

Impact of Maxillofacial Prostheses on Oral Health Related Quality Of Life (OHRQoL)

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Maxillofacial defects cause impact on oral health related quality of life (OHRQoL) including limitations in functional activities, communication, social interaction, and intimacy. The obturator prosthesis is commonly used as an effective means for rehabilitating maxillectomy patients. The purpose of this study was to investigate impact of definitive obturator prosthesis on oral health related quality of life. In the period between 2015 -2017, a total of twenty five (25) patients with acquired maxillary defects based on Okay classification have been selected and rehabilitated with definitive obturator prostheses. The OHRQoL was measured using the Oral Health Impact Profile (OHIP-Edent-19) and Obturator functioning scale (OFS) with standardized questionnaire after 2 weeks & 3 months of prosthesis function. To find the significant difference between the bivariate samples in Paired groups the Wilcoxon signed rank test was used. With respect to oral health impact profile –Edent 19 scale, the mean functional limitation score were 6.72 and 5.20 indicates that there is significant improvement in chewing performance after 2 weeks and 3 months of prosthesis function. Significant improvement in oral health impact profile was noticed in physical (M = 5.84, 4.88), Psychological (M=4.84, 3.96) and social disabilities (M=5.28, 4.16). Similarly, when observed with Obturator functioning scale, significant improvement were noted in chewing performance phonetics, appearance and miscellaneous aspects. Analysing the OHIP –Edent-19 scale and obturator functioning scale (OFS-15), statistically significant differences (Wilcoxon rank test p value = 0.0005) were observed. Within the limits of this study, it can be concluded that highly positive correlation exists between definitive obturator prostheses and oral health related quality of life (OHRQoL).

Keywords: Maxillofacial Prostheses, OHRQoL, Health.

Maxillofacial defect can result in, functional, cosmetic and Psychological impairment greatly affecting the patient's quality of life¹. Maxillary defect can be rehabilitated with either tissue grafting or using obturator prosthesis².

Although, surgical reconstructions³ have some advantages but it is not always possible because of the condition of the patient. So,

prosthetic rehabilitation may be one of the possible solutions^{4, 5}.

Prosthetic intervention⁶, with a maxillary obturator prosthesis, is necessary to restore form and contours of the defect and to recreate the functional separation of the oral and nasal cavity.

In 2001, Okay and colleagues⁷ proposed a maxillectomy defect classification system with a

view toward the assessment of functional outcome, prosthetic retention, and patient satisfaction. Based on a retrospective review of 47 consecutive maxillectomy defects, this classification scheme also was the first to take the status of the zygomatic arch and orbital floor into direct consideration. They classified palato-maxillary defects into 3 major classes and 2 sub-classes.

A variety of instruments have been developed to measure Oral health related quality of life (OHRQoL)^{8,9}. The oral health impact profile^{10,11} (OHIP) is a self-administered instrument specifically designed to measure the impact of oral health on psychological wellbeing and quality of life. This questionnaire includes 49 items that includes seven domains; functional limitation, physical pain, psychological discomfort, physical disability, psychological disability, social disability and handicap^{12,13}.

Accordingly, a new subscales of 19-OHIP statements specifically for edentulous patients was developed - the Oral Health Impact Profile for Edentulous subjects¹⁴ (OHIP-EDENT) (Allen and Locker, 2002). The item impact method is used to select items that are most relevant to edentulous patients. The five categories of responses are 1) never, 2) hardly ever, 3) occasionally, 4) fairly often and 5) very often. They are scored from 0 for never 1 to 5 for very often, with lower scores representing a better OHRQoL. This instrument has been tested for reliability and validity.

Oral health related Quality of life has become the focus of attention during recent years in maxillofacial rehabilitation; patient's psychological wellbeing and the patients' vitality are increasingly contributing to the evaluation of therapeutical success.

Keeping the above factors in mind the present study was carried out to compare and evaluate the impact of Definitive Obturator prosthesis on oral health related quality of life in maxillary defects by oral health impact profile (OHIP-Edent) and obturator functioning scale (OFS)

MATERIAL AND METHODS

Study design

This descriptive cross sectional study was conducted at Vinayaga mission's dental college,

Salem in the period between 2015 to 2017. A total of twenty five (25) patients with acquired maxillary defects based on Okay classification have been selected for this study (Table 1 & Bar Chart 1).

The patients were provided written informed consent prior to their participation after obtaining ethical clearance. Definitive Obturator prostheses were carried out for acquired maxillary defects. OHRQoL was measured using the Oral Health Impact Profile –Edent (OHIP-Edent-19), and Obturator functioning scale (OFS) with standardized questionnaire after 2 weeks & 3months of Obturator prosthesis insertion.

The OHIP-EDENT consists of 19 statements derived from the OHIP using an item impact method. Oral Health Impact Profile (OHIP-EDENT) which includes seven domains /items Functional limitation, Physical pain, Psychological discomfort, Physical disability Psychological disability, social disability & Handicap (Table 2).

A 15 item obturator functioning scale (OFS) designed by Kornblith *et al* to assess the masticatory ability, speech, communication difficulties and cosmetic satisfaction (Table 3).

Patients were asked serious of questions. All the answers to the questions were coded and entered into a excel sheet by a single operator.

Statistical analysis

The collected data were analysed with IBM.SPSS statistics software 23.0 Version.

To describe about the data descriptive statistics frequency analysis, percentage analysis were used for categorical variables and the mean & S.D were used for continuous variables. To find the significant difference between the bivariate samples in Paired groups the Wilcoxon signed rank test was used. In the above statistical tool the probability value .05 is considered as significant level.

RESULTS

With respect to oral health impact profile –Edent 19 scale, the mean functional limitation score were 6.72 and 5.20 indicates that there is significant improvement in chewing performance after 2 weeks and 3 months of prosthesis function respectively (Table 4)

Even though improvement in denture comfort (Mean =8.24) was observed in 2 weeks

of prosthesis function, there is progressive (Mean=5.84) and much improved outcome related to physical pain over physical pain in 3 months of prosthesis function.

Significant improvement in oral health impact profile was noticed in physical (M = 5.84, 4.88), Psychological (M=4.84, 3.96) and social disabilities (M=5.28, 4.16) (table 5)

When observed with obturator functioning scale, the mean of 4.84 and 3.60 for chewing performance indicates that they were hardly ever

problems with leakage of foods during chewing (Table 5).

Likewise, there is significant improvement in obturator functioning scale was noticed in phonetics, appearance and miscellaneous aspects.

Since rehabilitation with definitive obturator prostheses showed marked positive subjective responses to the each subscale.

When analysing the OHIP –Edent-19 scale and obturator functioning scale (OFS-15), statistically significant differences (Wilcoxon rank test p value = 0.0005) were observed (Table 6)

Rehabilitation of maxillofacial defects with definitive obturator had an enormous positive impact of oral health related quality of life (OHRQoL) in terms of functional, physical, psychological and social aspects.

Table 1. Represent frequency distribution of Okay classification for maxillary defects

Frequency distribution		Okay Classification	
		Frequency	Percent
Valid	CLASS 1A	4	16.0
	CLASS 1B	3	12.0
	CLASS II	14	56.0
	CLASS II-SUB CLASS Z	1	4.0
	CLASS III	1	4.0
	CLASS III-SUB CLASS Z	2	8.0
	Total	25	100.0

DISCUSSION

In modern years, there has been growing interest in using patient-reported psychosocial problems, and to observe a patient’s progress over a period of time.

Maxillo -Facial defects as a result of a congenital or acquired origin can have overwhelming effects on the functional, economic,

Table 2. Represent mean, standard deviation of Oral Health Impact Profile-Edent -19 (OHIP-EDENT) sub scales after 2 weeks and 3 months of prosthesis insertion

		Paired Samples Statistics			
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	FUNCTIONAL LIMITATION 2W	6.72	25	1.745	.349
	FUNCTIONAL LIMITATION 3M	5.20	25	1.354	.271
Pair 2	PHYSICAL PAIN 2W	8.24	25	2.026	.405
	PHYSICAL PAIN 3M	5.84	25	1.375	.275
Pair 3	PSYCHOLOGICAL DISCOMFORT 2W	4.84	25	1.068	.214
	PSYCHOLOGICAL DISCOMFORT 3M	3.96	25	.735	.147
Pair 4	PHYSICAL DISABILITY 2W	5.84	25	1.106	.221
	PHYSICAL DISABILITY 3M	4.88	25	.781	.156
Pair 5	PSYCHOLOGICAL DISABILITY 2W	3.32	25	.900	.180
	PSYCHOLOGICAL DISABILITY 3M	2.48	25	.823	.165
Pair 6	SOCIAL DISABILITY 2W	5.28	25	1.429	.286
	SOCIAL DISABILITY 3M	4.16	25	1.313	.263
Pair 7	HANDICAP 2W	3.60	25	.577	.115
	HANDICAP 3M	3.04	25	.735	.147
Pair 8	OHIP 2W	5.4057	25	1.00820	.20164
	OHIP 3M	4.2229	25	.83001	.16600

Table 3. Represent shown of mean, standard deviation of obturator functioning scale (OFS-15) after 2 weeks and 3 months of prosthesis insertion

		Paired Samples Statistics			
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	CHEWING PROBLEM 2W	4.84	25	1.434	.287
	CHEWING PROBLEM 3M	3.60	25	.707	.141
Pair 2	SPEECH PROBLEM 2W	14.04	25	2.282	.456
	SPEECH PROBLEM 3M	10.88	25	1.563	.313
Pair 3	APPEARANCE PROBLEM 2W	1.88	25	.666	.133
	APPEARANCE PROBLEM 3M	1.16	25	.374	.075
Pair 4	OTHERS 2W	10.76	25	2.697	.539
	OTHERS 3M	8.80	25	1.826	.365
Pair 5	OFS 2W	7.8800	25	1.53623	.30725
	OFS 3M	6.1100	25	.94119	.18824

Table 4. Represent level of significance of Oral Health Impact Profile-Edent -19 (OHIP-EDENT sub scales after 2 weeks and 3 months of prosthesis insertion

	Z	Asymp. Sig. (2-tailed)
FUNCTIONAL LIMITATION 3M - FUNCTIONAL LIMITATION 2W	-3.998 ^b	.0005
PHYSICAL PAIN 3M - PHYSICAL PAIN 2W	-4.320 ^b	.0005
PSYCHOLOGICAL DISCOMFORT 3M - PSYCHOLOGICAL DISCOMFORT 2W	-4.119 ^b	.0005
PHYSICAL DISABILITY 3M - PHYSICAL DISABILITY 2W	-4.062 ^b	.0005
PSYCHOLOGICAL DISABILITY 3M - PSYCHOLOGICAL DISABILITY 2W	-3.217 ^b	.001
SOCIAL DISABILITY 3M - SOCIAL DISABILITY 2W	-3.785 ^b	.0005
HANDICAP 3M - HANDICAP 2W	-2.889 ^b	.004
OHIP 3M - OHIP 2W	-4.380 ^b	.0005

a. Wilcoxon Signed Ranks Test

b. Based on positive ranks.

Table 5. Represent level of significance of obturator functioning scale (OFS) after 2 weeks and 3 months of prosthesis insertion

	Z	Asymp. Sig. (2-tailed)
CHEWING PROBLEM 3M - CHEWING PROBLEM 2W	-3.703 ^b	.0005
SPEECH PROBLEM 3M - SPEECH PROBLEM 2W	-4.302 ^b	.0005
APPEARANCE PROBLEM 3M - APPEARANCE PROBLEM 2W	-3.626 ^b	.0005
OTHERS 3M - OTHERS 2W	-4.012 ^b	.0005
OFS 3M - OFS 2W	-4.378 ^b	.0005

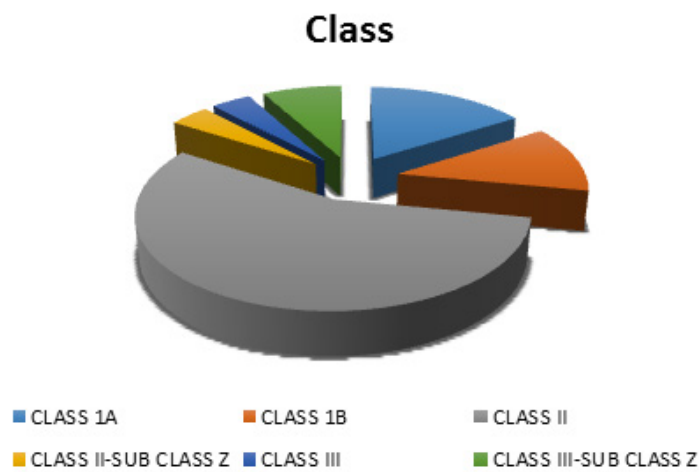
esthetic and psychosocial aspects of a person’s life.

Maxillofacial prosthetics, as an alternative to surgery, offer prosthodontic rehabilitation, seeking to provide satisfactory function ,aesthetics and quality of life (QOL), and thus to facilitate restoration of patients in in their family situations and social environments¹⁵.

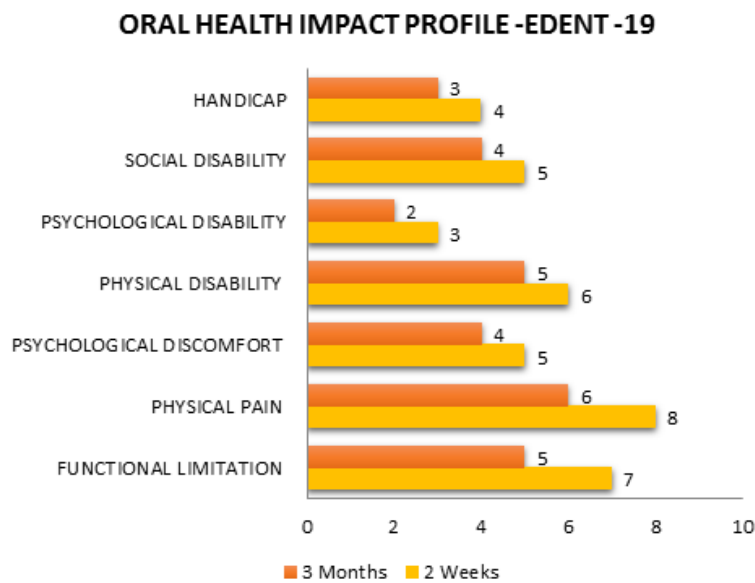
Earlier studies have shown that patients with acquired maxillofacial defects had greater physical, psychological and social impairment of QOL than patients with congenital defects^{16, 17}.

Because of this, in a clinical setting, the identification of the need for prosthetic rehabilitation in these patients, a process which can restore QOL, is most important. The evaluation of patients oral health related QOL related to prosthetic rehabilitation may provide valuable information to assist the maxillofacial prosthodontic team in treatment planning, monitoring, and outcome assessment¹⁸.

Maxillectomy patients with definitive obturator rehabilitation; their mean score of functional limitation in this study 7 and 5 were

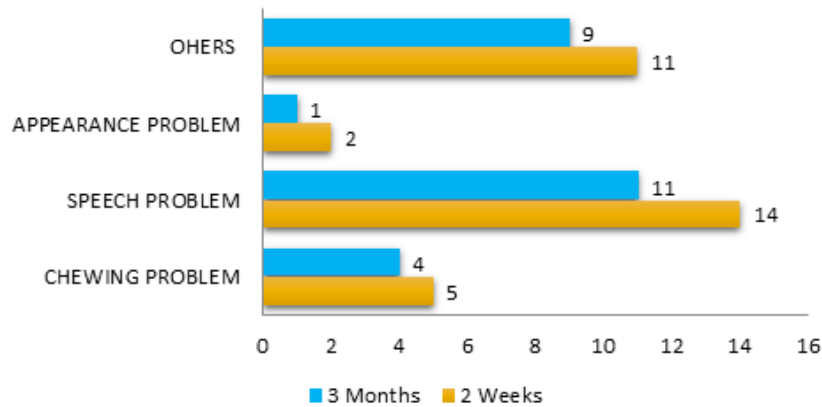


Bar chart 1. Represent frequency distribution of Okay classification of maxillary defects



Bar chart 2. Represent comparison of average of Oral Health Impact Profile-Edent -19 sub scales after 2 weeks and 3 months of prosthesis insertion

OBTURATOR FUNCTIONING SCALE -15



Bar chart 3. Represent 3 average of Obturator Functioning Scale (OFS-15) after 2 weeks and 3 months of prosthesis insertion

observed in the oral health impact profile Edent scale(chart 2).

Similarly, observed mean score of chewing performance in obturator functioning scale were 5 and 4(chart 3). This lower scores indicates that maxillary definitive obturator definitely enhance the oral health related quality of life.

Statistically Significant differences ($p < .0005$) were observed after 2 weeks and 3 months of prosthesis function in both oral health impact profile –Edent and obturator functioning scale.

In this study, we also found that there is significant positive impact of obturator prosthesis in oral health quality of life in terms of functional, physical, psychological, social and esthetics well-being of the patients.

CONCLUSION

The primary objective of rehabilitation is to preserve and restore the functional activities and enhancement of self-confidence of the patients so they can return to society; who have affected with consequences of maxillofacial defect.

Within the limits of this study, it can be concluded that highly positive correlation exists between definitive obturator prostheses and oral health related quality of life (OHRQol)

By providing a comprehensive assessment of oral health related quality of life, the oral health

impact profile –Edent and obturator functioning scale offers a broader perspective on maxillofacial defects and their rehabilitation.

Thus, the information has the potential to help determine treatment essentials, select appropriate rehabilitation, monitor treatment progress, and assess the outcome for these maxillofacial in context of research and clinical Practice.

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