

Influence of New Complete Dentures on Quality of Life in Elderly People: Complete Dentures and Quality of Life

Hotta TH¹, Coimbra FCT², Rocha MM², Macedo AP³, Silva-Lovato CH¹, Almeida RP¹, Costa TNQ², Silva EA² and Matsumoto W¹

¹DDS PhD Associate Professor - Department of Dental Materials and Prosthodontic, Ribeirão Preto School of Dentistry, University of São Paulo, São Paulo, Brazil.

²DDS Graduate Student - Department of Dental Materials and Prosthodontic, Ribeirão Preto School of Dentistry, University of São Paulo, São Paulo, Brazil.

³BSE Biomaterial Researcher - Department of Dental Materials and Prosthodontic, Ribeirão Preto School of Dentistry, University of São Paulo, São Paulo, Brazil.

*Correspondence:

Prof. Dr. Wilson Matsumoto. Ribeirão Preto School of Dentistry, University of São Paulo. Rua Manoel Achê, 981/21 – 14020-590, Ribeirão Preto, São Paulo, Brazil.

Received: 21 July 2020; Accepted: 17 August 2020

Citation: Hotta TH, Coimbra FCT, Rocha MM, et al. Influence of New Complete Dentures on Quality of Life in Elderly People: Complete Dentures and Quality of Life. Oral Health Dental Sci. 2020; 4(1); 1-4.

ABSTRACT

Background: Nowadays, the use of complete denture remains very large in the world, and is extremely important in the maintenance of the quality of life, especially, for the elderly people.

Purpose: To evaluate the importance of periodically replace old complete dentures in the quality of life, using the OHIP-EDENT questionnaire.

Methods: Twenty-eight complete denture wearers (15 females and 13 males), from 51 to 87 year-old (mean of 66 years), and with the need for maxillary and mandibular prostheses. To evaluate the impact of the initial oral condition on quality of life, the individuals answered the questionnaire and, after 3 months of use of the new complete dentures, the questionnaire was reapplied. The Oral Health Impact Profile (OHIP-EDENT) provided 7-dimensional analysis: functional limitation, physical pain, psychological discomfort, physical disability, psychological disability, social disability and general disability. For each of dimensions scores were assigned according to the individual's response (0 - never; 1 sometimes and 2 - always) and the sum of points of all questions indicated the OHIP index.

Results: The data were submitted to the normality test (Shapiro-Wilk) and presented a non-normal distribution, followed by Wilcoxon's test for comparison of OHIP EDENT indicators, before and after prosthetic rehabilitation. Statistical results showed significance at 5% ($p \leq 0.5$) indicating that new complete dentures improved all dimensions evaluated.

Conclusion: It can be concluded that with the new complete denture there was an improvement in the quality of life of the complete denture wearers.

Keywords

Complete Denture. Oral rehabilitation. OHIP-Edent., Oral Health-related quality of life.

Introduction

The loss of all natural teeth is called edentulism [1] and can be due to biological processes such as caries, periodontal disease, pulp pathology, trauma, oral cancer, but also other factors such as access to treatments, patient preferences or honorary [2]. Although

edentulism can be seen in all age groups, it is more frequently in elderly people [2]. Most edentulous patients have difficulty performing essential functional tasks, such as eating, chewing and producing phonemes [3,4] have compromised aesthetics and quality of life [2,5-7].

Oral rehabilitation for these cases can be made by conventional complete dentures and also by on implant prosthesis such as overdenture or Branemark protocol [4] and the indication for one of these type of treatment should consider the actual oral condition, costs and, mainly, the patient's expectation regarding aesthetics, time required to obtain the results, and effects on function.

In general, conventional complete denture wearers ignore or had no orientation about the need for periodic replacement of their prostheses and maintain them for prolonged period of use, despite the functional and aesthetic difficulties resulting from this behavior. Complete denture wearers can be affected in different aspects of his life by these functional and aesthetic difficulties, then, it is important to verify the impact of the their oral conditions on the quality of life. The OHIP-Edent is one of the most common techniques for this analysis [8]. Therefore, the objective of this work was to evaluate the importance of periodic replacement of complete dentures in individual's quality of life using OHIP-Edent, version validated for Brazil [9].

Material and Methods

This research was approved by the Human Research Ethics Committee, Ribeirão Preto School of Dentistry, University of São Paulo (CAAE: 60205416.0.0000.5419). Twenty-eight individuals with edentulism, 15 females and 13 males, with an average age of 66 years (51 to 87 years), with need of oral rehabilitation, attended at the School of Dentistry of Ribeirão Preto, University of São Paulo, and were invited to participate in the research and included after due explanation and acceptance of the informed consent form. The exclusion criteria were individuals who did not accept to participate in the research, individuals who had difficulty in answering the questions, individuals who did not complete the treatment and individuals who did not use the new prostheses for the time of observation. All patients were submitted to the standard procedures for making conventional complete dentures, supervised by experienced specialists, in accordance with the institution's regulations.

Preliminary impressions of the maxilla and mandible were made using stock trays for edentulous patients with irreversible hydrocolloid (Jeltrate; Dentsply). Functional impressions were obtained with impression of peripheral seal using impression compound (Exata; DFL, Rio de Janeiro, Brazil) and zinc oxide-eugenol impression paste (Lysanda, São Paulo, Brazil). The maxillary cast of each individual was transferred to a semiadjustable articulator using a facebow. The vertical dimension of occlusion and the centric relation were established and recorded for subsequent transference of the mandibular cast to the articulator. Acrylic resin teeth (Biotone; Dentsply, São Paulo, Brazil) were selected according to the registered measurements and the prostheses

were processed (investing and polymerizing). After processing, the prostheses were remounted in the semiadjustable articulator for occlusal adjustments. After placement and initial adjustments of complete denture in the patient, return appointments were scheduled for reevaluation and minor adjustments.

Participants were presented with a questionnaire to assess the impact of oral condition on the quality of life of people with edentulism, the Oral Health Impact Profile - Edent (OHIP-EDENT) [9].

The OHIP-EDENT enabled the analysis of seven dimensions: functional limitation, physical pain, psychological discomfort, physical disability, psychological disability, social disability and general disability (handicap). Scores were assigned to each of the dimensions, according to the individual's response (0 - never; 1 - sometimes and 2 - always) and the OHIP index were the sum of scores attributed to each question. Each participant was informed and guided on how to answer the questions of OHIP-EDENT, and the examiner was also available to help with any doubts during the test application. This procedure was performed, in the initial phase of treatment, with the individual using their old complete dentures. The procedure was repeated 3 months after the placement of the new complete dentures. The greater the index, higher the perception of the negative impact of oral health, on the quality of life. The data obtained were submitted to statistical analysis using software version 21.0 for Windows (SPSS Inc., Chicago, IL, USA).

Results

The data obtained were submitted to the normality test (Shapiro-Wilk) and presented a non-normal distribution, then the data were submitted to the Wilcoxon test to compare the OHIP EDENT indicators, before and after prosthetic rehabilitation. The statistical results showed a significance of 5% ($p \leq 0.5$) indicating that with rehabilitation treatment there was an improvement in all dimensions evaluated (Table 1).

Dimensions	Medians (Interval of confidence) Before After		P values
	Functional Limitation	4,00 (2,92;4,51)	
Physical Pain	3,50 (2,28;4,58)	0,00 (0,68;1,96)	0,004
Psychological Discomfort	2,00 (1,52;2,55)	0,00 (0,09;0,62)	<0.001
Physical Disability	3,00 (1,65;3,21)	0,00 (0,26;1,10)	0,001
Psychological Disability	1,00 (1,06;2,01)	0,00 (0,05;0,66)	0,001
Social Disability	0,00 (0,36;1,72)	0,00 (0,08;0,58)	0,036
General Incapacity	0,00 (0,46; 1,46)	0,00 (0,01;0,36)	0,005

Table 1: Statistical results of OHIP-EDENT dimension evaluated.

Discussion

This study aimed to analyze the effect of replacing complete dentures on the quality of life of people with complete edentulism. It is known that impaired oral condition can promote harmful effects on general health [10] as low consumption of important foods like vegetables and fibers [11,12] and more frequent consumption

of foods that are easier to chew, but with low nutritional value and greater amount of carbohydrates and sugars. Therefore, in addition to the structural, functional and metabolic changes that happen with advancing age [13], the difficulty in chewing, due to deficiency in the oral condition, promotes changes in the quality of the diet with high caloric content, consequently, increasing the appearance of systemic diseases [14], personal, family and social disorders.

In addition to impaired chewing, the absence of teeth affects swallowing, the articulation of phonemes, dental and facial aesthetics. Thus, physical and functional discomforts are produced making difficulty routine activities, such as laughing, talking and smiling [11]. Consequently, low self-esteem and tendency to social isolation could appear.

Prosthetic treatment plays an important role not only physically, but also in the mental and social health of the elderly [15-17], replacing these people to their environment, with dignity.

When complete dentures are made according to the appropriate requirements, considering the main support areas, the vertical dimensions of occlusion and rest, the free functional space, the centric relation and centric and eccentric occlusal contacts, the possibility of improvement in the function and aesthetics is increased. Thus, it is provided to the individual the rehabilitation of their oral condition and improvement the quality of life. However, it is necessary to emphasize that the use of complete dentures for extreme long period of time is very common and patients, only, look for a treatment when some occurrence prevents the use of them (such as fractures, loss of artificial teeth, loss of the prosthesis) as reported by the individuals in the present study. The deficient old complete dentures can present excessive wear on the teeth and bases, fractures, color alterations, changes in retention and stability, loss of the vertical dimension of occlusion and deficient occlusal contacts.

The quality of the prostheses and the masticatory efficiency are impaired over the years [6] that is the reason patients should be guided and stimulated to change them periodically. According to Yoshizumi [18], the quality of the complete dentures tends to decrease considerably, with the time of use. From the 4th year and mainly, after the 8th year of use, individuals may have masticatory problems.

Elderly people with complete absence of natural dentition appear to have less perception of the necessity of dental care than elderly dentate [14] because many complete denture wearers may not have received necessary instructions to the reassessment and periodical replacement of their prostheses.

In the present study, all participants were wearing complete dentures totally inadequate that should have been replaced longer. The OHIP-Edent is an inventory adequate to be used to evaluate the impact that oral condition of the complete edentulism has on the individual's life, as well as comparatively assess the changes in

the quality of life after placement a new oral rehabilitation.

Our study is in agreement with other authors [19,20] that the exchange of old prostheses for a new one made according to adequate requirements will, potentially, result in clinical success for offering better aesthetic, comfort, retention, ability to chew, ability to speak and correct function without pain. The way to assess the improvement of these conditions was the application of OHIP – Edent inventory.

Analyzing the application of OHIP - Edent, before and after oral rehabilitation, the results, of this study, were in agreement with the other studies [5-7], that is, a significant improvement in the quality of life of the participants, after placement and use of the new complete dentures. According to Komagamine et al. [8], providing adequate retention of the mandibular prosthesis and favoring aesthetics are factors that improve the individual's quality of life and these aspects were worked on when the new prostheses were made. Likewise, new prostheses can provide functional, emotional, social and aesthetic comfort, prostheses can cause stress to the individual if they lack retention, cause pain, discomfort or instability and, consequently, the quality of life will become worse [19]. Therefore, it is important to, periodically, reassess the treatment to evaluate the quality of complete denture, after use for a determined period of time.

OHIP-Edent represents one of the ways of assessing the impact of oral conditions on the quality of life of edentulous individuals by the analysis of functional, physical, psychological and social aspects [14]. Then, it is useful to improve professional assessment and it is an awareness tool for the patient showing that oral condition must be taken care to provide good quality of life.

Conclusion

It can be concluded that, based on the results obtained from this study, the new complete dentures had a positive influence on the quality of life of the individual evaluated.

References

1. Academy of Prosthodontics. Glossary of prosthodontic terms. 9th ed. J Prosthet Dent. 2017; 117: e1-e105.
2. Felton D. A. Edentulism and comorbid factors. J Prosthodont. 2009; 18: 88-96.
3. Goiato MC, Bannwart LC, Moreno A, et al. Quality of life and stimulus perception in patients' rehabilitated with complete denture. J Oral Rehabil. 2012; 39: 438-445.
4. Tôres ACSP, Maciel AQ, Farias DB, et al. Technical quality of complete dentures: influence on masticatory efficiency and quality of life. J Prosthodont. 2017; 28: e21-e26.
5. Stober T, Danner D, Lehmann F, et al. Association between patient satisfaction with complete dentures and oral health-related quality of life: two-year longitudinal assessment. Clin Oral Investig. 2012; 16: 313-318.
6. Ribeiro JAM, Resende CMBM, Lopes ALC, et al. Evaluation of complete denture quality and masticatory efficiency in denture wearers. Int J Prosthodont. 2012; 25: 625-630.

7. Viola AP, Takamiya AS, Monteiro DR, et al. Oral health-related quality of life and satisfaction before and after treatment with complete dentures in a Dental School in Brazil. *J Prosthodont Res.* 2013; 57: 36-41.
8. Komagamine Y, Kanazawa M, Kaiba Y, et al. Association between self-assessment of complete dentures and oral health-related quality of life. *J Oral Rehabil.* 2012; 39: 847-857.
9. Souza RF, Patrocínio L, Pero AC, et al. Reliability and validation of a Brazilian version of the Oral Health Impact Profile for assessing edentulous subjects. *J Oral Rehabil.* 2007; 34: 821-826.
10. Hämäläinen P, Meurman JH, Keskinen M, et al. Relationship between dental health and 10-year mortality in a cohort of community dwelling elderly people. *Eur J Oral Sci.* 2003; 111: 291-296. d
11. Ikebe K, Nokubi T, Ettinger RL, et al. Dental status and satisfaction with oral function in a sample of community-dwelling elderly people in Japan. *Spec Care Dentist.* 2002; 22: 33-40.
12. Han SY, Kim CS. Does denture-wearing status in edentulous South Korean elderly persons affect their nutritional intakes? *Gerodontology.* 2016; 33: 169-176.
13. Baumgarten A, Schmidt JG, Rech RS, et al. Dental status, oral prosthesis and chewing ability in an adult and elderly population in southern Brazil. *Clinics (São Paulo).* 2017; 72: 681-685.
14. Hugo FN, Hilgert JB, De Sousa ML, et al. Correlates of partial tooth loss and edentulism in the Brazilian elderly. *Community Dent Oral Epidemiol.* 2007; 35: 224-232.
15. Yamaga E, Sato Y, Soeda H, et al. Structural equation modeling of the impact of mandibular ridge form and denture quality on oral health-related quality of life in complete denture wearers. *J Prosthodont Res.* 2019; 63: 293-298.
16. Goiato MC, Garcia AR, Dos Santos DM, et al. Analysis of masticatory cycle efficiency in complete denture wearers. *J Prosthodont.* 2010; 19: 10-13.
17. Nomura Y, Kakuta E, Okada A, et al. Effects of self-assessed chewing ability, tooth loss and serum albumin on mortality in 80-year-old individuals: a 20-year follow-up study. *BMC Oral Health.* 2020; 20: 122.
18. Yoshizumi DT. An evaluation of factors pertinent to the success of complete denture service. *J Prosthet Dent.* 1964; 14: 866-878.
19. Veyrone JL, Tubert-Jeannin S, Dutheil C, et al. Impact of new prostheses on the oral health related quality of life of edentulous patients. *Gerodontology.* 2005; 22: 3-9.
20. Figueiredo OMC, Câmara-Souza MB, Carletti TM, et al. Chewing ability and oral health-related quality of life in frail elders after new complete dentures insertion: A paired controlled clinical trial. *Spec Care Dentist.* 2020; 40: 168-174.