

## Correlation of Patient Satisfaction, Treatment Duration, and Temporization Material in Implant-Supported Full Mouth Rehabilitation: An Institution-Based Retrospective Analysis

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### ABSTRACT

Full mouth rehabilitation is a comprehensive treatment and hence requires longer duration along with patient co-operation and operator skill. Time period of one year from 2019 to 2020, records of 8900 patients from the Digital Information Archiving Software (DIAS) records of Saveetha Dental College and Hospital, India. 66 patients who underwent implant supported full mouth rehabilitation were included in this retrospective study. The data on the treatment duration, patient satisfaction, type of temporary teeth and change in vertical dimension was collected. The data censored was collected by recalling the patient and reviewing. Data was statistically analysed using Pearson's correlation and association was evaluated using chi-square analysis to quantify the association between patient satisfaction and duration of treatment and the type of temporisation. The correlation between patient satisfaction and treatment duration was found to be insignificant ( $p>0.05$ ) and the satisfaction was higher in the patients in whom the duration of treatment was shorter compared to the others. The association between patient satisfaction and type of temporisation was statistically significant ( $p>0.05$ ), however the patient satisfaction was higher in the patients who received CAD CAM temporary teeth compared to those who received conventional temporary teeth. From the available data it was observed the duration of the treatment plays a secondary role in relation to patient satisfaction in treatment of full mouth rehabilitation cases. The quality of treatment and decisiveness in providing definitive care with respect to treatment needs gives a better patient satisfaction.

**Keywords:** patient satisfaction, treatment duration, full mouth rehabilitation, health, dental

### 1. INTRODUCTION

A well established fact since a few decades is that endosseous dental implants are widely used to prosthetically replace natural teeth and has become a predictable protocol[1]. Patients requiring implant-supported prostheses have varied jaw anatomy, which accentuates the functional, esthetic, and economic concerns [1,2]. The ultimate aim of a full mouth prosthetic rehabilitation is to restore the healthy function of the masticating apparatus[3]. In achieving this, it is vital to concentrate on the factors that contribute to excessive wear, or alteration of the vertical dimension caused thereof. The vertical dimension of occlusion is constantly maintained due to eruption of tooth and growth of alveolar bone[4]. As teeth are worn, the alveolar bone undergoes an adaptive process and compensates for the loss of tooth structure to maintain the VDO [5].

Usually a two stage protocol is followed -implant placement followed by a healing period of 3 to 6 months followed by final prosthesis [6]. This could take more time if grafting is required during stage 2 in cases of bone loss [7]. During this healing time patients are usually given relined dentures or in some cases with good primary stability immediate temporisation is done [8]. Numerous clinical studies have researched upon the implant survival, few address the patient satisfaction and type of temporaries given to patients [9,10].

Patient satisfaction is the key to maintenance of the prosthesis and hence overall oral health [3,11]. Patient satisfaction also depends on the overall esthetic outcome, occlusion and comfort of the prosthesis. The follow up also depends on patient satisfaction[12]. Hence this study aims to correlate patient satisfaction with treatment duration in implant supported full mouth rehabilitation cases.

## 2. MATERIALS AND METHODS

The study was done in a university based setting in Saveetha Dental College and Hospital, Chennai, India. The Institutional Ethical Committee [Ethical approval no. SDC/SIHEC/2020/DIASDATA/0619-0320] approved the research methodology and study was conducted. Time period of one year from 2019 to 2020, records of 8900 patients from the Digital Information Archiving Software (DIAS) records of Saveetha Dental College and Hospital, India. 66 patients who underwent implant supported full mouth rehabilitation were included in this retrospective study. A non-probability consecutive sampling method was used. All case sheets of patients who underwent full mouth rehabilitation were reviewed and included to avoid sampling bias. The clinical data was cross verified with photographic and radiographic data. The patient satisfaction was evaluated by a visual analog scale (VAS) on a scale of 1 to 10.

**Inclusion Criteria :** Implant supported full mouth rehabilitation cases (single arch or double arch), age-any group, gender-both males and females.

**Exclusion Criteria :** Tooth supported full mouth rehabilitation cases, removable or cast partial denture full mouth rehabilitation cases.

All the cases that fulfilled inclusion criteria were considered in this study in this time period were considered in this study. The data entered was tabulated and analysed. Descriptive statistics using IBM SPSS Software for Windows, version 20.0 on the result data were obtained. To evaluate the association between the duration of the treatment with the patient satisfaction recorded on VAS (Visual Analog Scale) 1-10 scoring, chi-square analysis was performed.

## 3. RESULTS

Out of 66 patients, 55% of patients were 45 to 55 years, 20% patients in 35 to 45 years and 25% patients in 65 to 75 years age group. Out of these 57% were males and 43% females. The correlation between patient satisfaction and the duration of treatment was insignificant with Pearson correlation value : 8.931, df: 9, p value: 0.326 (Table 1). However the overall patient satisfaction was higher in the patients in whom the duration of treatment was shorter compared to the others (Figure 1). The association between patient satisfaction and type of temporisation was statistically not significant. with Pearson correlation value : 1.641, p value: 0.650 (Table 1). However the overall patient satisfaction was higher in the patients who received CAD CAM temporary teeth compared to those who received conventional temporary teeth (Figure 2).

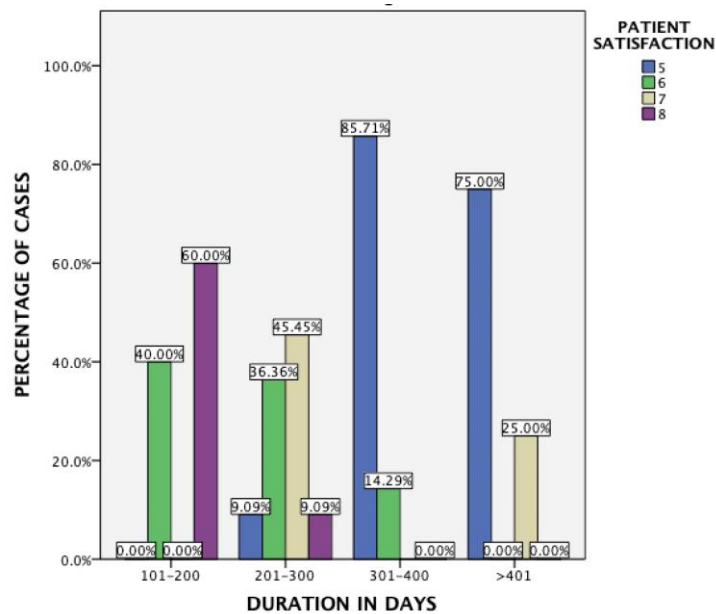
## 4. DISCUSSION

Patient satisfaction is prudent in order for the patient to be self motivated to maintain good oral hygiene. Patient satisfaction depends on a number of factors like esthetics, pain management, duration of the treatment, type of temporary teeth, type of occlusion, a correct vertical dimension and many others [13,14]. The patient satisfaction is less as the duration of treatment increases and vice versa. This can be justified as after implant placement - in cases where dentures are relined and given it is very uncomfortable to the patient during the healing period. The Pearson correlation value is 8.931 and the p value-0.326 was statistically insignificant ( $p>0.05$ ). Hence the duration of treatment plays a secondary role in patient satisfaction. Implant supported full mouth rehabilitation is an extensive comprehensive procedure and usually takes longer duration than other dental treatment and hence patients should be well motivated before a dentist starts the treatment.

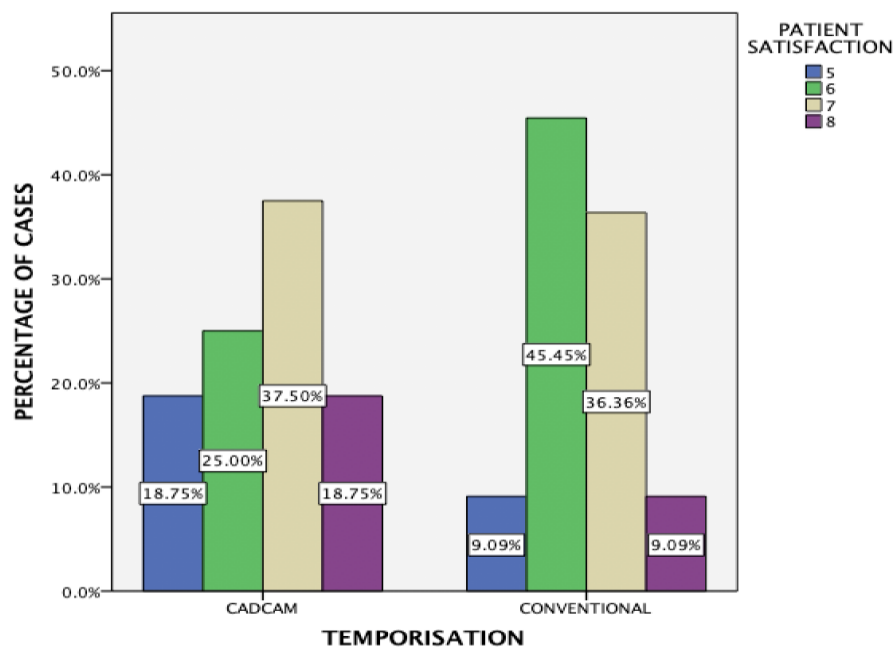
The patient satisfaction as scored with VAS scale was better in patients who received cad cam temporary teeth as compared to those who received conventional manual temporary teeth. This can be justified by the fact that digital dentistry has more accuracy as the risk of shrinkage of acrylic is minimized as compared to conventional and the occlusal stability is better in CAD CAM temporary teeth [15]. The Pearson correlation value 1.641, p value- 0.650 was statistically not significant ( $p>0.05$ ). Hence it can be stated that the type of temporary teeth play a secondary role in patient satisfaction but more studies need to be done in regard to this. A majority of the patients showed higher satisfaction with the CAD CAM milled temporary teeth as the conventional ones have more changes of breakage. The colour change in CAD CAM temporary teeth is gradual because it has less percolation and a high finish hence less debris accumulates on it as compared to conventional temps [16]. Another stipulation was that CAD CAM temporary teeth have less shrinkage as it already comes as processed blanks as compared to 6-30% volumetric shrinkage in conventional temporaries. Hence the chances of misfit are less at the margins

which inturn reduces sensitivity and gives better patient comfort.

The prompt treatment of patient complaints, skill of the operator and good verbal communication in response to patient desires also affects the overall satisfaction of the patient . In future studies age and gender can also be compared with treatment duration, other factors like esthetics, occlusal stability in detail can be evaluated [17]. Patient satisfaction also depends on the type of occlusal scheme given to the patient and hence should be evaluated. Awareness can be carried out among dentists to improve the skill to try and minimise the duration time as the patient would be better compliant.



**Figure 1:** Bar graph showing association of patient satisfaction and duration of treatment in full mouth rehabilitation cases. X-axis represents the duration of treatment (in days) and Y-axis represents the percentage of patients who underwent implant supported full mouth rehabilitation. The overall patient satisfaction was higher in the patients in whom duration of treatment was shorter compared to the others, However it is statistically not significant (Chi-square test Pearson Chi-square value: 8.931, df: 9, p value: 0.326 ( $p > 0.05$  which is statistically not significant)).



**Figure 2:** Bar graph showing association of patient satisfaction and type of temporisation in full mouth rehabilitation cases. X-axis represents the type of temporisation and Y-axis represents the percentage of patients

who underwent implant supported full mouth rehabilitation. The overall patient satisfaction was higher in the patients who received CAD CAM temporary teeth compared to those who received conventional temporary teeth. However it is statistically not significant. (Chi-square test, Pearson Chi-square value: 1.641, df: 3, p value : 0.650 (p>0.05 which is statistically not significant)).

		SATISFACTION				Chi square value	P value
		5	6	7	8 8		
DURATION OF TREATMENT IN DAYS	101-200	0.0%	40.0%	0.0%	60.0%	8.931	0.326*
	201-300	9.1%	27.3%	54.5%	9.1%		
	301-400	28.6%	57.1%	14.3%	0.0%		
	>401	25.0%	0.0%	75.0%	0.0%		
TEMPORISATION	CAD CAM	18.8%	25.0%	37.5%	18.8%	1.641	0.650*
	CONVENTIONAL	9.1%	45.5%	36.4%	9.1%		

\*statistical significance  $p < 0.05$ .

**Table 1:** Association of patient satisfaction with duration of the treatment, and type of temporisation in full mouth rehabilitation cases. These associations were statistically not significant (p>0.05).

## 5. CONCLUSION

Based on the observations of this study it was concluded that the duration of the treatment plays a secondary role in relation to patient satisfaction in treatment of full mouth rehabilitation cases. The type of temporisation, type of occlusion in temporary and final prosthesis, comfort and decisiveness in providing definitive care with respect to treatment needs gives a better patient satisfaction

## AUTHOR CONTRIBUTION:

First author (Dr. Divya Rupawat) performed the analysis and interpretation and wrote the manuscript. Second author (Dr Vinay) contributed to conception, data design, analysis, interpretation and third author (Dr. Vaishnavi Rajaraman ) critically revised the manuscript. All authors have discussed results and revised the manuscript.

## CONFLICT OF INTEREST:

The authors declare no conflict of interest, financial or otherwise.

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