

Reasons for Patients Preferring Extraction over Root Canal Treatment in a Tertiary Care Hospital

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ABSTRACT

Introduction: Dental caries is a major global oral health issue, potentially progressing to irreversible pulpitis and causing substantial discomfort. Although advancements in materials, instruments and knowledge have improved the success rates of root canal procedures, some patients opt for tooth extraction instead of root canal treatment. This choice can result in tooth loss, necessitating costly prosthetic replacements.

Objective: The objective of this study was to determine the reasons for patients choosing extraction over root canal treatment.

Methods: A descriptive cross-sectional study was conducted among 205 patients visiting the Department of Conservative Dentistry and Endodontics at Kathmandu Medical College for the treatment of irreversible pulpitis, who ultimately opted for extraction. A structured questionnaire was utilized, and responses were recorded and analyzed using the Statistical Package for the Social Sciences. Mean, standard deviation, frequency and percentage were calculated depending upon the nature of data.

Results: The study found that the primary reason for patients not undergoing root canal treatment (RCT) was the high cost of RCT and crown, accounting for 42.9% (88 patients), followed by the need for more appointments with pain, at 31.2% (64 patients).

Conclusions: This study revealed the cost of RCT and crown to be the major factor for patients opting out from RCT. The study provides valuable insights into the psychology of patients regarding RCT, highlighting reasons for its rejection. Such understanding assists dentists and specialists in tailoring treatment plans that align with patient preferences and needs.

Keywords: Extraction; patient preference; root canal treatment.

INTRODUCTION

Dental caries is one of the most significant global oral health burdens.¹ Untreated dental caries can progress to irreversible pulpitis,

causing pain and swelling, which can significantly impact a person's overall well-being. According to the American Association of Endodontics (AAE), root canal treatment (RCT) is a dental procedure recommended for treating damaged or infected teeth with irreversible pulp pathosis.²

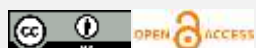
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Over the last few decades, significant advancements have been made in the available materials and instruments used for root canal procedures. With current knowledge of the internal anatomy of the pulp space, microbiology, and disinfection techniques, as well as the introduction of rotary and micro endodontic instruments, clinicians are now better equipped to achieve a more predictable and thorough cleaning of the pulp space, resulting in a better success rate of root canal procedures.³ Despite clinical studies demonstrating higher success rates, some patients still choose to opt for tooth extraction instead of root canal treatment. This decision can lead to the loss of the affected tooth and, subsequently, may result in a collapsed occlusion and the need for a prosthesis, leading to increased financial burdens.^{2,4}

The purpose of this study was to assess the reasons for patients preferring extraction over root canal treatment in a tertiary care hospital.

METHODS

A descriptive cross-sectional study was carried out in the Department of Conservative Dentistry and Endodontics in Kathmandu Medical College (KMC) from October 2021 to January 2023 after the ethical approval from Institutional Review Committee of KMC on January 4, 2021 (Ref: 1712202006).

Patients visiting the Department of Conservative Dentistry and Endodontics with fully erupted

teeth, experiencing dental caries with symptoms of irreversible pulpitis, and providing informed consent were included in the study. In the case of minors (patients below 18 years of age), consent was obtained from attending parents/guardians. Patients with trismus, unerupted third molars, teeth with grade II/III mobility, teeth with extensive radiographic bone loss, and medically compromised patients were excluded from the study.

Convenience sampling method was used for sample selection. Sample size was calculated using the formula, $n = Z^2 pq / e^2$ where Z (confidence level at 95%) = 1.96, $p = 14.97$ (from a similar study by Sadasiva et al)², $q = 100 - p$, e (margin of error) = 5%. Adding a 5% non-response rate, sample size of 205 was taken.

A questionnaire was provided to the patients to assess the factors influencing their decisions to decline root canal treatment and choose to undergo extraction. A set of 13 semi-structured questions were used.

All data provided by the patients were collected using a questionnaire and subsequently underwent statistical analysis. Data analysis was done using Statistical Package for the Social Sciences (SPSS) for Windows, version 20 (IBM Corp., Armonk, N.Y., USA) and descriptive statistics were performed. Mean, standard deviation, frequency and percentage were calculated depending upon the nature of data.

RESULTS

Mean age of study participants was 45.15 ± 17.05 years. Out of 205 individuals studied, 105 (51.2%) were females and 100 (48.8%) were males. Distribution of study participants based on reasons for opting extraction over RCT are presented in Table 1. Reasons for patients choosing extraction over RCT included high cost of RCT and crown 88 (42.9%), more appointments with pain 64 (31.2%), patients not worried about tooth loss but required immediate pain relief 47 (22.9%), compromised prognosis given by the dentist 45 (22%), patients felt that

RCT is a failure treatment 33 (16.1%), uncooperative patients 31 (15.1%), patients perception that RCT treated tooth eventually had to undergo extraction and needed some permanent treatment 25 (12.2%), too old for RCT 21 (10.2%), previous bad experience from RCT 20 (9.8%), moving abroad 12 (5.9%), other reasons included orthodontic treatment, belief in tooth replacement options, and lack of concerns about preserving posterior teeth 8 (3.9%), wanted to place implants 7 (3.4%), RCT would have residual infection causing heart disease and cancer 4 (2%).

Table 1: Distribution of study participants based on reasons for opting extraction over RCT

S.No.	Reasons for opting extraction over RCT	Total no. of study participants	No. of study participants n (%)	
			No	Yes
1	Root canal treatment (RCT) is a failure treatment.	205	172 (83.9)	33 (16.1)
2	We need to remove the tooth after RCTs, need some permanent treatment.	205	180 (87.8)	25 (12.2)
3	RCTs will have residual infection, causing heart disease and cancer.	205	201 (98.0)	4 (2.0)
4	Cost of RCT and Crown.	205	117 (57.1)	88 (42.9)
5	More appointments with pain.	205	141 (68.8)	64 (31.2)
6	We will go for implants.	205	198 (96.6)	7 (3.4)
7	Compromised prognosis given by dentist, extract and have prosthesis.	205	160 (78.0)	45 (22.0)
8	Not worried about tooth loss, requires immediate relief of pain.	205	158 (77.1)	47 (22.9)
9	Moving abroad, cannot finish, too costly in foreign countries, so extract.	205	193 (94.1)	12 (5.9)
10	Not cooperative, not able to come, prolonged treatment period, withdrawn from treatment patients requesting extraction.	205	174 (84.9)	31 (15.1)
11	Too old for RCT, Requesting extraction.	205	184 (89.8)	21 (10.2)
12	Previous bad experience from RCT.	205	185 (90.2)	20 (9.8)
13	Other reason	205	197 (96.1)	8 (3.9)

DISCUSSION

Root canal treatment is one of the most common

dental procedures primarily sought by patients to alleviate pain. If RCT is indicated, neither a

simple filling nor the use of antibiotics would effectively resolve the tooth infection. Additionally, if the treatment is delayed, the tooth may undergo extensive destruction from decay and become too compromised to be preserved. In such cases, extraction would be the only treatment of choice, which can further lead to consequences such as shifting of teeth and collapsed occlusion, affecting mastication and aesthetics.^{5,6}

The expense for RCT compared to extraction is one of the major concerns for patients.⁷ The cost of RCT and crown was the most common reason for opting out from RCT in this study, selected by 42.9% of the patients. These results are higher compared to the studies conducted by Khattak et al.,⁷ where 17.4% of patients chose extraction because of high cost of RCT and the findings of Sadasiva et al.,² where 13.9% of participants opted for extraction. The possible reason for this could be that many patients facing financial burden choose extraction as a more affordable option for pain relief, as it is less expensive than restorative treatments.^{8,9} However, it is crucial to understand that in the long term, the expenses associated with replacing missing teeth through fixed prosthesis or implants tend to surpass the cost of root canal treatment.¹⁰

The fear of pain during RCT and the perception of undergoing several lengthy appointments for RCT may act as barriers to seeking the treatment.¹¹ Many patients describe RCT as a

painful and lengthy treatment.¹² In the present study 31.2% of patients extracted their teeth due to the need of multiple appointments for RCT with pain, which is more than in the study conducted by Khattak et al.⁷ (23.9%) and Sadasiva et al.² (10.33%). This was also the most common reason to withdraw from RCT in the study conducted by Khattak et al.⁷

Numerous studies have shown that patients often experience apprehension and anxiety, which act as major deterrents to RCT.² The misconception among individuals regarding pain during the procedure and lack of knowledge and awareness about the treatment are the main factors that can be attributed to these fears. This can also make patients uncooperative.⁷ The management of these apprehensions, anxieties, and pain can be effectively achieved through a combination of psychological interventions, premedication, and administration of profound local anesthesia.^{2,13} The use of Nickel Titanium rotary instruments decreases the number of appointments needed to complete endodontic treatment.¹⁴

Approximately 22.9% of the individuals in this research did not express any concerns regarding tooth extraction as they wanted immediate relief from pain by removing the offending tooth, similar to the study by Khattak et al.⁷, where 19.6% of patients wanted rapid pain relief and were relatively unconcerned about tooth loss. These patients may benefit from counseling regarding the importance of maintaining natural

dentition for function and aesthetics.⁷ In the majority of cases, RCT is preferred for maintaining natural dentition. Nevertheless, in certain cases, long-term success cannot be assured by a clinician, and alternative treatment options may be necessary.² In the current study, 22% of participants chose tooth extraction due to the compromised prognosis given by their clinician.

Patients who perceived RCT as an unsuccessful treatment accounted for 16.1%, while those who believed that RCT was not a permanent solution constituted 12.2%. This could possibly be because of the misconception among patients that RCT weakens the tooth structure and makes it more brittle. In a study conducted by Aldwasari et al.¹⁵, 69.7% of participants had this misconception. However, it is important to note that there is no valid scientific evidence to support the claim that root canal-treated teeth have a questionable prognosis due to changes in their mechanical properties or that they are weaker compared to vital teeth.^{7,15}

The decision to withdraw from RCT was also influenced by factors such as advanced age of the patients (10.2%) and previous bad experiences with root canal procedures (9.8%). This specific group of patients can benefit from employing rotary instruments and advanced endodontic techniques, in conjunction with appropriate anesthesia and other pain management techniques, leading to the advantages of shorter, pain-free RCT.^{2,7,12} Other

reasons mentioned by the patients for choosing extraction over root canal treatment were orthodontic treatment, belief in tooth replacement options, and lack of concerns about preserving posterior teeth.

This study enhances our understanding of patients' psychological responses to root canal therapy, offering valuable insights to aid dentists and other professionals in developing more effective and personalized treatment plans tailored to the individual needs of the patient.

A limitation of this study is that it was conducted at a single center and had a limited sample size, which means that its findings may not be generalizable to the entire population of the country.

CONCLUSIONS

This study revealed the cost of RCT and crown to be the major factor for patients to opt out of RCT. The study provides valuable insights into the psychology of patients regarding RCT, highlighting the reasons for its rejection. Such understanding assists dentists and specialists in tailoring treatment plans that align with patient preferences and needs. The findings suggest the need for patient education to dispel misconceptions about endodontic treatment, emphasize the importance of natural dentition, consequences of not replacing the extracted tooth, and thereby improving the acceptance of root canal treatment. Choosing root canal treatment instead of extraction not only

contributes to a higher quality of life but also ensures the preservation of natural dentition. **Conflict of Interest:** None



REFERENCES

1. Petersen PE, Bourgeois D, Ogawa H, Estupinan-Day S, Ndiaye C. The global burden of oral diseases and risks to oral health. *Bull. World Health Organ.* 2005;83(9):661-9. [PubMed | Full Text]
2. Sadasiva K, Rayar S, Senthilkumar K, Unnikrishnan M, Jayasimharaj U. Analyzing the reasons for patients opting-out from root canal treatment and preferring extraction in South Indian population-Prospective study. *Int J Prosthodont Restor Dent.* 2018 Dec;8(4):108-3. [Full Text]
3. Chandra BS, Gopikrishna V. *Grossman's Endodontic Practics*; 13th ed. New Delhi;Wolters Kluwer; 2010. [Full Text]
4. Gulabivala K, Ng YL. Factors that affect the outcomes of root canal treatment and retreatment—A reframing of the principles. *Int Endod J.* 2023 Mar;(Suppl.2)56:82-115. [PubMed | Full Text | DOI]
5. Mustafa M, Almuhaiza M, Alamri H, Abdulwahed A, Alghomlas Z, Alothman T, et al. Evaluation of the causes of failure of root canal treatment among patients in the City of Al-Kharj, Saudi Arabia. *Niger J Clin Pract.* 2021;24(4):621-8. [PubMed | Full Text | DOI]
6. Bansal R, Jain A. An insight into patient's perceptions regarding root canal treatment: A questionnaire-based survey. *J Family Med Prim Care.* 2020;9(2):1020-7. [PubMed | Full Text | DOI]
7. Khattak F, Paiker S, Khan S. Evaluation of the Reasons Why Patients Prefer Extraction and Refuse Root Canal Treatment. *Found Univ J Dent.* 2023 Jan 20;3(1):3-8. [Full Text]
8. Singh A, Shrestha A, Bhagat TK, Baral DD. Assessment of oral health status and treatment needs among people of Foklyan area, Dharan, Nepal. *BMC Oral Health.* 2020 Nov 11;20(1):320. [PubMed | Full Text | DOI]
9. Dixit LP, Gurung CK, Gurung N, Joshi N. Reasons underlying the extraction of permanent teeth in patients attending Peoples Dental College and Hospital. *Nepal Med J.* 2010 Dec 1;12(4):203-6. [PubMed | Full Text]
10. Parirokh M, Zarifian A, Ghoddusi J. Choice of treatment plan based on root canal therapy versus extraction and implant placement: A mini review. *Iran Endod J.* 2015;10(3):152. [PubMed | Full Text | DOI]
11. Rousseau WH, Clark SJ, Newcomb BE, Walker ED, Eleazer PD, Scheetz JP. A comparison of pain levels during pulpectomy, extractions, and restorative procedures. *J Endod.* 2002 Feb 1;28(2):108-10. [PubMed | Full Text | DOI]
12. Dhanalakshmi M, Balaji A. Patients knowledge and attitude in endodontic treatment: A questionnaire-based study. *Int J Soc Rehab.* 2021 Jan 1;6(1):22-7. [Full Text]
13. Bajawi AM, Mobarki YM, Alanazi FG, Almasrahi MY, Malhan SM. Knowledge and awareness of root canal treatment among general public of Arar, Saudi Arabia. *Int J Med Dent.* 2018 May 1;5(2):58-62. [Full Text | DOI]
14. Melgaço-Costa JL, Martins RC, Ferreira EF, Sobrinho AP. Patients' perceptions of endodontic treatment as part of public health services: a qualitative study. *Int J Environ Res Public Health.* 2016 May;13(5):450. [PubMed | Full Text | DOI]
15. Aldawsari M, Alamri HM. Public knowledge and perception regarding endodontic treatment in a Saudi population. *Int J Oral Health.* 2017 Nov 1;9(6):255-7. [Full Text]