Pesquisa Brasileira em Odontopediatria e Clínica Integrada 2020; 20:e0006
https://doi.org/10.1590/pboci.2020.095
ISSN 1519-0501 / eISSN 1983-4632

ORIGINAL ARTICLE

Oral Health-Related Quality of Life (OHRQoL) in Patients' with Dental Prosthesis

Vinod Bandela[1], Manay Srinivas Munisekhar[2], Santosh R. Patil[3], Anil Kumar Nagarajappa[4], Saif Faruqi[1], Kiran Kumar Metta[5], Mohammad Khursheed Alam[2], Saraswathi Kanaparthi[6]

[1]Department of Prosthetic Dental Sciences, College of Dentistry, Jouf University, Kingdom of Saudi Arabia.
[2]Department of Preventive Dentistry, College of Dentistry, Jouf University, Kingdom of Saudi Arabia.
[3]Department of Oral Medicine and Radiology, New Horizon Dental College and Research Institute, Bilaspur, India.
[4]Department of Oral and Maxillofacial Surgery & Diagnostic Sciences, College of Dentistry, Jouf University, Kingdom of Saudi Arabia.
[5]Department of Conservative Dental Sciences, Ibn Sina National College for Medical Sciences, Jeddah, Kingdom of Saudi Arabia.
[6]Department of Pedodontics and Preventive Dentistry, St. Joseph Dental College and Hospital, Eluru, Andhra Pradesh, India.

Author to whom correspondence should be addressed: Dr. Vinod Bandela, College of Dentistry, Jouf University, Kingdom of Saudi Arabia. Phone: +966 560061982. E-mail: vinod.bandela@gmail.com.

Academic Editors: Alessandro Leite Cavalcanti and Wilton Wilney Nascimento Padilha

Received: 04 February 2020 / Accepted: 01 May 2020 / Published: 01 June 2020

How to cite this article: Bandela V, Munisekhar MS, Patil SR, Nagarajappa AK, Faruqi S, Metta KK, et al. Oral Health-Related Quality of Life (OHRQoL) in patients' with dental prosthesis. Pesqui Bras Odontopediatria Clín Integr. 2020; 20:e0006. https://doi.org/10.1590/pboci.2020.095

Abstract

Objective: To determine the Oral Health-Related Quality of Life (OHRQoL) for post-treated fixed dental prostheses in selected sample of patients. **Material and Methods:** 120 patients treated with fixed dental prostheses, either single crowns or fixed partial dentures in maxillary or mandibular arches were asked to express their views about their quality of life. Patients' files were randomly selected from the archives of Department of Prosthetic Dental Sciences, College of Dentistry, Jouf University, Saudi Arabia. For this purpose, a self-structured questionnaire was prepared and their responses recorded. The responses were categorized on a 5 point scale and frequencies calculated. **Results:** Of 120 patients approached, 79 responded with the mean age group of 37 years. From the survey, it was noted that only three variables were statistically significant, those relating to the importance of natural teeth over fixed prostheses ($p=0.046$), the ability to chew all kinds of foods ($p=0.021$) and satisfaction with the occlusion ($p<0.001$). **Conclusion:** Oral health remains important, which directly or indirectly is related to many systemic diseases. In the present study, the majority of patients were satisfied with the treatment given.

Keywords: Quality of Life; Health Status; Oral Health; Dental Prosthesis.

Introduction

According to the World Health Organization (WHO), health is defined as "a complete state of physical, mental and social well-being and not just the absence of disease" (WHO-1948). The concept of health status embraces the biopsychosocial model of health into which symptoms, physical functioning, emotional and social well-being are incorporated [1].

In 1976, Cohen and Jago first advocated the development of sociodental indicators to measure Oral Health Quality of Life (OHRQoL) [2]. Later, some researchers postulated how oral health is related to health related-quality of life and understand the interrelationships between clinical variables like diagnosis, clinical examination data and person-centered, self-reported health experience [3].

The advantage of assessing OHRQoL is, it allows for a shift from traditional medical/dental criteria to assessment and care, which not only focuses on a person's social and emotional experience but also on physical functioning in obtaining appropriate treatment goals and treatment outcomes [4]. There are three reasons due to which medical and dental research on health-related quality of life (HRQoL) has flourished: (1) the patient's active role as a member of treatment team (2) the need for evidence-based approaches, and (3) the fact that many treatments for chronic diseases fail to 'cure' the health condition [5].

The dimensions of OHRQoL are orofacial pain, functional limitations, appearance and psychosocial impacts; these are assessed with multiple-item questionnaires that are very important in prosthodontics. The available information concerning the consequences of oral disorders and the quality of life is less. In addition, measuring the health outcomes for use in dental health surveys and clinical trials are lacking. However, interest in this area is increasing and several oral condition-specific health status measures have been developed over the last few years [6].

The research teams in Australia, Canada, and US have developed and tested most sophisticated tool, the Oral Health-Impact Profile (OHIP), to provide a comprehensive measure of self-reported discomfort, dysfunction and disability attributed to oral conditions. The tool consists of 49 items organized into seven sub-scales and addresses how oral conditions compromise functioning, social and psychological well-being of an individual [7].

Other researchers like Patrick and Bergner proposed seven dimensions for quality of life, out of which three functional status dimensions - social, psychological, and physical dimensions are concerned with impairment of OHIP. OHRQoL characterizes patients' perceptions of oral health. Therefore, it measures the benefits of prosthodontic treatment. This tool of measuring the quality of life is available not only in English language - in original, but also in French, Chinese, Italian, and Swedish versions. Recently, a German version, OHIP-G, was also developed [8].

Although OHRQoL is anticipated to be an important outcome of prosthodontic therapy, cross-sectional and longitudinal data available is chiefly related to the patients treated with complete dentures and implant-supported overdentures. Information is lacking on impaired OHRQoL among patients before and after treatment with fixed or removable dentures, though these represent the majority of prosthodontic treatments [9-11]. Finally, OHRQoL is important because of its implications for oral health disparities and access for care.

The objective of the present study was to determine the OHRQoL for post-treated dental prostheses in a selected sample of patients who visited College of Dentistry, Jouf University.

Material and Methods

Study Design and Sample

For this cross-sectional study, 120 male patients were invited to participate. Partially edentulous patients who require fixed dental prostheses; either single crown or FPD and willing to participate, were included in this study. Patients with systemic disease, psychological, and temporomandibular joint disorder were excluded as these may affect the treatment outcome.

As the study population was more than 10,000, the sample size was calculated using the formula by Kasiulevicius et al., n = Z2P(1–P)/e2. Where n stands for the sample size required, Z2 denotes the standard normal deviate (1 – equals the desired confidence level, e.g., 95%), P is the estimated proportion in the present population, e is the desired level of precision [12].

Data Collection

All reviewed patients were treated with fixed dental prostheses from the out-patient prosthodontic clinics, College of Dentistry, Jouf University, Kingdom of Saudi Arabia. The patients' files were randomly selected from the archives; their contact numbers retrieved and were called to give their remarks about OHRQoL. For this purpose, a self-structured questionnaire was prepared and their responses were recorded. Apart from the general information like; name and age, the questionnaire included satisfaction on chewing ability, aesthetic outcome, masticatory comfort, etc.

The patient responses were categorized on a 5 point scale – categorized into strongly agree, agree, uncertain, disagree and strongly disagree. Frequencies were calculated for this purpose. Different aspects for the prosthodontic therapy delivered were collected: age, sex, area of missing teeth (upper, lower and both) and questions about patient satisfaction (Table 1).

Table 1. Questions about patient satisfaction.

Questions	Categories
Q1. Importance of natural teeth over FPD.	Strongly agree, Agree, Uncertain, Disagree and Strongly disagree.
Q2. Ability to chew all kinds of food	Strongly agree, Agree, Uncertain, Disagree and Strongly disagree.
Q3. Is there any relation of oral health with the general health?	Strongly agree, Agree, Uncertain, Disagree and Strongly disagree.
Q4. Are you satisfied with esthetics?	Strongly agree, Agree, Uncertain, Disagree and Strongly disagree.
Q5. Are you satisfied with the masticatory efficiency?	Strongly agree, Agree, Uncertain, Disagree and Strongly disagree.
Q6. Are you satisfied with occlusion?	Strongly agree, Agree, Uncertain, Disagree and Strongly disagree.
Q7. Is there any pain and/or sensitivity?	Strongly agree, Agree, Uncertain, Disagree and Strongly disagree.
Q8. Are you satisfied with the treatment?	Strongly agree, Agree, Uncertain, Disagree and Strongly disagree.
Q9. Overall satisfaction including cost and quality of life.	Strongly agree, Agree, Uncertain, Disagree and Strongly disagree.

Patients were grouped into upper and/or lower arches, or both, as having prostheses. The number of arch wise-located prosthesis was 28 in the upper and 27 in the lower arch with 25 patients in both arches. Twenty-five patients have a prosthesis in the anterior region, while forty-seven have in the posterior with seven patients both in the anterior and in the posterior region of the arches.

Data Analysis

Data were analyzed using IBM SPSS Statistics for Windows Software, version 20 (IBM Corp., Armonk, NY, USA). Descriptive statistics were used to calculate the absolute and relative frequencies. The Chi-square test was used to analyse categorical data. $P < 0.05$ was considered statistically significant.

Ethical Aspects

This research project was approved by the Ethics Research Committee of the College of Dentistry, Jouf University (Protocol No. COD16-17/00319).

Results

Of the 120 male patients, 79 (65.8%) responded to the questionnaire. The age range between 22 and 54 years, with an average age of 37 years. It was noted that three variables were found to be statistically significant, relating to 1) the importance of natural teeth over fixed prostheses (p=0.046), 2) ability to chew all kinds of foods (p=0.021) and 3) satisfaction with the occlusion (p<0.001) (Tables 2, 3, and 4, respectively). About the relation of oral health with general health, 68.40% of the patients were uncertain and 24.10% have agreed and have a positive opinion that there is importance of oral health and its relation with general health. The response for satisfaction on the esthetics, 64.60% have responded positively, but 2.50% were not satisfied with the esthetic outcome. Most of the patients were satisfied with masticatory efficiency and occlusion, and few (< 6%) responded negatively. For the pain and or sensitivity index, majority (41.80%) were not happy with the delivered prostheses. With the treatment and overall satisfaction, along with cost and quality of life, most of the patients (>51%) were very happy with the final treatment outcome.

Table 2. Importance of natural teeth over fixed prostheses.

Grouping	Strongly Agree	Agree	Uncertain	Total	p-value
	N (%)	N (%)	N (%)	N (%)	
Upper	11 (40.7)	9 (33.3)	7 (25.9)	27 (100.0)	0.046
Lower	13 (48.1)	5 (18.5)	9 (33.3)	27 (100.0)	
Both	3 (12.0)	12 (48.0)	10 (40.0)	25 (100.0)	
Total	27 (34.2)	26 (32.9)	26 (32.9)	79 (100.0)	

Table 3. Ability to chew all kinds of food.

Grouping	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree	Total	p-value
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	
Upper	11 (40.7)	15 (55.6)	1 (3.7)	0 (0.0)	0 (0.0)	27 (100.0)	0.021
Lower	11 (40.7)	13 (48.1)	0 (0.0)	3 (11.1)	0 (0.0)	27 (100.0)	
Both	2 (8.0)	16 (64.0)	0 (0.0)	5 (20.0)	2 (8.0)	25 (100.0)	
Total	24 (30.4)	44 (55.7)	1 (1.3)	8 (10.1)	2 (2.5)	79 (100.0)	

Table 4. Satisfaction with occlusion.

Grouping	Strongly Agree	Agree	Uncertain	Disagree	Total	p-value
	N (%)	N (%)	N (%)	N (%)	N (%)	
Upper	5 (18.5)	20 (74.1)	2 (7.4)	0 (0.0)	27 (100.0)	<0.001
Lower	9 (33.3)	14 (51.9)	4 (14.8)	0 (0.0)	27 (100.0)	
Both	0 (0.0)	5 (20.0)	19 (76.0)	1 (4.0)	25 (100.0)	
Total	14 (17.7)	39 (49.4)	25 (31.6)	1 (1.3)	79 (100.0)	

Discussion

Edentulism is known to be an enfeebling and irreversible phase and may be consorted by various regressive changes of the oral mucosa, oro- facial musculature, salivary tissues and other sensory and

functional disorders. Despite the fact that, in the recent decade prevalence of complete edentulism has decreased, due to the advances in dentistry and related research [13].

The concept of health status embraces the biopsychosocial model of health in which symptoms, physical functioning, emotional and social well-being are incorporated and to know how oral health is related to health-related quality of life and to understand the interrelationships between clinical variables like diagnosis, clinical examination data and person-centered, self-reported dental experience. Historically, dental caries and periodontal disease were considered as the most important oral health burdens. In recent years, tooth loss and oral function impairment have become a focus for health problems [14].

The current survey involved was a self-prepared questionnaire on OHRQoL of the patients', treated in a selected group of samples with single crown and/or FPD. In the present study, OHRQoL was used, as it is a multidimensional indicator, which assesses person's functional, social, psychological factors, pain, or discomfort that affect well-being of an individual; and OHIP questionnaire is one of the most technically sophisticated tool for assessing quality of life, which is in accordance with previous study [15].

The study aimed on occlusal harmony and masticatory efficiency of the delivered prosthesis found that more than 70% of the patients, masticatory efficiency had improved remarkably, which was in accordance with the systematic review performed by other authors [14].

The present study also evaluated the patients' knowledge regarding oral health status and its role in maintaining general health. Thirty percent of the patients expressed that maintaining a good oral health has many benefits and a greater impact on the general health of an individual, 68% were not aware of any such relation and 1.3% disagreed. However, in a previous study, the results were quite different, which could be due to the difference in socioeconomic and educational status of the sample [1].

The results of our study showed a significant positive change ($p=0.046$) post-treatment as compared to the attitude prior to the treatment, which was similar to the findings previously reported [7].

Although, there is an increasing tendency to use OHRQoL measurement in clinical trials and evaluation studies, yet responsiveness of many OHRQoL assessments have not been established. Longitudinal studies are needed to investigate the response to treatment and preventive procedures in assessing the changes in quality of life [16,17].

One of the limitations of this clinical study was that there was less sample size; radiographs were not included in an oral examination to detect any interproximal caries. Another limitation was time series and cross-over design would have allowed the treatment to be assessed more definitively by compensating for patient expectations.

Conclusion

The study's findings strengthen the view that the OHRQoL can be improved with appropriate prostheses selection.

Authors' Contributions

VB	0000-0002-5228-7133	Methodology and Writing – Original Draft Preparation.
MSM	0000-0001-9082-705X	Writing – Review and Editing.
SRP	0000-0003-0715-497X	Validation and Supervision.
AKN	0000-0003-0251-1253	Investigation and Data Curation.
SF	0000-0001-7365-293X	Resources and Writing – Review and Editing.
KKM	0000-0002-3296-6649	Formal Analysis and Writing – Review and Editing.

MKA	0000-0001-7131-1752	Conceptualization and Software.
SK	0000-0003-0656-3771	Visualization and Writing – Review and Editing.

All authors declare that they contributed to critical review of intellectual content and approval of the final version to be published.

Financial Support

None.

Conflict of Interest

The authors declare no conflicts of interest.

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