ORIGINAL RESEARCH ARTICLE

THE ORAL HEALTH RELATED QUALITY OF LIFE BEFORE AND AFTER WEARING COMPLETE DENTURES FABRICATED BY DENTAL UNDERGRADUATE STUDENTS IN A DENTAL COLLEGE IN KOTHAMANGALAM - A SIX MONTHS FOLLOW-UP STUDY

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ABSTRACT

Background: Inappropriate treatment of edentulousness using total prostheses may lead to not only impaired buccal function and increased alveolar bone loss, but also increased patient self-consciousness. Patient satisfaction also depends on technical and patient related variables. In dental institutions, majority of the dentures are fabricated by dental students. The Oral Impact on Daily Performance (OIDP) scale assesses the impact of oral health on an individual's daily life.

Objectives: To assessing the oral health related quality of life before and after wearing complete dentures fabricated by dental undergraduate students in a dental college in Kothamangalam.

Methodology: The study was a longitudinal questionnaire based survey. The target population was the patients visiting the Department of Prosthodontics in a dental college in Kothamangalam, Kerala over a period of two months for complete denture placement. Only first time denture wearers were included in the study. Oral Impact on Daily Performance Scale was used for assessing the OHRQoL. The assessment was made before and 6 months after wearing the dentures.

Results: Among the 56 participants, 29 were males. It was observed that there was a significant reduction in difficulty of performing all the eight daily performances six month after wearing dentures in relation to before wearing dentures. No significant difference was found in relation to gender and age group.

Conclusion: The study revealed that six months after wearing the dentures fabricated by students, there was a significant improvement in the OHRQoL of the study participants, with no significant difference in relation to gender and age group of the respondents.

Key words: OHRQoL, edentulousness, Oral impact on daily performances.

INTRODUCTION

Teeth, be it natural or artificial are of paramount importance for human health. There are several studies to prove that tooth loss affects dietary intake, mastication and the nutritional status of individuals.[1] Dental awareness and the access to preventive dental care have contributed significantly to a decrease in the edentulous population. Despite the decreasing rate of tooth loss, the demand for removable prosthodontic treatment remains high.[2]

In the preamble of its constitution, WHO states that 'health is a state of complete physical, mental and social well being and not merely the absence of disease and infirmity'. In dentistry, this new perspective on health suggests that the ultimate goal of dental care is not merely the absence of caries or periodontal disease or oral cancer but also the mental and social well being of the patient. The concept of oral health-related quality of life (OHRQoL) captures the aim of this new perspective.[3] There is an increasing recognition that oral disorders can have a significant impact on physical, social and psychological well-being. This has resulted in a greater clinical focus on the quality of life improvement as a major, if not a primary outcome of dental care.[4] The emphasis on quality of life is consistent with the concept that the health is a resource and not simply the absence of disease.[5]

As per the reports of the WHO Global Oral Health Data Bank and WHO Oral Health Country/Area Profile Programme, 2000, the prevalence of edentulousness among 65-74 year old Indian population is about 19.6%.[6] Inappropriate treatment of edentulousness using total prostheses may lead to not only impaired buccal function and increased alveolar bone loss, but also increased patient self-consciousness. Patient satisfaction also depends on technical and patient related variables. Researchers have argued that the evaluation of treatment success should be established by each individual patient, as opposed to traditional clinical evaluation method. Despite the fact that patient wellbeing is always the main aim of the treatment approach adopted, clinical practice adopts predetermined criteria for treatment assessment, and these criteria do not consider the requirements and attitudes of individual patients.[7]

Numerous scales of measurements have been employed for measuring the Oral Health Related Quality of Life. The Oral Impact on Daily Performance (OIDP) scale assesses the impact of oral health on an individual's daily life. This instrument is advantageous for use in population surveys, not only in terms of it being easier to use while measuring individual behaviors rather than feeling states, but also because it is brief.[1]

Dental curriculum is one such curriculum that permits the students to treat their patients before completing the academic course. Students start treating edentulous patients and fabricate complete dentures for them when they enter the final year BDS. Although guided by the faculty members, the clinical and lab work done by students definitely need a quality control inspections.

Hence, this study was undertaken with an objective to compare the oral health related quality of life of edentulous patients before and after wearing complete dentures fabricated by students of Final year BDS.

METHODOLOGY

The study was a longitudinal questionnaire based survey. The target population was the patients visiting the Department of Prosthodontics of Indira Gandhi Institute of Dental Sciences, Nellikuzhy, Kothamangalam, Kerala over a period of two months for complete denture placement. Only first time denture wearers were included in the study. All the dentures were fabricated by dental undergraduate students of Final Year. Oral Impact on Daily Performance Scale was used for assessing the OHRQoL.

A pre-fabricated, validated questionnaire was divided into two parts. The first part consisted of demographic data which included age, gender, visit (before or after denture wearing). The second part contained eight questions based on the Oral Impact on Daily Performance scale. Oral Impact on Daily Performances was obtained by adding scores for eight frequency items. "during the past 6 months how often did you have problems with your mouth and teeth which caused you any difficulties with,

1) eating, 2) speaking and pronouncing clearly, 3) cleaning teeth, 4) sleeping and relaxing, 5) smiling without embarrassment, 6) maintain emotional state, 7) enjoying contact with people and 8) carrying out major social work. The scale used was in the range: (0) 'never affected', (1) 'less than once a month', (2) 'once or twice a month', (3) 'once or twice a week', (4) '3-4 times a week', (5) 'every or nearly every day'. For analysis, dummy variables were constructed yielding categories 0 = never affected (including the original category 0) and 1 = affected less than once a month or more often (including original categories 1-5). Simple count scores (SC) were created by adding the 8 dummy variables. Additive scores (ADD) were created by adding the 8 OIDP items as assessed originally. The questionnaire was translated into the local language Malayalam. The translated Malayalam version of the questionnaire was tested for content validity and reliability prior to the start of the study (Cronbach's α value = 0.91).

The questionnaire was distributed by the faculty members of Department of Prosthodontics and Department of Public Health Dentistry. The questionnaire was distributed before denture delivery as well as 6 months after wearing the dentures. The respondents filled the questionnaire on their own and were asked to return the questionnaire immediately.

Necessary ethical clearance for the study was obtained from the ethical committee of the institution. The patients were briefed about the study and informed consent was obtained from all the participants prior to the administration of questionnaire. Patients who were not willing to participate in the study were excluded.

The final study sample was 56. All returned questionnaires were coded and analyzed. Results were expressed as a number and percentage of respondents for each question and were analyzed using the SPSS Version 17 software. Chi-square test was performed to compare the response in relation to gender, marital status and occupation. The level of significance was set at p = 0.05.

RESULTS

Respondent's Profile

Table I shows the respondent's profile. It was observed that about 51% of the respondents (n=29) were males and the rest females (n=27). Majority of the respondents belonged to the age group of 51-70 years (n=45). Five patients were aged below 50 years and six above 71 years.

TABLE I: RESPONDENT'S PROFILE

GENDER	
MALE	29 (51.8%)
FEMALE	27(48.2%)
AGE GROUP	
<50 YEARS	5 (8.9%)
51-60 YEARS	22 (39.3%)
61-70 YEARS	23 (41.1%)
71-80 YEARS	6 (10.7%)

Impact on Daily Performances

Table II shows the comparison of the impact on daily performances before wearing dentures and 6 months after wearing dentures as assessed by the Simple Count Scores (SCC). It was observed that there was a significant reduction in difficulty of performing all the eight daily performances six month after wearing dentures in relation to before wearing dentures.

Table III shows percentage distribution and mean frequency scores for eight oral impact on daily performance additive scores and oral impact on daily performance simple count scores. All the study subjects reported difficulty in eating and enjoying food and difficulty in carrying out major social role.

About 98% admitted they they had difficulty in enjoying contact with people. Six months after wearing dentures the study participants reported a significant reduction in difficulty in performing all the functions.

Table IV shows the results on inferential statistics in relation to age group and gender on the response as assessed by Chi square test. No significant difference in response was observed among the subjects of different age group and gender in relation to the parameters assessed.

TABLE II: IMPACT ON DAILY PERFORMANCES BEFORE WEARING DENTURES AND 6 MONTHS AFTER WEARING DENTURES AS ASSESSED BY SIMPLE COUNT SCORES

Q. No.	DAILY PERFORMANCES	BEFORE TREATMENT		AFTER TREATMENT		SIG.
		YES	NO	YES	NO	
1.	Difficulty in eating and enjoying food	56	0	44	12	$\chi2 = 13.44$ $p < 0.01$
2.	Difficulty in speaking and pronouncing clearly	54	2	26	30	$\chi2 = 34.30$ $p < 0.01$
3.	Difficulty in cleaning teeth	5	51	0	56	$\chi2 = 5.23$ $p = 0.02$
4.	Difficulty in sleeping or relaxing	2	54	0	56	$\chi2 = 2.03$ $p = 0.04$
5.	Difficulty in smiling, laughing and showing teeth without embarrassment	54	2	4	52	$\chi2 = 89.40$ $p < 0.01$
6.	Difficulty in maintaining usual emotional state without being irritable	21	35	1	55	$\chi2 = 22.62$ $p < 0.01$
7.	Difficulty in carrying out major work or social role	56	0	3	53	$\chi2 = 100.61$ $p < 0.01$
8.	Difficulty in enjoying contact with people	55	1	2	54	$\chi2 = 100.35$ $p < 0.01$

TABLE III: PERCENTAGE DISTRIBUTION AND MEAN FREQUENCY SCORES FOR EIGHT ORAL IMPACT ON DAILY PERFORMANCE ADDITIVE SCORES AND ORAL IMPACT ON DAILY PERFORMANCE SIMPLE COUNT SCORES

ORAL IMPACT ON DAILY PERFORMANCE PARAMETERS	PERCENTAGE AFFECTED		MEAN SCORE ± STANDARD DEVIATION	
	BEFORE	AFTER	BEFORE	AFTER
Difficulty in eating and enjoying food	100%	78.6%	1.00±0.00	0.79±0.05
Difficulty in speaking and pronouncing clearly	96.4%	48.2%	0.96±0.02	0.46±0.06
Difficulty in cleaning teeth	8.92%	0%	0.09±0.03	0
Difficulty in sleeping or relaxing	3.6%	0%	0.04±0.02	0
Difficulty in smiling, laughing and showing teeth without embarrassment	96.4%	7.1%	0.96±0.02	0.07±0.03
Difficulty in maintaining usual emotional state without being irritable	37.5%	1.7%	0.38±0.06	0.02±0.02
Difficulty in carrying out major work or social role	100%	5.3%	1.00±0.00	0.05±0.03
Difficulty in enjoying contact with people	98.2%	3.6%	0.98±0.02	0.04±0.03

TABLE IV : TABLE SHOWING THE COMPARISON IN RELATION TO AGE GROUP AND GENDER ON THE RESPONSE AS ASSESSED BY CHI SQUARE TEST.

ORAL IMPACT ON DAILY PERFORMANCE PARAMETERS	BEFORE		AFTER	
	GENDER	AGE GROUP	GENDER	AGE GROUP
Difficulty in eating and enjoying food	391.50 p = 1.00	$\chi^2 = 0.00$ p = 1.00	357.50 p = 0.43	$\chi^2 = 6.03$ p = 0.110
Difficulty in speaking, pronunciation	390.50 p = 0.959	$\chi^2 = 4.01$ p = 0.260	376.50 p = 0.776	$\chi^2 = 3.94$ p = 0.268
Difficulty in cleaning teeth	380.50 p = 0.703	$\chi^2 = 5.31$ p = 0.15	391.50 p = 1.00	$\chi^2 = 0.00$ p = 1.00
Difficulty in sleeping or relaxing	390.50 p = 0.959	$\chi^2 = 3.15$ p = 0.369	391.50 p = 1.00	$\chi^2 = 0.00$ p = 1.00
Difficulty in smiling, laughing and showing teeth without embarrassment	362.50 p = 0.139	$\chi^2 = 3.15$ p = 0.369	389.50 p = 0.941	$\chi^2 = 2.52$ p = 0.472
Difficulty in maintaining usual emotional state without being irritable	311.00 p = 0.116	$\chi^2 = 0.09$ p = 0.993	378.00 p = 0.335	$\chi^2 = 8.33$ p = 0.04
Difficulty in carrying out major work or social role	391.50 p = 1.00	$\chi^2 = 0.00$ p = 1.00	378.00 p = 0.599	$\chi^2 = 4.83$ p = 0.185
Difficulty in enjoying contact with people	377.00 p = 0.300	$\chi^2 = 1.55$ p = 0.672	364.50 p = 0.168	$\chi^2 = 3.95$ p = 0.266
OIDP SCC	335.00 p = 0.291	$\chi^2 = 0.22$ p = 0.975	361.50 p = 0.603	$\chi^2 = 6.13$ p = 0.105

DISCUSSION

Although many industrialized countries have experienced a dramatic reduction in the prevalence of edentulousness and partial tooth loss, the proportion of edentulous individuals in aging societies worldwide continues to be significantly high. The main causes of tooth loss include the sequelae of caries and periodontal disease, but other factors have also been implicated. Tooth loss has been associated with several sociodemographic, behavioral, or medical factors. Once teeth are missing, food choices and nutritional changes could contribute to medical problems that might affect an individual's general wellbeing. Tooth loss can also have a negative impact on emotions and quality of life. Substitution of missing teeth with prosthesis is infrequent in developing countries, even though a high proportion of individuals may require some sort of prosthetic replacement[8]. Not many studies are conducted in Kerala state to assess the oral health quality of life of edentulous patients wearing complete dentures.

A variety of OHRQoL measures have been used, ranging from ad hoc, non-validated questionnaires to comprehensive measures based on conceptual models and validated for use in particular populations.[9] Generally, they measure the extent to which oral conditions disrupt normal social role functioning and lead to major changes in behaviours, such as changes in ability to work or attend school, or undertake parental or household duties.[10] Thus Oral Impact on Daily Performances questionnaire was used to assess the OHRQoL in this study.

The study revealed that among the eight daily performances assessed, before wearing the dentures, all the patients opined that they had difficulty in eating and enjoying food and difficulty in carrying out major social role. About 98.2% felt that the edentulousness made it difficult for them to enjoy communicate/socialize with people. Moreover, about 96.4% of the respondents had difficulty in smiling, laughing and showing teeth without embarrassment and difficulty in speaking and pronouncing clearly. Thus the study highlighted that over 96% of the study participants reported difficulty in six of the eight daily performances assessed. A highly significant reduction in the difficulty in performing these six performances was reported six months after complete denture wearing. One important observation is that despite significant reduction reported in all parameters recorded, the reduction in difficulty in eating and enjoying food and difficulty in speaking was comparatively less than the other parameters. The observation could be due to an inherent drawback of prosthesis as compared with the natural dentition. However, none of the performances showed a significant difference in relation to age group or gender. This could be due to the fact that all the questions were based on daily performances.

Although studies,[2,11,12] systematic reviews and meta analysis[9] have revealed the impact of tooth loss on OHRQoL of older population, and studies have reported an improvement in OHRQoL after wearing conventional dentures,[13-15] longitudinal studies conducted comparing OHRQoL before and after wearing conventional dentures using Oral Impact on Daily Performance were sparse, with no studies reported on assessment of dentures fabricated by students. Although dental institutions throughout the country provide dental treatment at attractive and cheaper rates, the service is not well utilized by majority of the population. One important reason for this observation is due to the fact that majority of the treatment is done by students. Moreover, after the delivery of dentures the follow up of the patients is usually done for a week. Hence long term follow-up is a mandatory for assessing the quality of treatment done. Therefore, this study was undertaken with the above mentioned objective.

Moreover, with a simple scale such as Oral Impact on Daily performances, used in the study, the measurement of the Quality of Life becomes easier. Similar studies can be recommended as a measure of quality of service provided by the institution and can throw a light on the patient's satisfaction and quality of education.

CONCLUSION

The study reveals that edentulousness had a significant impact on all the eight daily performances

assessed using the oral impact on daily performances scale. Six months after wearing the dentures fabricated by dental under graduate students, there was a significant improvement in the OHRQoL of the participants, with no significant difference in relation to gender and age group of the respondents.

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