

Oral Health-Related Quality of Life in Patients Treated by Implant Supported Fixed Dentures: A Qualitative Research

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ABSTRACT

Background: The purpose of our research was to assess the quality of life in patients in relation to oral health wellbeing, who had undergone implant supported fixed dentures treatment.

Materials and Methods: A total of 24 subjects, of which 10 were females and rest were male patients with their age varying from 40-65 years; were screened and incorporated in this study. The subjects were instructed to fill the original version of OHIP questionnaire with 49 questions developed by Slade and Spencer et al., which was sent by email to the concerned people. These questions assessed the quality of life of patients who had undergone treatment 1 year back so as to assess the effects on oral health of patients during this duration.

Results: The most commonly experienced oral health-related quality of life impacts across participants were in the dimensions of physical pain (painful aching, 22%; uncomfortable to eat, 30%), and psychological discomfort (self-conscious, 30%; felt tense, 22%). Upon further investigation, comparison between male and female mean severity scores within the implant-treated group revealed a significantly higher score for women in the physical disability dimension.

Conclusion: Patients treated with implant supported fixed prosthesis, implant supported removable partial dentures and implant supported over dentures had higher quality of life.

Keywords: Edentulism, dental implants, Oral health-related quality-of-life.

INTRODUCTION

Replacement of missed teeth with prosthesis is among the most complicated dental procedures for regaining function, aesthetics, speech and psychological improvement. Although full crown, bridge and removable dentures are usual treatment options, today, patients' attitudes seem to be changing and many prefer implants due to functional and psychological factors. Implant treatments have gained popularity among both patients and clinicians.¹ Patient and clinicians'

opinions are both important regarding the assessment of treatment outcomes. In patients' point of view, psychosocial effects, cost-effectiveness, cost-benefit and quality of life factors are all considered important. Many studies show higher patient satisfaction of implant-based prosthesis when compared to conventional prosthesis.² Fixed tooth-based or implant-based prostheses, removable partial dentures and removable over dentures, are usual recommended

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Table 1: Oral Health Impact Profile (OHIP-14) questionnaire by Slade and Spencer et al.

<i>During the last year, how often have the following occurred?</i>							
1. Functional limitation							
- Have you had trouble pronouncing any words because of problems with your teeth, mouth, or dentures? - Have you felt that your sense of taste has worsened because of problems with your teeth, mouth, or dentures?							
2. Physical pain							
- Have you had painful aching in your mouth? - Have you found it uncomfortable to eat any foods because of problems with your teeth, mouth, or dentures?							
3. Psychological discomfort							
- Have you been self-conscious because of your teeth, mouth, or dentures? - Have you felt tense because of problems with your teeth, mouth, or dentures?							
4. Physical disability							
- Has your diet been unsatisfactory because of problems with your teeth, mouth, or dentures? - Have you had to interrupt meals because of problems with your teeth, mouth, or dentures?							
5. Psychological disability							
- Have you found it difficult to relax because of problems with your teeth, mouth, or dentures? - Have you been a bit embarrassed because of problems with your teeth, mouth, or dentures?							
6. Social disability							
- Have you been a bit irritable with other people because of problems with your teeth, mouth, or dentures? - Have you had difficulty doing your usual jobs because of problems with your teeth, mouth or dentures?							
7. Handicap							
- Have you felt that life in general was less satisfying because of problems with your teeth, mouth, or dentures? - Have you been totally unable to function because of problems with your teeth, mouth, or dentures?							

Table 2: Percentage distribution of responses to each of the OHIP-14 items for all participants. (Gender-wise)

Gender	Functional limitation	Physical pain	Psychological discomfort	Physical disability	Psychological disability	Social disability	Handicap
Male	2%	3%	5%	1%	2%	2%	1%
Female	3%	6%	11%	4%	6%	3%	2%

Table 3: Percentage distribution of responses to each of the OHIP-14 items for all participants. (Age-wise)

Age group	Functional limitation	Physical pain	Psychological discomfort	Physical disability	Psychological disability	Social disability	Handicap
40-55 yrs	3%	5%	7%	2%	5%	8%	1%
55-65 yrs	2%	1%	3%	4%	2%	2%	1%

treatment options for replacing missing teeth. In the past, tooth loss was little concern to patients and the majority of them easily adapted to usual tooth replacement methods.³ Due to functional and psychological reasons, today this attitude has changed and many people prefer implant-based treatments.⁴ Four basic parameters are described to evaluate dental treatment results. Biological and physiological parameters are health of oral structures, mastication, nutrition, and aesthetics. Longevity and survival rate parameters include tooth, restorations and implant; psychological parameters include satisfaction, self-esteem, body image and quality of life and economic parameters include direct and indirect costs. Most research has focused on the first two parameters whereas little focus has been placed upon psychological outcomes of treatment.⁵ Oral health related quality of life (OHRQOL) is an important patient centered endpoint which needs to be considered when evaluating professional interventions and treatment results. In the general population, number of teeth has the most significant effect on patients' OHRQOL.⁶ WHO defines health as complete social, psychological and physical well-being and not only the absence of disease.⁷ Quality of life is the perception of one's situation in life based on individual cultural values. Quality of life and its relationship to goals, expectancies, standards and anxiety is considered a valuable parameter in patient's oral health evaluation.⁸ Subjective evaluation of OHRQOL, reflects patients comfort while eating, sleeping and participating in social activities, self-esteem and satisfaction with oral health.⁹ OHRQOL will evaluate both positive and negative domains of health perceptions.¹⁰ Allen et al. found that many edentulous adults expected implants would return their chewing ability to that of a fully dentate individual, but did not examine expectations around social and psychological issues.¹¹ The fixed nature of implants was

particularly appealing as having to remove an appliance for cleaning or to taste/eat more easily was considered very inconvenient and embarrassing. Furuyama and colleagues reported significantly better oral-health related quality of life in patients with implant-supported fixed rather than removable partial dentures since, as well as being more convenient to maintain, a fixed prosthesis felt more like a natural body part and thus restored a sense of normal functioning.¹² For people who prefer treatment option of implant supported fixed dentures or those who previously had a removable partial denture, implant supported fixed prosthesis are recommended.¹³ The 10 year survival rate of implant and the prosthesis is reported to be 96% for mandibular implant fixed complete dental prosthesis. Also, survival rate of implants with coarse surfaces were similar to implants with smooth surfaces. Number of implants and anterior-posterior position of implants did not influence survival rate.¹⁴ Implant-retained dentures (IOD) are purported to decrease the negative outcomes the elderly patient has often experienced with CDs: poor retention, poor stability, inability to chew, and inability to speak.¹⁵ Implant-retained dentures have the potential for increased retention as well as patient comfort when compared to CDs, offering better comfort, stability, and chewing function, and thereby improving the OHRQoL of geriatric patients.¹⁶

AIM

The purpose of our research was to assess the quality of life in patients in relation to oral health wellbeing, who had undergone implant supported fixed dentures treatment

MATERIALS AND METHODS

Patients who had undergone implant based fixed denture treatment in various dental clinics were selected were included in our study. According to

these criteria, a total of 24 subjects, of which 10 were females and rest were male patients with their age varying from 40-65 years; were screened and incorporated in this study. The subjects were instructed to fill the original version of OHIP questionnaire with 49 questions developed by Slade and Spencer et al., which was sent by email to the concerned people. (Table 1) These questions assessed the quality of life of patients who had undergone treatment 1 year back so as to assess the effects on oral health of patients during this duration. The dependent variables were based on the responses to the OHIP-14 made on a five-point ordinal scale ("never" coded "0", "hardly ever" coded "1", "occasionally" coded "2", "fairly often" coded "3", and "very often" coded "4"). Two variables were calculated; prevalence was defined as the percent of individuals who responded "occasionally" to "very often" on any of the items, and severity was defined as the sum of the ordinal values of the 14 items. High OHIP scores demonstrated poor OHRQoL, albeit low OHIP scores represented gratifying and competent OHRQoL. Their answers were received by Email and recorded in a Microsoft Excel spreadsheet and subjected to descriptive statistics. All statistical analyses were performed using Statistical Package for the Social Science software (SPSS, version 22). Descriptive statistics (mean and standard deviation) and frequency counts were run for the items and dimensions. The level of significance was set at $\alpha = .05$.

RESULTS

All OHIP items had a majority of individuals who responded that they never experienced the oral health-related quality of life impact after their treatment (range across items, 60%– 94%). The most commonly experienced oral health-related quality of life impacts across participants were in the dimensions of physical pain (painful aching, 22%; uncomfortable to eat, 30%), and psychological discomfort (self-conscious, 30%; felt tense, 22%). Upon further investigation, comparison between male and female mean severity scores within the implant-treated group revealed a significantly higher score for women in the physical disability dimension ($P = .04$). With respect to gender -wise percentage comparison, females were affected more by psychological disability factors as compared to male subjects. However, majority of subjects were

satisfied with the treatment outcomes. (Table 2) This was also visible in respect with age -wise distribution of subjects, where older age group of patients were not much affected with social disability as compared to subjects of age group of 40-55 years of age, who were more affected with social acceptance, esthetics, as well as other psychological factors. (Table 3)

DISCUSSION

Using implants for teeth replacement is a predictable method. Walton reported the 15 year survival rate of posterior FPDs and implant supported single crowns to be 92.7% and 95.9% respectively. This difference was not statistically significant. In contrast the survival rate of anterior implant-supported single crowns (93.3%) was significantly higher than anterior FPDs (82.8%). Both treatment options were similar in complications, whereas FPDs economic burden was considered to be higher.¹⁷ Park et al compared the quality of life in 35 people treated with single tooth implants and 36 people treated with FDPs. In both treatment options, OHRQOL increased but no significant difference existed between the two groups.¹⁸ In a systematic review, Kern et al, reported implant survival rate to be 97.9% for maxilla and 98.9% for mandible. Implant loss was significantly higher in maxilla and lower in implant supported fixed dentures compared to implant supported fixed prostheses, implant supported removable prostheses and conventional dentures. Although quality of life increased in all three groups after treatment, OHRQOL was significantly higher in patients with implant supported fixed prostheses and implant supported removable prostheses, compared to patients who used conventional dentures. Specifically, compared to conventional dentures, functional limitation, physical pain and psychological problems significantly improved in implant supported fixed prosthesis patients and functional limitation improved in implant supported removable denture patients.² Brennan et al, noted lower quality of life and satisfaction in patients with implant supported over denture in comparison to implant supported fixed prosthesis.¹⁹

Overall, most participants in our study, either mentioned or agreed that keeping their teeth and having a healthy smile was important to and an indicator for their overall health. They made the

connection of their dental health to their overall health. Family or peers have a strong influence on what treatment patients elect to receive. Participants mentioned this as their reason to have certain treatments performed or how well they took care of their teeth at certain times in their lives. Most participants in the study, seem to clean their teeth better and see the dentist more often for regular cleanings and checkups since the time of their treatment. However, drawbacks included multiple appointments, post-operative pain and swelling experienced due to extraction of teeth before placement of implants. Many individuals in the implant group mentioned trying to protect the implant or being more careful with it because of its cost or because they were afraid they might break it or lose it.

CONCLUSION

Patients treated with implant supported fixed prosthesis, implant supported removable partial dentures and implant supported over dentures had higher quality of life, hence showing the importance of implant use for teeth replacement according to clinician and patient perceptions.

CONFLICTS OF INTEREST

The authors declare they have no potential conflict of interests regarding this article.

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