

Evaluation of the quality of life of mono or bimaxillary edentulous individuals seeking care in the public health system

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• **Conflicts of interest:** none declared.

ABSTRACT

Objective: the objective of this study was to evaluate the influence of partial or total edentulism on the quality of life of elderly patients. **Material and Methods:** the sample consisted of 120 individuals, divided into edentulous patients with bi-maxillary complete dentures (CD) (n = 60) or partially edentulous individuals with maxillary CD and mandibular removable partial denture (RPD) (n = 60). Patients' quality of life was assessed using the OHIP-EDENT-19 questionnaire and the data were analyzed using the SPSS software. **Results:** patients using RPD presented higher quality of life compared to users of double CD, according to the values presented in OHIP-EDENT. Statistically significant differences were found when comparing the groups between complaints related to chewing (difficulty chewing, discomfort when eating, avoiding eating, interruption of meals), psychological discomfort and incapacity (unable to eat), social incapacity (unsatisfactory life), and painful mouth and discomfort (unsuitable prostheses, sore mouth). **Conclusion:** the type of prosthesis used may influence self-reported quality of life.

Keywords: Dental Prosthesis; Quality of life; Complete denture; Removable partial denture.

Introduction

Edentulism is an oral condition that corresponds to a public health problem because the dental loss is responsible for a series of alterations in the stomatognathic system.¹ The edentulism has significant impact on the subject's quality of life, since tooth loss causes reduction of masticatory ability, aesthetic problems, phonetic alteration, as well as nutritional and psychological deficits.²

Conventional removable prosthesis are one of the mainly adopted options to treat edentulous patients.³ Implant-retained or implant-supported prostheses would be most appropriate for providing greater masticatory ability, comfort, and satisfaction to the patients. However, rehabilitations with conventional prostheses still predominate mainly due to their more accessible cost.³⁻⁵ The confection a conventional removable prosthesis that satisfies the functional requirements might be impaired by some anatomical limitations, especially in the mandibular arch.⁶

Basic principles of biomechanics should be obtained for a correct effectiveness of the conventional removable prostheses, such as retention and stability. Several factors may negatively affect the obtaining of the mentioned principles, including deficiency of support tissues, anatomy of residual border or fibromucosa, salivary quantity and quality, and problems in neuromuscular coordination.⁷ Therefore, these factors may affect the correct prosthetic function, leading to masticatory deficiency, prosthesis instability, phonetic problems, mucosal lesion, reducing the patient's quality of life.⁸

However, the success of the treatment is not exclusively

related to the technical quality of the prosthesis. The individual's ability to adapt to the new oral condition is an important factor for treatment acceptance, as each patient has different experiences and expectations.⁹ The inexperience with the use of prostheses tends to require a longer adaptation period, mainly in cases of patients that remained edentulous for a long time. In these cases, the need for longer follow-ups for prosthesis adjustment after the installation is expected.¹⁰

Oral health self-perception is a method that assesses the subjective experience of the individual on his oral health, functional, psychological, and social well-being. Through the evaluation of Oral Health-Related Quality of Life (OHRQoL) it is possible to quantify the individuals perception of the impact of prosthetic treatments on their quality of life. The method also allows obtaining information that is fundamental for the understanding and improvement of the forms of treatment.¹¹

This study aimed to evaluate the influence of partial or total edentulism on the quality of life of elderly patients. The authors hypothesized that fully edentulous patients would present lower quality of life indices when compared to those RPD wearers in the mandibular arch.

Material and Methods

Sample

The sample consisted of 120 individuals who sought treatment between march and june 2015 in a public health care center in the municipality of Marau in the FHS (Family

Health Strategy) program. The sample was composed of 120 individuals and divided ($n = 60$) into edentulous patients (with upper and lower CDs) and partially edentulous (using a superior CD and lower RPD). Inclusion criteria for the selection of patients were the presence of healthy fibromucosa and healthy remaining teeth (when applicable) to support the prosthesis; adequate cognitive ability and comprehension to answer the questionnaires. Patients were excluded if they presented signs or symptoms of temporomandibular disorders diagnosed by the Research Diagnostic Criteria for Temporomandibular Disorders (RDC / TMD).¹²

The study was approved by the Human Research Ethics Committee (protocol number 480.504), and all patients signed a consent form to participate in the study.

Quality of Life Assessment

The patients' quality of life was assessed through the OHIP-EDENT-19 questionnaire, which allows the evaluation of the perception of oral health.¹³ All questionnaires were applied by a single examiner. The score was calculated by assigning points to the answers (0 = never, 1 = sometimes, 2 = almost always). OHIP-EDENT-19 response data were analyzed in four domains:¹⁴ "chewing complaints" (questions 1, 5, 10 and 11); "Discomfort and psychological problems" (questions 8, 9, 12, 13 and 14); "Social incapacity" (questions 15-19); and "Oral discomfort and pain" (questions 2-4, 6 and 7).¹⁵ All questions are presented in Table 1.

Table 1. Results of the OHIP-EDENT questionnaire. Frequency (%) of additive scores (ADD) and responses for each OHIP-EDENT-19 question

Questions		Answers								P value			
		CD/RPD				00	Bimaxillary CD						
		Never	Sometimes	Almost always	ADD		Never	Sometimes	Almost always			ADD	
1.	Difficulty chewing	38 (63.3)	19 (31.7)	3 (5.0)	86.1		20 (33.3)	20 (33.3)	20 (33.3)	66.7	<0.001	*	
2.	Food catching	13 (21.7)	26 (43.3)	21 (35.0)	62.2		7 (11.7)	23 (38.3)	30 (50.0)	53.9	0.062		
3.	Dentures not fitting	43 (71.7)	11 (18.3)	6 (10.0)	87.2		30 (50.0)	26 (43.3)	4 (6.7)	81.1	0.042	*	
4.	Painful aching	33 (55.0)	25 (41.7)	2 (3.3)	83.9		22 (36.7)	30 (50.0)	8 (13.3)	74.4	0.019	*	
5.	Uncomfortable to eat	38 (63.3)	21 (35.0)	1 (1.7)	87.2		26 (43.3)	23 (38.3)	11 (18.3)	75.0	0.006	*	
6.	Sore spot	36 (60.0)	23 (38.3)	1 (1.7)	86.1		27 (45.0)	31 (51.7)	2 (3.3)	80.6	0.096		
7.	Uncomfortable dentures	48 (80.0)	5 (8.3)	7 (11.7)	89.4		40 (66.7)	13 (21.7)	7 (11.7)	85.0	0.151		
8.	Worried	15 (25.0)	37 (61.7)	8 (13.3)	70.6		20 (33.3)	30 (50.0)	10 (16.7)	72.2	0.617		
9.	Self-conscious	40(66.7)	16 (26.7)	4 (6.7)	86.7		38 (63.3)	17 (28.3)	5 (8.3)	85.0	0.680		
10.	Avoids eating	44 (73.3)	14 (23.3)	2 (3.3)	90.0		27 (45.0)	24 (40.0)	9 (15.0)	76.7	0.001	*	
11.	Interrupts meals	46 (76.7)	14 (23.3)	0 (0.0)	92.2		35 (58.3)	22 (36.7)	3 (5.0)	84.4	0.024	*	
12.	Unable to eat	43 (71.7)	16 (26.7)	1 (1.7)	90.0		31 (51.7)	27 (45.0)	2 (3.3)	82.8	0.025	*	
13.	Upset	49 (81.7)	10 (16.7)	1 (1.7)	93.3		43 (71.7)	12 (20.0)	5 (8.3)	87.8	0.156		
14.	Has been embarrassed	50 (83.3)	9 (15.0)	1 (1.7)	93.9		45 (75.0)	13 (21.7)	2 (3.3)	90.6	0.257		
15.	Avoids going out	59 (98.3)	1 (1.7)	0 (0.0)	99.4		56 (93.3)	3 (5.0)	1 (1.7)	97.2	0.170		
16.	Less tolerant of others	57 (95.0)	3 (5.0)	0 (0.0)	98.3		53 (88.3)	7 (11.7)	0 (0.0)	96.1	0.188		
17.	Irritable with others	58 (96.7)	2 (3.3)	0 (0.0)	98.9		55 (91.7)	5 (8.3)	0 (0.0)	97.2	0.245		
18.	Unable to enjoy company	56 (93.3)	3 (5.0)	1 (1.7)	97.2		52 (86.7)	8 (13.3)	0 (0.0)	95.6	0.242		
19.	Life unsatisfying	43 (71.7)	13 (21.7)	4 (6.7)	88.3		28 (46.7)	25 (41.7)	7 (11.7)	78.3	0.007	*	
	Mean of individual scores	88.5 ± 7.5					82.1 ± 11.7					0.002	*

OHIP-EDENT: Oral Health Impact Profile for edentulous individuals * Significant difference for $P < 0.05$ using Mann-Whitney test.

Statistical Analysis

Data were explored using SPSS® software (version 20, IBM, Armonk, NY, USA), and all inferences were performed using two-tailed tests using a 95% significance level and a statistical potential of 80%. Differences between overall OHIP-EDENT-19 values and individual responses were assessed by the Mann-Whitney U-test.

Results

Patients who used bi-maxillary complete denture had significantly lower scores on at least one question in relation to each domain evaluated. Statistically significant differences were found when comparing the groups between complaints related to chewing (difficulty in chewing $p < 0.001$, discomfort when eating $p = 0.006$, avoidance of eating $p = 0.001$, discontinuation of meals $p = 0.024$), psychological discomfort and incapacity ($p = 0.025$), social incapacity (unsatisfactory life $p = 0.007$) and oral pain and discomfort (unsuitable prostheses $p = 0.042$, painful mouth $p = 0.019$). The mean score for users of bimaxillary complete denture (82.1) was also statistically lower than the partially edentulous patients (88.7) ($p = 0.002$). OHIP-EDENT revealed a significantly higher quality of life for users who did not use bimaxillary complete denture. The data are shown in Table 1.

Discussion

The treatment with dental prosthesis aims to restore the dentofacial normality. Adequate function must be recovered, providing the neuromuscular balance of the stomatognathic system, which is responsible for the physical, mental, and social well-being of the patient. The hypothesis of this study that fully edentulous patients would present lower indices of quality of life than partially edentulous patients was accepted. This hypothesis was based on the common complaints of complete denture wearers'. It has been suggested that the low stability of the prosthesis impairs their quality of life. The use of subjective indicators such as OHIP-EDENT allows assessing the perception of oral health, and this measurement is an important tool to evaluate the impact of the oral rehabilitations.¹⁶

Based on the findings of this study, it was possible to observe that patients who were RPD wearers' presented higher quality of life compared to those with bimaxillary CD, according to the values presented in OHIP-EDENT. The data presented in Table 1 show that RPD wearers have better subjective evaluations of their prostheses in the various items discussed, demonstrating that mandibular edentulism and rehabilitation with conventional removable CD leads to functional impairment and reduced patient satisfaction. According to the literature,¹⁷ it is known that

the highest dissatisfaction of the fully edentulous patients rehabilitated with CD is related to the lower arch, because the prosthesis presents a lower basal area in the mandible compared to the maxilla, which leads to a greater prosthetic instability. In this context, the presence of dental remnants and the rehabilitation with RPD provides better bio-mechanical conditions for the retention and stability of the prostheses, which favors higher satisfaction and quality of life for patients.¹⁸

According to a previous study,¹⁹ both the dento-muco-supported and the dento-supported RPD present greater masticatory efficacy, retention, and support when compared to muco-supported CD. In addition, individuals without dental remnants have higher oral limitations in regards to food choice, difficulty, and discomfort during mastication.²⁰ The findings of this study are in agreement with a previous report,²¹ where the authors observed that the type of prosthesis influenced the subjects' quality of life, and RPD wearers had better subjective quality of life indexes in relation to CD ones. Likewise, authors have reported that when considering mandibular rehabilitation, CD wearers were more dissatisfied regarding the retention of the prostheses when compared to the RPD group.²²

The main findings of the present study relate to the importance of oral health care in public health systems to maintain the remaining dental elements, specifically in the mandibular arch. Moreover, the retention and stability that the remaining teeth provide to the RPD are enough to guarantee a better quality of life for the patients, when compared to the use of lower CD. In addition, the findings of this study reinforce the importance of the subjective evaluation of the quality of life of the denture wearers patients, being that essential to understand the impact of prosthetic rehabilitation and the determination of clinical practice based on scientific evidence. As a limitation of this study, the fact that the sample was selected for convenience may be considered.

Conclusion

Based on the findings of this study, it was concluded that the self-reported quality of life can be influenced by the type of prosthesis used. Patients with mandibular RPD presented better subjective levels of quality of life when compared to patients with bimaxillary CD.

The items that presented differences between the groups were those related to chewing (difficulty in chewing, discomfort in eating, avoiding eating, interruption of meals), psychological discomfort and incapacity (unable to eat), social incapacity (poor life), and oral pain and discomfort (unsuitable prostheses, sore mouth).

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Mini Curriculum and Author's Contribution

- Tatiana Ganzer da Rosa – DDS. Contribution: data acquisition, data interpretation, and final approval.
- Vagner Flávio Reginato – DDS and PhD student. Contribution: preparation and writing of the manuscript, and final approval.
- Angélica Maroli – DDS. Contribution: data acquisition.
- Mateus Bertolini Fernandes dos Santos – DDS and PhD. Contribution: effective scientific and intellectual participation for the study.
- Alfonso Sanchez-Ayala – DDS and PhD. Contribution: effective scientific and intellectual participation for the study and statistical analysis.
- Ataís Bacchi – DDS and PhD. Contribution: conception and design, effective scientific and intellectual contribution to the study, final approval.

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