



ORIGINAL RESEARCH PAPER

Dental Science

Reasons to prefer tooth extraction over root canal treatment by rural adult patients visiting a private dental college in Rajasthan: A Questionnaire based Cross-sectional survey

KEY WORDS: tooth extraction, root canal treatment, endodontic treatment questionnaire, survey, perception.

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ABSTRACT

Background: Various factors play a role with patients from rural areas in decision to retain a decayed teeth or undergo tooth extraction. Though various studies are performed on the clinical decisions of tooth extractions over RCT, the patient's perspectives and priorities on the choice are poorly understood. Our survey is a humble attempt to throw light on this area.

Materials and Methods: 94 patients were randomly selected to receive a questionnaire which sought the reasons to prefer tooth extraction over RCT. The questions asked were regarding the awareness on RCT and the factors such as cost, experience of failure, the need for multiple sittings and the myths associated with the RCT to understand the priorities of patients to suffer tooth loss over retention of teeth.

Results: Majority of the patients disclosed that the cost, multiple sittings and the experience of failures of RCT influenced them to prefer tooth extraction over RCT. The misconceptions amid awareness on RCT also hindered them to undergo RCT.

Conclusion: The patient's level of awareness and priorities on treatment should be taken into consideration while framing the treatment plan.

INTRODUCTION:

Dentistry has grown into a multidisciplinary field and profession since its inception. From the era of barber surgeons, there has been an incredible surge in innovations in this field, which made it to stand apart as a separate field with its applications range from Cosmetic Dentistry to Maxillofacial Surgery, while laying its foundations on medicine.¹ But the mainstay of dentistry continues to be in the retention of tooth and its replacement if its lost. Tooth loss is considered as one of the most common functional and aesthetic problem encountered globally² and dental caries was reported to be its most common reason³.

The management of dental caries involving the pulp is left with only two options, either to undergo root canal treatment or to undergo tooth extraction. The root canal treatment involves removal of the diseased pulp to limit the spread of infection into periapical tissues⁴. The root canal is subsequently filled with a biocompatible filling material. RCT helps in preservation of the proprioception for occlusal feedback and retention of teeth to prevent an aesthetic and functional deficit. Whereas tooth extraction result in alveolar bone resorption, deranged occlusion, migration of adjacent teeth and aesthetic deficit. Even though dentists educate patients on the ill effects of tooth loss and its consequences, patients often prefer tooth extraction based on their priorities⁵. While most of the developed countries showed a decline in tooth loss⁶, the burden of tooth mortality in India is still on a higher level⁷. This necessitates a study to determine the priorities of patient population to prefer tooth extraction than to undergo conservative endodontic treatment.

AIM OF THE STUDY:

Hence the aim of this study is to evaluate the reasons given by adult patients visiting our dental college hospital to prefer tooth extraction over endodontic treatment by a questionnaire survey.

MATERIALS AND METHODS:

Study Design:

The survey was carried out following the approval of Ethical committee in our institution. A total of 56 patients who visited

Pacific Dental College & Hospital between June 2019 and December 2019 were randomly selected for the study. All the patients selected were of 18-50 years of age and were diagnosed with dental caries involving the pulp which demanded endodontic treatment to preserve the tooth, but preferred tooth extraction. The patients are well educated about both the options and the consequences of tooth loss. The participants were clinically and radiologically examined for periodontal status and restorability of tooth prior to the selection. The nature and objectives of the study were explained to the participants.

Inclusion Criteria:

- All healthy patients with no medical co-morbidities.
- Dental caries with pulp involvement and indicated for endodontic treatment.
- Tooth with good periodontal support.

Exclusion Criteria:

- Tooth with poor prognosis following endodontic treatment.
- Patients of age below 18 and above 50 years.
- Tooth with poor periodontal support.
- Multiple teeth needing treatment.
- Patients who are not fit for extractions.
- Patients coming from far places (>50Km from college)
- Teeth which need surgical extraction.

Questionnaire:

After the extraction was planned, all the participants who gave their consent for the survey received a self-administered questionnaire. The age, sex and socioeconomic status were recorded for demographic analysis. The socioeconomic status of the patients was assessed following the modified Kuppusswamy and Udai Pareekh's scale updated for 2019⁸, which is given below (Fig 1).

Education of head of family	Score
Professional degree	7
Graduate or postgraduate	6
Intermediate or post high school diploma	5
High school certificate	4
Middle school certificate	3
Primary school certificate	2
Illiterate	1
Occupation of head of family	
Professional (white collar)	10
Semi-professional	6

Clerical, shop-ownner/ farm	5		
Skilled worker	4		
Semi-skilled worker	3		
Unskilled worker	2		
Unemployed	1		
Monthly income of family			
In 2001 (Base year)	In 2017 (January 2017 CPI)		
In 2019 (February 2019 CPI)	Score		
≥15,197	≥41,430	≥52,734	12
7,595-15,196	20,715-41,429	26,355-52,733	10
5,694-7,594	15,536-20,714	19,759-26,354	6
3,793-5,693	10,357-15,535	13,161-19,758	4
2,273-3,792	6,214-10,356	7,887-13,160	3
761-2,272	2,092-6,213	2,641-7,886	2
≤760	≤2,091	≤2,640	1
Socioeconomic class			Total score
I Upper			26-29
II Upper middle			16-25
III Lower middle			11-15
IV Upper lower			5-10
V Lower			01-04

(Fig.1)

The Questionnaire contained 5 questions to assess the reasons to prefer for tooth extractions, which are given in the following table (Table 1).The questions were framed following the published articles on similar studies⁹.The questionnaire is made self-administered to prevent bias. It is pretested by selected faculties and appropriate corrections were made on feedback. The participants were asked to fill the questionnaire at their own will. The questionnaire was given in English, Hindi and Gujarati. A pilot survey was conducted in November 2019 with 16 patients to check the applicability of the study and the sample size was calculated. The responses were recorded and completed questionnaires were then referred for statistical analysis.

(Table 1)

No.	Question	Response1	Response2
1	Did you think that tooth extraction is the only solution for dental caries and pain, when you decided to undergo tooth extraction?	Yes	No
2	Did the cost of root canal treatment a factor in the decision to undergo tooth extraction over endodontic treatment?	Yes	No
3	Did multiple visits for root canal treatment bother you to prefer for tooth extraction over endodontic treatment?	Yes	No
4	Did any previous failures in root canal treatment you or others had, make you decide for tooth extraction over endodontic treatment?	Yes	No
5	Did you think the tooth would become weaker after RCT?	Yes	No

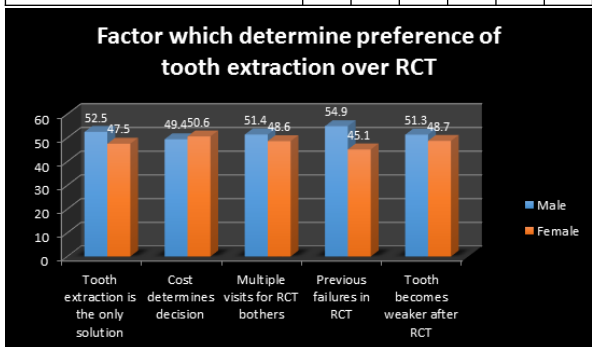
Statistical Analysis-

Collected data entered in Microsoft excel 2018. Descriptive statistics compiled using SPSS 23.0 Results presented in both tabular and graphical form.

RESULTS:

	Male		Female		Total	
	N	%	N	%	N	%
Tooth extraction is the only solution for dental caries and pain	32	52.5	29	47.5	61	64.9
Cost determines decision to undergo tooth extraction	41	49.4	42	50.6	83	88.3
Multiple visits for root canal treatment bother you	38	51.4	36	48.6	74	78.7

Previous failures in root canal treatment you or others had	39	54.9	32	45.1	71	75.5
Tooth would become weaker after RCT	40	51.3	38	48.7	78	83



Out of 94 patients included in the study, the male female distribution was almost equal with slight dominance over the female patients (51%). The age of the patients range from 18-50 years, in which the maximum participants are of 21-40 years of age (69%).The majority (65%) of the participants fell into the upper lower and lower middle class as calculated by the above mentioned scale.

The results of this survey showed that the patient reasons to prefer tooth extraction over root canal treatment are mostly based on the cost involved and the need for multiple sittings for root canal treatment. Even though the awareness on RCT is generally found, the above factors with the existing misconceptions or myths on root canal treatment also prevent them from undergoing RCT. The results were statistically significant.

DISCUSSION:

The burden of oral health diseases is on rise in India for past three decades. Among the oral diseases, the prevalence of dental caries is high and is the most common one, especially in rural areas¹⁰.The dental services in the rural areas are mostly limited to tooth extractions than attempts to preserve teeth by RCT¹¹. The lack of awareness for the need of dental treatment and the misconceptions among the rural public result in the gross neglect of the treatments. Being in a dental college receiving patients from rural areas of Rajasthan, it is essential to determine the perception of rural patients on root canal treatment and the reasons to suffer tooth loss than to preserve tooth for better function and aesthetics. The literature review showed plethora of studies on the reasons for clinical decision on tooth extraction. But there seems to be a dearth of studies assessing the patients' priorities and reasons for their decision to go for tooth loss. Such studies are required as they give a better understanding for the dentist to educate the patient for conservative treatments.

Majority (64%) of the participants in our study were aware of the Root Canal Treatment. The rest of the participants have revealed that either they heard about RCT for the first time or they were not clear about the procedure. As it is common to object something if it's not clear, it seemed to be the reason to opt the tooth extraction in this group. The similar survey on RCT conducted by Ramta Bnasal et al¹ also shows more or less same value. It is important for a dentist to know the level of awareness for the patient on the root canal treatment before giving the treatment options.

In the present study, 88% of the participants suggested one of the reasons to reject RCT and prefer tooth extraction was the cost involved with RCT. As most of the participants belong to lower middle class to upper lower class in socioeconomic

status, the cost of the treatment became an important factor in their decision. The imbalance in the cost of tooth extraction and tooth preservation treatments like RCT can result in patients choosing more on the lower side. All attempts to motivate such patients fail when the imbalance prevails. A very few participants who belonged to an upper middle class (5%), responded the other way around.

Multiple sittings also seemed to be a factor to hesitate RCT with 78% preferred tooth extraction as it would finish in single sitting. Though we have excluded patients coming from far places (>50Km) for treatment, participants wanted less time consuming procedures and single day solution for their problems. The multiple sittings were calculated considering the sittings for crown placement following the RCT, even if it's a single sitting one.

The patient experience of failures of RCT also favored the tooth extraction with 75% of patients are afraid of the failures of RCT and decided to prefer removal tooth. The experience of fear of RCT could be from their own or others experience of RCT. We couldn't extract the specific reason for the fear, like pain during RCT, which has a multifactorial etiology.

One of the common myth about RCT is that the root canal treated tooth may become weak. Our study is a proof that this myth still exists in the rural areas as 82% of the participants agreed to believe in this way. Even though there is no scientific evidence to prove the compromised mechanical properties after root canal treatment¹², it still remains a hindrance for root canal treatment.

CONCLUSION:

The survey showed the patient's level of awareness on RCT and priorities in choosing tooth extraction over RCT. The treatment plan should be framed with patient's perspective and priorities of treatment taken into consideration.

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