the effect of its treatment on the quality of life of individuals submitted to surgical periodontal treatment and non-surgical periodontal treatment through clinical parameters and the application of the OHIP-14 questionnaire.

MATERIALS AND METHODS

The present study was approved by CEP-UNIMES nº 040037/2015. The sample consisted of 60 patients, of which 30 were from the surgical treatment group and 30 were from the non-surgical treatment group. The subjects included in the study underwent surgical periodontal treatment with flap for access to scaling and non-surgical periodontal treatment with scaling and root straightening. Initial examinations were performed and they received a Free and Informed Consent Term where after read and signed allowed inclusion in the study. All subjects were examined and diagnosed by the professors of the UNIMES graduate and undergraduate course in Periodontics. At the time of the treatment the individuals were evaluated by means of periodontal indices: depth of probing, clinical level of insertion, index of plaque and index of bleeding, measures commonly performed before any periodontal procedure.

The periodontal treatment was performed according to the needs of each patient, following the protocol of the course with return of the individuals 7 and 30 days after the procedures, new periodontal clinical indexes, as well as the application of the OHIP-14 questionnaire were performed after treatment, with the objective of obtaining information regarding the

quality of life of the individuals submitted to the proposed treatment.

Patients with any of the following characteristics were excluded from the study: use of orthodontic appliances, smoking, pregnancy or lactation, history of diabetes, hepatitis or HIV infection or any other disease that compromises immune functions, immunosuppressive chemotherapy, use of antibiotics, phenytoin, calcium antagonists, cyclosporine or anti-inflammatory drugs one month prior to initial consultation, use of oral or hormonal replacement contraceptives, periodontal treatment in the 6 months prior to initiation of the study, and partial and / or total dental crowns on the teeth considered tests.

All patients who did not present any of these factors modulating periodontal disease, which could interfere with the reliable results of the research, were submitted to periodontal dental treatment in the graduate and undergraduate clinic of the Department of Dentistry of UNIMES, according to the needs presented.

The patients were evaluated through clinical exams and the application of the OHIP-14

questionnaire. The clinical examination was performed by a periodontist and measurements of depth of probing and clinical level of insertion were obtained in six points per tooth: vestibular mesio, buccal vestibular, lingual / palatine mesio, lingual / palatal, lingual / palatine, plaque index and bleeding index.

The Brazilian version of the OHIP-14 index (impact profile of oral health) is a questionnaire composed of 14 questions, focusing on seven subgroups of impact (functional limitation, pain, psychological discomfort, physical incapacity, psychological incapacity, social incapacity and social disadvantage). With a scale of 5 response points according to the impact frequency, coded in: never (Point 0), rarely (Point 1), occasionally (Point 2), frequently (Point 3) and always (Score 4).

The questionnaire was applied by a single examiner, in two times, according to Figure-1, (T0): where anamnesis was performed, clinical exams, periodontal therapy proposed; (T1): 7 days after the proposed treatment, clinical exams and application of the OHIP-14 questionnaire was performed, (T2) 30 days after treatment were re-evaluated.



Fig-1: Times Applied In The Study

- T0 - Anamnesis, clinical exams, proposed periodontal therapy**
T1 - Post-operative, clinical exams and application of the OHIP-14 questionnaire
T2 - Clinical examination and application of the OHIP-14 questionnaire

The individuals observed in this study received an oral hygiene instruction protocol, including Bass brushing technique, dental wire / dental brushing and / or dental brushing, dental scaling treatment and root planing, associated with flap for exposure by means of a full thickness flap. After root debridement, the flap was repositioned and simple interdental sutures were performed, and when necessary surgical cement was applied in the operated areas.

After 7 days the subjects returned for suture removal and the periodontal indices were evaluated well with the OHIP-14 questionnaire. Pollution and fluoride application of treated quadrants were performed. After 30 days a reevaluation was performed together with the application of the questionnaire. A

statistical analysis was performed comparing data from baseline to 1 month. The data was statistically analyzed using paired-Student t test and presented normal distribution. The level of statistical significance adopted was 95% ($\alpha=0.05$) and the software was SPSS 13.0 (IBM- SPSS Statistics).

RESULTS

Evaluation of the clinical indices seven days after the surgical treatment showed a significant impact on the quality of life in the subgroups of psychological incapacity, psychological discomfort, physical incapacity, physical pain, functional limitation, social disadvantage and social incapacity, respectively.

Table-1: Application of the OHIP-14 questionnaire 7 days after non-surgical treatment; 30 days after non-surgical treatment; 7 days after the surgical treatment; 30 days after the surgical treatment (* p ≤ 0.05)

	NS 7 days	Surg 7 days	p value	NS 30 days	Surg 30 days	p value
OHIP-1: Speaking	0.40	0.43	0.894	0.03	0.8 *	0.048
OHIP-2: Sense of taste	1.83	2.33	0.453	0.67	2.67 *	0.034
OHIP-3: Painful aching	0.07	1.47 *	0.026	0.07	2.7 *	0.042
OHIP-4: Uncomfortable eating	0.37	1.6 *	0.045	0.23	2.33 *	0.028
OHIP-5: Self-conscious	1.73	2.6	0.342	0.97	2.67 *	0.035
OHIP-6: Tension	1.67	2.13	0.096	1.10	2.4 *	0.026
OHIP-7: Unsatisfactory diet	0.40	2.33 *	0.039	0.17	2.53 *	0.021
OHIP-8: Interrupt meals	0.47	1.97 *	0.047	0.17	2.23 *	0.026
OHIP-9: Difficult to relax	2.27	2.7	0.918	1.8	3.3 *	0.039
OHIP-10: Embarrassed	2.93	1.97	0.765	3.4	3.43	0.899
OHIP-11: Irritable	0.73	0.57	0.347	0.4	0.73	0.436
OHIP-12: Occupational	0.13	0.73	0.287	0.53	1.23	0.176
OHIP-13: Unsatisfactory life	0.40	0.77	0.549	0.07	1.67 *	0.042
OHIP-14: Unable to function	0.30	0.7	0.688	0.23	1.13	0.096

NS: non surgical treatment ; Surg: surgical treatment

Thirty days after the surgical treatment, new clinical indices were evaluated, and showed an increase in the results, which did not show an improvement in the quality of life, affecting even more the subgroups.

Evaluation of clinical indices 7 days after non-surgical periodontal treatment showed a small impact on the quality of life in the subgroups of psychological

incapacity, pisicological discomfort, functional limitation, physical incapacity, social incapacity, social disadvantage and physical pain respectively.

Thirty days after new clinical indices were evaluated, and the treatment revealed a decrease in results and consequently a significant increase in patients' quality of life.

Table-2: Comparative results of subgroups with the greatest impact of non-surgical treatment 7 days and 30 days after treatment and impact of surgical treatment 7 days and 30 days after treatment (* p ≤ 0.05)

	Ns 7 days	Surg 7 days	p value	NS 30 days	Surg 30 days	p value
Functional limitation	0.43	1.38 *	0.046	0.47	1.73 *	0.043
Physical pain	0.43	1.53 *	0.042	0.17	2.52 *	0.031
Psychological distress	1.7	2.37	0.546	1.03	2.53 *	0.045
Physical limitation	1.12	2.15	0.213	0.35	2.38 *	0.034
Psychological limitation	2.6	3.05	0.436	1.88	3.37 *	0.035
Social limitation	0.35	0.78	0.745	0.15	1.40 *	0.046
Disability	0.22	0.65	0.287	0.15	0.90	0.324

NS: non surgical treatment ; Surg: surgical treatment

DISCUSSION

Self-perception is of fundamental importance to clinical treatment, because aspects of how patients perceive their condition and how they assess their oral health allow the professional a more complex evaluation. Without this subjective evaluation, the health professional can not diagnose in a global way the health of his patients and their priority needs [8-10].

The problems associated with oral health have been increasingly recognized as important causes of the negative impact on daily performance and the quality of life of individuals. Studies that analyze how patients evaluate the performance of dental therapy are scarce and as important as clinical studies [11-13].

The literature offers several different instruments that can be applied for the purpose of obtaining subjective data of the patient regarding their

oral health and how it interferes in their day to day life and quality of life. Most of them are presented in the form of questionnaires with open and closed questions [9, 14, 1, 4].

Among these instruments, the Oral Health Impact Profile 14 (OHIP-14) questionnaire, a reduced version of the OHIP-49 version, was widely used in English and later adapted and validated in Portuguese. It is a questionnaire composed of 14 questions, with a scale of 5 response points according to the impact frequency, coded in: never (Point 0), rarely (Point1), occasionally (Point 2), frequently (Point 3) and always (Score 4) using a 12-month recovery period, containing seven impact subgroups. The answers have a weight that will be added to the end of the questionnaire. The sum of the points represents the impact of oral health on the quality of life of adults and the higher the sum the greater negative impact [10, 2-4].

The sample consisted of 60 patients, of which 30 were from the surgical treatment group with flap access and 30 from the non-surgical treatment group for scaling and root planing. O in two times, 7 days and 30 days after treatment.

The results of the surgical periodontal treatment group after 7 days showed a significant impact on quality of life in the subgroups of psychological incapacity, pisicological discomfort, physical incapacity, physical pain, functional limitation, social disadvantage and social incapacity respectively, after 30 days showed an increase of the results, which did not show an improvement in the quality of life, affecting even more the subgroups.

The results of non-surgical periodontal treatment after 7 days showed a small impact on quality of life in the subgroups of psychological incapacity, pisicological discomfort, functional limitation, physical incapacity, social incapacity, social disadvantage and physical pain respectively, after 30 days showed a decrease of results and consequently an increase in quality of life.

These results are in agreement with the results of the study by Saito *et al.*, who also evaluated the patients' perception regarding the influence of surgical and non-surgical periodontal treatment on patients' quality of life. And they could conclude that periodontitis negatively affects the quality of life of these patients and that conventional non-surgical periodontal therapy has a potential benefit for the quality of life, since the surgical therapy associated to the non-surgical treatment did not demonstrate any additional improvements when compared to the results end of non-surgical therapy [15].

Ng and Leung verified the impact of periodontal disease on the quality of life of patients with chronic periodontitis, such as Cunha-Cruz *et al.*, who concluded that periodontal disease has a negative impact on patients' quality of life the conception that chronic periodontitis is a silent disease and a better understanding of the consequences of periodontal disease and the treatment of patients' perceptions can help ensure an assessment and planning of treatment appropriately addressing the needs and concerns of patients [16, 17].

The research by Lopes *et al.*, also revealed that the negative aspects were more prevalent among individuals with severe chronic periodontitis, demonstrating patients' self-perception about the health of periodontal tissues, which corroborates with other authors' findings. Therefore, even if it is still distant from daily dental practice, the evaluation of the impacts caused by periodontal disease and the effect of its treatment on the quality of life related to the patients'

oral health is a valuable practice and efforts should be made to evaluate, more closely, this relationship between periodontal treatment and quality of life contribute to the quality of life of individuals [7, 15, 18].

CONCLUSION

We concluded that the surgical periodontal treatment did not show benefits to the quality of life of the individuals, affecting even more subgroup and non-surgical periodontal treatment showed a significant improvement in the quality of life of the individuals included in this study. As the non-surgical treatment, the periodontal treatment of first choice is more indicated and with greater chances of success.

REFERENCES

1. Silva, S. R. C. D., & Castellanos Fernandes, R. A. (2001). Autopercepção das condições de saúde bucal por idosos. *Revista de Saúde Pública*, 35, 349-355.
2. Atchison, K. A., & Gift, H. C. (1997). Perceived oral health in a diverse sample. *Advances in dental research*, 11(2), 272-280.
3. Mehrstedt, M., John, M. T., Tönnies, S., & Micheelis, W. (2007). Oral health-related quality of life in patients with dental anxiety. *Community Dentistry and Oral Epidemiology*, 35(5), 357-363.
4. Leao, A., & Sheiham, A. (1995). Relation between clinical dental status and subjective impacts on daily living. *Journal of dental research*, 74(7), 1408-1413.
5. Petry, P. C., & Pretto, S. M. (1997). Educação e motivação em saúde bucal. In: Kriger L. Aboprev promoção em saúde bucal. *São Paulo Artes Médicas*, 363-370.
6. Sheiham, A. (2005). Oral health general health and quality of life. *Bull World Health Organ Genebra*, 83(9), 644.
7. Saito, A., Hosaka, Y., Kikuchi, M., Akamatsu, M., Fukaya, C., Matsumoto, S., ... & Nakagawa, T. (2010). Effect of initial periodontal therapy on oral health-related quality of life in patients with periodontitis in Japan. *Journal of periodontology*, 81(7), 1001-1009.
8. Marin, C., Koerich Ramos, F., Batistin Zanatta, G., & Rabaldo Bottan, E. (2008). Avaliação do nível de informação sobre doenças periodontais dos pacientes em tratamento na Clínica de Periodontia da Univali. *RSBO Revista Sul-Brasileira de Odontologia*, 5(3), 20-26.
9. Neville, B. W., Damm, D. D., Allen, C. M., & Bouquot, J. E. (2004). Manifestações orais de doenças sistêmicas. *Patologia oral e maxilofacial. 2a edição Rio de Janeiro: Guanabara Koogan*, 601.
10. Cunha-Cruz, J., Hujoel, P. P., Maupome, G., & Saver, B. (2008). Systemic antibiotics and tooth loss in periodontal disease. *Journal of dental*

- research, 87(9), 871-876.
11. Tomita, N. E., Sheiham, A., Bijella, V. T., & Franco, L. J. (2000). Relação entre determinantes socioeconômicos e hábitos bucais de risco para má-oclusões em pré-escolares. *Pesquisa Odontológica Brasileira*, 14(2), 169-175.
 12. Cordeiro Pinheiro, A. C., Lopes Sandres, D., Cavalcante de Oliveira, G., Lopes Ferreira Lima, D., de Araújo Soares Nuto, S., & Rego, D. M. (2006). Tratamento periodontal e bem-estar: um estudo qualitativo. *Revista Brasileira em Promoção da Saúde*, 19(2).
 13. Ng, S. K., & Leung, W. K. (2006). Oral health-related quality of life and periodontal status. *Community dentistry and oral epidemiology*, 34(2), 114-122.
 14. Shanbhag, S., Dahiya, M., & Croucher, R. (2012). The impact of periodontal therapy on oral health-related quality of life in adults: a systematic review. *Journal of clinical periodontology*, 39(8), 725-735.
 15. Mendez, M., & Gomes, S. C. (2013). Oral health-related quality of life: periodontal perspectives. *Braz J Periodontol*, 23(4), 38-44.
 16. Palma, P. V., Caetano, P. L., & Leite, I. C. G. (2013). Impact of periodontal diseases on health-related quality of life of users of the Brazilian unified health system. *International journal of dentistry*, (6), 1-6.
 17. Ferreira Lopes, M. W., Santos Gusmao, E., de Vasconcelos Alves, R., & Cimões, R. (2009). The impact of chronic periodontitis on quality of life in Brazilian subjects. *Acta Stomatologica Croatica*, 43(2), 89-98.
 18. Lee, J., Park, J. C., Jung, U. W., Choi, S. H., Cho, K. S., Park, Y. K., & Kim, C. S. (2014). Improvement in periodontal healing after periodontal surgery supported by nutritional supplement drinks. *Journal of periodontal & implant science*, 44(3), 109-117.