



## RESEARCH ARTICLE

### AWARENESS AND PRACTICE OF TISSUE SUPPORTED COMPLETE IMMEDIATE REMOVABLE DENTURE PROsthESIS TREATMENT PROTOCOLS IN PATIENTS WITH COMPROMISED DENTITIONS IN WESTERN MAHARASHTRA- A CROSS-SECTIONAL SURVEY

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#### ARTICLE INFO

##### Article History:

Received 10<sup>th</sup> July, 2016  
Received in revised form  
28<sup>th</sup> August, 2016  
Accepted 19<sup>th</sup> September, 2016  
Published online 30<sup>th</sup> October, 2016

##### Key words:

Immediate Denture,  
Alveolar bone resorption,  
Aesthetics.

#### ABSTRACT

**Background:** Immediate denture is a treatment modality which has many advantages compared to the conventional dentures as well as the implant dentures. But due to unknown reasons this treatment protocol is vanishing from every day dental practice.

**Aim and Objectives:** The purpose of this survey was to understand the awareness and attitude of the patients towards immediate dentures among the local population of Western Maharashtra.

**Material and Methods:** Part 1: Questionnaire survey was conducted involving the Prosthodontists in and around Karad and Kolhapur, Maharashtra, India to know their responses and attitude towards immediate denture treatment protocol.

Part 2: Questionnaire survey was conducted among the patients attending the OPD of the Department of Prosthodontics, School Of Dental Sciences to assess the patients' awareness and attitude of the patients towards this treatment modality.

All the data collected was statistically analysed using Rates Ratio and Chi Square and Kruskal-Wallis tests.

**Conclusion:** The results of this survey indicate that the patients were more than willing for immediate dentures if they are well educated and motivated. This survey also concludes that the dental undergraduate students need to be encouraged more and trained in the speciality field, so that the patients who belong to lower strata of economy can be benefited.

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**Citation:** Sushma R., Farias A, Bommanavar S, Kore A, Joshi S, 2016. "Awareness and practice of tissue supported complete immediate removable denture prosthesis treatment protocols in patients with compromised dentitions in western maharashtra- A cross-sectional survey", *International Journal of Current Research*, 8, (10), 39986-39990.

## INTRODUCTION

Prosthodontics as a specialised branch in dentistry has come a long way with rapid development of newer materials, technologies and techniques to rehabilitate the fully or partially edentulous patient or the patient with failing dentition with removable or fixed prosthesis. With these steps forward comes the inevitable high treatment cost which not every patient can afford. Patients worldwide might not seek the dental treatment at the right time or till the very end due to either lack of awareness or financial constraints. As we travel back in time, we do have treatment options which aimed at rehabilitating the

patient at the right time and with limited resources and finances compared to the expensive treatment options of today. According to a survey in 2015, a majority of the world's population (56%) continues to live a low-income existence (Kocchar Rakesh, 2015). In such a scenario, cost effective treatments like immediate denture, if initiated at the right time would improve people's health and help them lead a healthier and happier life. An immediate complete denture is any removable dental prosthesis fabricated for placement immediately following the removal of a natural tooth/teeth (Glossory of Prosthodontic terms, 2005). One among the many advantages of immediate dentures is the absence of edentulous period while the dentures are being fabricated by which the patient's original appearance can be restored. Hence immediate denture is still an apt treatment

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option for a patient with failing dentition. The patients remaining natural teeth could provide the correct vertical and horizontal relationship between the maxilla and the mandible, which would help the patient to continue his/her oral functions like mastication, deglutition, speech etc without hindrance. The main role of the immediate denture as a therapeutic and prophylactic agent cannot be overlooked as it acts as a bandage for extraction wounds and helps to control bleeding and also protects the wound from further trauma and covers the wound by inhibiting the food lodgement. It prevents the dislodgement of blood clots thereby improving the wound healing (Kraljevic *et al.*, 2001). And most important is that this treatment protocol is cost effective compared to the other expensive treatment alternatives like implants. The disadvantages of this procedure of immediate denture fabrication is that the treatment procedure lasts longer and more sittings are required, especially during the stage of the patient's adaptation to the denture, and also it involves complex clinical and laboratory procedures but the advantages clearly outweighs the disadvantages (Arbeeet *et al.*, 2004). It could be possible that because of the complexity of the clinical and lab procedures, dentists do not emphasise on this treatment option due to which the treatment protocol is vanishing. This study was therefore conducted to analyze the awareness about the immediate denture protocol among the patients and practice of complete tissue supported immediate removable prosthesis treatment protocol for the patients with compromised dentition. Current protocols followed in clinical dental setups do not utilize immediate removable prosthesis on a routine basis despite these advantages. A need therefore exists to examine this scenario and understand why immediate removable dentures are decreasing and determine whether more emphasis should be given to this clinical modality along with conventional removable prosthetic procedures. The main aim of this study was to analyze the awareness of the existence and extent of practice of complete tissue supported immediate removable prosthesis treatment protocol.

## MATERIALS AND METHODS

A cross sectional survey study was conducted in the Department of Prosthodontics School of Dental Sciences, Krishna Institute of Medical Sciences Deemed University. Patients attending the OPD of the Dept. of Prosthodontics of School of Dental Sciences who had periodontally compromised dentition and were diagnosed to be rehabilitated with removable prosthesis were approached on a random basis and 120 patients gave their consent to participate in the survey. These subjects were grouped as group I. Table 1 shows the demographic details of the subject participants of this survey. With the patients consent, they were made to sit comfortably in a counseling room, and were explained the whole procedure of immediate denture treatment protocol in their local language. The questionnaires were translated to the local language and back translated to English by a bilingual expert and validated. The reliability was assessed by measuring Cronbach's alpha. Test-retest reliability was calculated using Intraclass correlation coefficient (ICC). The internal consistency reliability coefficient (Cronbach's alpha) for the questionnaire was 0.72. The coefficient of test-retest reliability measured by ICC was 0.78 (0.74-0.83). Then the questions were posed to the patients and the answers were marked by a single subject expert. To understand the attitude of the specialists towards the immediate denture treatment protocol, Prosthodontists in and around Malkapur, Karad (Taluka), Kolhapur and Satara (District),

Maharashtra, India were approached at their work place to answer a questionnaire form. The Prosthodontists were identified from the registered list of Prosthodontists under the Maharashtra Dental Council. The Prosthodontists were approached personally by the investigators and the nature and the purpose of the study was explained. 120 of them gave their consent to answer the same. These were grouped as Group II. A validated set of 13 close ended Yes-No types of questions were posed to specialists with a master's degree in Prosthodontics. Eight experts in the field were approached to review this questionnaire for its face and content validity. The Prosthodontists approached for the survey were either academicians or practitioners or both. Their years of experience as an academician or private practitioner or both were taken into consideration. Once the data was collected, it was subjected to statistical analysis. Before the protocol was submitted to the Ethical committee tools were validated by various experts in the field of Dental and Medical research and the reliability was also tested by test retest method after which the ethical clearance was obtained by the concerned authorities. The obtained data was entered in SPS version 21.0. Bivariate analysis performed using chi square test.  $P < 0.05$  is considered significant.

## RESULTS

This survey was conducted to know the level of awareness amongst the patients about immediate dentures and the attitude and responses of the Prosthodontists towards the tissue supported removable immediate denture treatment protocol. Table 1 describes the demographic details of the patients who participated in the study. All the study participants were divided into three age groups, there were 20 patients who were in the age group between 45-55 years, 62 patients in the age group between 56-65 years and 38 patients between 66-75 years. Out of the 120 sample size 62 were male participants. 71 study subjects belonged to the middle class socioeconomic status, 41 belonged to poor families and 8 were rich. Table 2 describes the level of response of the patients (Appendix 1) towards the tissue supported removable Immediate Denture treatment protocol. According to the results obtained, 70.8% of the patients said that they were unaware of a treatment protocol called the immediate dentures which shows that we the doctors are responsible for the incomplete patient education. And 80% patients expressed their desired to have artificial teeth set ready before actually going into the phase of edentulism. And 70% of the patients were even 'willing to pay 2-3 extra visits and follow all the post insertion instructions'. Mean difference in years of experience among academicians, practitioners and both was compared using Kruskal-Wallis (non-parametric test). The mean years of experience of the academicians was 4 years, private practitioner was 2.7 years and those who were in academics and also had their own private practice was 4.6 years. Table 3 shows the percentage of the distribution of the specialists in terms of whether they are academicians or private practitioners and /or both so as to collect the information accordingly. Table 4 shows the responses of the specialists for the Questionnaire (Appendix 2). In the questionnaire (appendix 2) the responses by the specialists were compared between academicians, clinicians and both. Bivariate analysis performed using chi square test.  $P < 0.05$  is considered significant. The answer for the question number 1,3 was found to be statistically significant (0.013 and 0.023).

**Table 1. Demographic details of the patients**

Variables		Number of patients	Total number of patients	N (%)
Age	45-55 years	20	120	16.66%
	56-65 years	62		51.66%
	66-75 years	38		31.66%
Gender	Male	62	120	51.66%
	Female	58		48.33%
Socio Economic Status	Rich	8	120	6.66%
	Middle class	71		59.16%
	Poor	41		34.16%

**Table 2. The responses of the patients for the questionnaire [Appendix 1]**

			Frequency	Percent
Q1	Awareness of the treatment protocol	yes	35	29.2
		no	85	70.8
Q2	Awareness of the advantages of immediate dentures	yes	8	6.7
		no	112	93.3
Q3	Willingness for the ready artificial teeth set	yes	96	80.0
		no	24	20.0
Q4	Preference for Immediate denture over conventional denture	yes	50	41.7
		no	70	58.3
Q5	preference for Immediate denture for esthetics, functions	yes	106	88.3
		no	14	11.7
Q6	Education about immediate denture by the Dentist	yes	29	24.2
		no	91	75.8
Q7	Motivation about immediate denture by the Dentist	yes	69	57.5
		no	51	42.5
Q8	Financial constraints	yes	80	66.7
		no	40	33.3
Q9	Treatment preference after education and motivation	yes	82	68.3
		no	38	31.7
Q10	2-3 extra visits and post insertion follow up	yes	84	70.0
		no	36	30.0

**Table 3. % of Distribution of the specialists in-terms of Academicians/ Private Practitioners/b Both**

	N	Mean	Std. Deviation	P value	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Academician	38	4.1842	3.47077	0.16	3.0434	5.3250	1.00	16.00
Private practioners	25	2.7600	1.76257		2.0324	3.4876	1.00	8.00
Both	57	4.6316	4.31621		3.4863	5.7768	1.00	25.00
Total	120	4.1000	3.69510		3.4321	4.7679	1.00	25.00

**Table 4. Responses of the specialists to the questionnaire**

		Group			P value
		academician	private practioners	both	
q1	yes	22 25.6%	16 18.6%	48 55.8%	0.013
	no	16 47.1%	9 26.5%	9 26.5%	
q2	yes	18 25.4%	13 18.3%	40 56.3%	0.061
	no	20 40.8%	12 24.5%	17 34.7%	
q3	yes	23 26.4%	16 18.4%	48 55.2%	0.023
	no	15 45.5%	9 27.3%	9 27.3%	
q4	yes	28 31.1%	17 18.9%	45 50.0%	0.55
	no	10 33.3%	8 26.7%	12 40.0%	
q5	yes	36 31.0%	25 21.6%	55 47.4%	0.52
	no	2 50.0%	0 .0%	2 50.0%	

Continue.....

q5a	0	2	0	2	0.81
		50.0%	.0%	50.0%	
	2	9	6	7	
		40.9%	27.3%	31.8%	
	3	15	11	28	
		27.8%	20.4%	51.9%	
	4	11	7	19	
		29.7%	18.9%	51.4%	
	5	1	1	1	
		33.3%	33.3%	33.3%	
q5b	0	2	0	2	0.33
		50.0%	.0%	50.0%	
	1	2	1	0	
		66.7%	33.3%	.0%	
	2	6	2	9	
		35.3%	11.8%	52.9%	
	3	13	13	21	
		27.7%	27.7%	44.7%	
	4	15	7	24	
		32.6%	15.2%	52.2%	
	5	0	2	1	
		.0%	66.7%	33.3%	
q6	yes	26	15	45	0.18
		30.2%	17.4%	52.3%	
	no	12	10	12	
		35.3%	29.4%	35.3%	
q7	yes	22	13	39	0.31
		29.7%	17.6%	52.7%	
	no	16	12	18	
		34.8%	26.1%	39.1%	
q8	yes	30	22	46	0.64
		30.6%	22.4%	46.9%	
	no	8	3	11	
		36.4%	13.6%	50.0%	
q8a	0	8	3	11	0.03
		36.4%	13.6%	50.0%	
	lack training	15	5	20	
		37.5%	12.5%	50.0%	
	lack lab support	10	16	15	
		24.4%	39.0%	36.6%	
	otehrs	5	1	11	
		29.4%	5.9%	64.7%	
q9	yes	19	18	39	0.11
	Count	25.0%	23.7%	51.3%	
	% within q9				
	No	19	7	18	
	Count	43.2%	15.9%	40.9%	
	% within q9				
q10	academics	22	15	40	0.42
		28.6%	19.5%	51.9%	
	private practice	16	10	17	
		37.2%	23.3%	39.5%	
q11	yes	17	10	22	0.833
		34.7%	20.4%	44.9%	
	No	21	15	35	
		29.6%	21.1%	49.3%	

That is the specialists who were both academicians and private practitioners said that they thought the immediate denture would be an ideal treatment plan for a failing dentition and agreed to the fact that the fabrication of immediate denture required extra skill. The survey also shows that the lack of training was the most important reason why the immediate denture is considered as a challenging treatment option.

## DISCUSSION

An immediate complete denture is any removable dental prosthesis fabricated for placement immediately following the removal of a natural tooth/teeth (Glossary of Prosthodontic terms, 2005). This particular treatment plan is almost a century and half old (Arbeeet *et al.*, 2004). Several authors (Standard, 1958; Heartwell and Salisbury, 1965; Garver and Muir, 1983; vanWaaset *et al.*, 1996; Phoenix and Flaeigel, 2008) have stated

that the immediate denture treatment protocol has many advantages especially the absence of edentulous period so that the patient can go on in his social life uninterrupted. Through the years there have been many improvements in terms of techniques (vanWaaset *et al.*, 1996; Phoenix and Flaeigel, 2008; Lutes and Ellinger, 1967; Campagna, 1968; Javidet *et al.*, 1974; Cupero, 1978; Grandos, 1979; Beaumont, 1987; Caputiet *et al.*, 2013) and materials used in the fabrication of immediate dentures. However, this particular treatment modality requires special attention in terms of diagnosis and meticulous planning, good laboratory support and immense co-operation from the patients. This study was conducted to assess the attitude of the specialists and also the patients' response in terms of willingness to go for this treatment protocol. Although there are many studies done to check the success rate, newer materials being introduced, newer techniques being adapted to ease this treatment protocol, literature on this aspect is

lacking. According to the results of the present study, it is clearly evident that if the patients are educated and motivated well, they would be willing to go for the immediate dentures. It therefore becomes the responsibility of the dentists to educate and motivate the patients towards this treatment modality. The results of this survey show that the specialists agree to the fact that they do consider "Immediate denture" as an ideal treatment option for a failing dentition and also agree to the fact that the immediate dentures help in ridge preservation which is vital and helps in longevity of the bone underneath the edentulous mucosa which is suggestive of the advantages of the immediate denture treatment. Almost half the number of the specialists who responded think that this treatment protocol requires an extra skill, time and dedication possibly why the dentists do not educate and motivate the patient towards this treatment plan. They also admitted that the immediate denture would help the patient adapt better to the conventional dentures which is helping the patients in more than one way in terms of aesthetics, phonetics, and maintenance of vertical relation. It was pleasant to know that the specialists accepted that Immediate Denture treatment protocol should be added in the undergraduate study design so that more dentists are skilled enough to serve their patients better. This study was conducted only in the Western Maharashtra region hence a generalised opinion cannot be given. Further studies need to be conducted in various parts of the country so that a clear conclusion can be drawn. Patient education and awareness programmes need to be conducted so that patients are made aware. Follow up studies have to be done after the awareness programmes.

### Conclusion

The present study was conducted in two parts concerning the patients and specialists. The survey aimed at gauging the level of awareness of the patients and their willingness to get the immediate denture treatment done and also to gauge the attitude of the specialists towards this treatment protocol. Within the limitations of this survey, it was observed that the patients should be more educated and motivated towards treatment plans such as immediate dentures, which has so many advantages along with being cost effective compared to the implant solutions. Our laboratories have to be trained for the challenges like these and also a major breakthrough could happen if the under graduates are trained in complex treatment procedures so that many patients are benefited. In the era of constant technological improvement in the health care field we tend to forget some of the inventions or treatment protocols which in deed help the patients, who cannot really afford the fancy treatment costs. Functional, aesthetic and psychological reasons justify fabrication of immediate complete dentures wherever possible. This survey was a small step towards such a treatment plan which is being pushed to the side-lines. The results of this present survey clearly dictate that the patients are more than willing for immediate dentures if they are well educated and motivated.

This survey also indicates that if undergraduate students are trained in this treatment modality the patients who belong to lower economical strata can be well benefitted. This study poses a future scope into the in depth clinical study into this field with definite clinical study involving the specialists and patients covering a greater geographical area.

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