



## **Comprehensive evaluation of maxillary anterior cast post & core treatment satisfaction amongst institutionalized patients in north Indian region: An original research study**

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### **Abstract**

**Background and Aim:** Post and core therapies are the most common modality for managing grossly decayed tooth. It is also have an imperative role in many prosthodontic procedures and rehabilitations. However, with the latest advancements in endodontic trends, cast post and core are becoming obsolete day by day. Still, it is the first choice of the practitioner as far as the strength is concerned. The sole aim of this original study was to evaluate the post treatment satisfaction in cast post & core done in maxillary anterior teeth. The patients were selected from the OPD of the dental institute.

**Materials & Methods:** This study was planned on a cross sectional scheme wherein a questionnaire was used. A total of 30 cast post and core patients were screened. All patients were requested to fill the questionnaire as per their own understandings. The questionnaire was provided amongst subjects by hand. Responses were gathered and data was analyzed statistically to estimate final results.

**Results:** Statistical analysis was completed using statistical software Statistical Package for the Social Sciences (SPSS). The resultant and recorded data was subjected to suitable statistical tests to obtain p values, mean and standard deviation.  $P \leq 0.05$  was considered as statistically significant. 13 patients were not satisfied with the number of appointments needed for cast post and core compared to other viable options [Fiber Post]. 11 patients think that temporization is actually complicated in cast post and core treatment. 21 patients believe that cast post and core requires removal of additional coronal tooth structure. 11 patients did not find cast post and core therapy esthetically acceptable in anterior teeth.

**Conclusion:** Within the limitations of the study authors concluded that the studied patients were moderately satisfied with custom made or cast post & core therapy. However, few patients were fairly unsatisfied as they find it quite expensive, bulky and cumbersome.

**Keywords:** endodontics, post, questionnaire, core, satisfaction

### **Introduction**

With the increased effectiveness and predictability of endodontic therapy, the dentist is restoring more pulpless teeth. There are numerous methods for the restoration of endodontically treated teeth and most require the use of a post and core to support a full coverage restoration. Posts and cores can be fabricated either intraorally on the tooth or indirectly on the die. The restoration of endodontically treated teeth is a topic that is extensively studied and yet remains controversial from many perspectives [1]. While exploring literature, EW found that there are few subjects in dentistry that have been studied more than the restoration of endodontically treated teeth. Yet, many practical questions and controversies remain in this clinically important element of the treatment plan. Unfortunately, the diversity of published opinions is confusing and may lead to less than optimal treatment selections. A post and core crown is a type of dental restoration required where there is an inadequate amount of sound tooth tissue remaining to retain a conventional crown [2, 5]. a post is cemented into a prepared root canal, which retains a core restoration, which retains the final crown. When talking about longevity, in most cases, dental crown on the front teeth will last up to

fifteen years. However, some crowns have stayed for almost thirty years. Since crowns need to last for at least five years, insurance companies with dental covers will willingly pay for crown replacement after the five years. The successful restoration of endodontically treated teeth is an ongoing challenge for a prosthodontists. Present day prosthodontists are well aware that "The naturally retained root is the ultimate dental implant." The endodontically treated teeth with extensive loss of tooth substance have numerous problems due to significant reduction in the capability to resist a myriad of functional forces. Endodontic posts have been classified in various ways, the preformed and custom cast, metallic and non-metallic, stiff and flexible, aesthetic and non-aesthetic [6, 7]. Posts are required for supporting a core foundation whenever there is insufficient clinical crown remaining. The primary aim of this original study was to estimate and evaluate the post treatment satisfaction in cast post & core done in maxillary anterior teeth.

### **Materials & Methods**

The present study was performed to estimate and evaluate the post treatment satisfaction amongst cast post & core

patients of a dental institution in Northern India. This study was performed on a cross sectional and questionnaire model. This study was conducted in the department of prosthodontics of the institute. Authors have screened and selected total 30 cast post & core patients from the regular patient footfall of department of prosthodontics. Authors had confirmed to select only those patients who received post and core therapy from our department erstwhile. Our primary objective was to evaluate the cast post & core satisfaction in maxillary anterior teeth only. The responses were collected in their routine recall visits. The contact details of the patients were kept safe for all future correspondence. All patients were informed in detail about the study and written consent was obtained. A self-prepared, close ended questionnaire was provided to patients. Questionnaire comprised of 8 questions related to the satisfaction of post and core therapy. Well right before the starting of the study, we had explained the relative importance of this study to all participating patients. The privacy and other interrelated rights of the patients along with their freedom of expression were absolutely guaranteed. The recorded data was subjected to suitable statistical tests to obtain p values, mean, standard deviation, chi- square test, standard error and 95% CI. P values less than 0.05 was considered as significant.

**Statistical Analysis and Results**

All data those obtained from questionnaire procedures were sent for statistical analysis using statistical software Statistical Package for the Social Sciences version 21 (IBM Inc., Armonk, New York, USA). The finalized data was

then subjected to suitable statistical tests to obtain p values, mean, standard deviation, chi- square test, standard deviation. Response evaluation and analysis exhibits some very intricate inferences. These inferences were shown to have clinical explicabilities too. Here, every attempt has been made to genuinely process the data so as to make it authentic. Table 1 and fig 1 showed that out of 30 patients, males were 20 and females were 10. Total 2 patients were belonging to age group >50 years. During results quantification and assemblage we also observed that approximately more than half of the patients were falling in the age range of 36-45 years therefore we can presume that majority of the patients were of this age groups [36-40 & 41-45 Yrs]. P value was noticed as significant in age range 36-40 & 41-45 Yrs. Questionnaire responses showed very noteworthy outcomes. While evaluating combined p value for all questions, it was noticed to be significant [0.001]. 13 patients were not satisfied with the number of appointments needed for cast post and core compared to other viable options [Fiber Post]. 11 patients think that temporization is actually complicated in cast post and core treatment. 21 patients believe that cast post and core requires removal of additional coronal tooth structure. 11 patients did not find cast post and core therapy esthetically acceptable in anterior teeth. 15 patients think that cast post and core therapy is the most suitable way to restore the teeth when compared to the other feasible options (Table 2). Basic statistical analysis was also attempted with level of significance evaluation using Pearson Chi-Square test. It showed significant outcomes [p values] for question no 4, 5, 6 and 7 (Table 3).

**Table 1:** Age & Gender Wise Distribution of Patients

Age Group (Yrs)	Male	Female	Total %	Mean	SD	P value
31-35	4	1	5 [16 %]	2.62	2.232	0.09
36-40	5	4	9 [31 %]	3.31	2.541	0.01*
41-45	6	2	8 [27 %]	3.54	2.986	0.00*
46-50	4	2	6 [20%]	2.21	1.312	0.70
>50	1	1	2 [6 %]	3.43	2.769	0.80
Total	20	10	100%	3.87	2.769	*Significant

\*p<0.05 significant

**Table 2:** Questionnaire Responses Evaluation with Interrelated Statistical Inferences

Demographic Responses				
Questions	Variables	Responses of patients in 'Yes' [n]	Responses of patients in 'No' [n]	P Value
1	Is cast post and core therapy economical	16	14	0.001*
2	Is cast post and core increases the fracture possibility of Endodontically treated teeth	15	15	
3	Does cast post and core therapies usually strengthens Endodontically treated teeth	12	18	
4	Are you satisfied with the number of appointments needed for cast post and core compared to other viable options	13	17	
5	Do you believe that temporization is actually complicated in cast post and core treatment	11	19	
6	Do you think that cast post and core requires removal of additional coronal tooth structure	21	9	
7	Do you find cast post and core therapy esthetically acceptable in anterior teeth	19	11	
8	Do you think that cast post and core therapy is the most suitable way to restore the teeth when compared to the other options	15	15	

\*p<0.05 significant

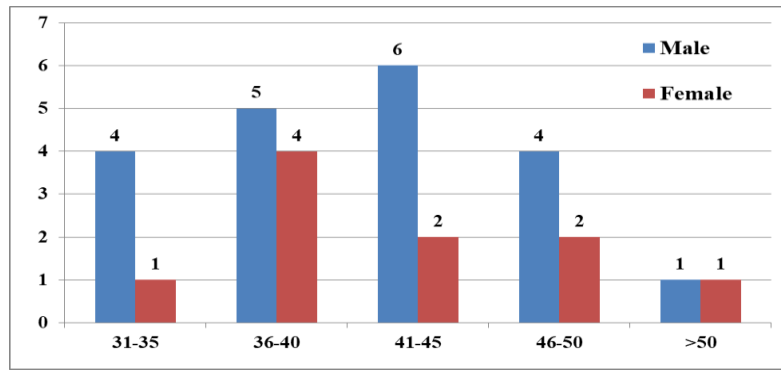


Fig 1: Distribution of the Patients among Various Age Groups

Table 3: Elemental Statistical Description with Level of Significance Evaluation Using Pearson Chi-Square Test

Question No.	Mean	Std. Deviation	Std. Error	95% CI	Pearson Chi-Square Value	df	Level of Significance (p value)
1	3.54	0.545	0.020	1.96	2.448	1.0	0.060
2	2.23	0.788	0.020	1.96	1.544	2.0	0.070
3	2.87	1.344	0.067	2.43	2.787	1.0	0.710
4	2.56	0.876	0.032	1.96	2.765	1.0	0.010*
5	2.98	0.987	0.045	1.96	2.898	3.0	0.010*
6	1.56	0.345	0.037	1.96	2.679	1.0	0.001*
7	1.54	0.753	0.087	1.96	2.987	1.0	0.001*
8	2.77	0.677	0.033	1.67	1.677	1.0	0.556

\*p<0.05 significant

**Discussion**

As we all know that successful restoration of root filled teeth requires an effective coronal seal, protection of remaining tooth, restoration of function and acceptable esthetics. The final restoration will include a combination of dowel/post and core and coronal restoration. The root canal treated tooth is mostly associated with the loss of coronal and radicular tooth structure from preexisting restorations, restorative failures, trauma, dental caries, and endodontic access preparation [8]. When a huge amount of the clinical crown has been lost due to damage, it is often impossible to achieve the sufficient anchorage of a restoration in the remaining dentin. Posts have been classified in various ways, the preformed and custom cast, metallic and non-metallic, stiff and flexible, aesthetic and non-aesthetic. Posts are required for supporting a core foundation when there is insufficient clinical crown remaining. The choice of dowel/post design should be in accordance with the biomechanical requirements of the remaining tooth structure. Various methods of restoring pulp less teeth have been reported for more than 200 years. In 1747, Pierre Fauchard described the process by which roots of maxillary anterior teeth were used for restoration of single teeth and the replacement of multiple teeth [9-12]. One of the functions of a post and core is to improve resistance to laterally directed forces by distributing them over as large an area as possible. Fibre posts are ready to use whereas construction of a cast metal post and core is more time consuming and demands extra clinic and laboratory time. One of the major clinical advantages of fibre-reinforced post is the ability to remove them expediently and without trauma. Fibre posts are not retrieved in one piece like a cast or prefabricated post, but are removed from the canal by drilling down directly through them [13]. Metal post systems have a much higher potential for causing allergic reactions and other adverse biologic effects. Carbon fibre/quartz-glass fiber posts have a lower allergenic potential and are generally considered to be

more biocompatible. Research on biomechanics of post and cores over the past decade has replaced many of our traditional ideas with data as to how and when to best restore these teeth [14, 16]. In our study, authors aimed to estimate and evaluate the post treatment satisfaction in cast post & core done in maxillary anterior teeth. Here, the studied patients were moderately satisfied with custom made or cast post & core therapy.

**Conclusion**

Within the limitations of the study authors concluded that the studied patients were moderately satisfied with custom made or cast post & core therapy. However, few patients were fairly unsatisfied as they find it quite expensive, bulky and cumbersome. Our study results must be considered as suggestive for presuming prognosis for such clinical conditions. However, we expect some other large scale studies to be performed that might further establish certain standard and concrete norms in these regards.

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