

# Phobia of Endodontic Treatment: A Myth or Reality—A Questionnaire-based Survey

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## ABSTRACT

**Aim:** The aim of this study is to evaluate the dental anxiety expressed by patients undergoing endodontic treatment with respect to some social and dental parameters.

**Materials and methods:** A questionnaire comprising of 25 questions was given to 1,000 patients, 500 males and 500 females, in order to assess their fear of different phases of endodontic therapy. Questions were asked before, during, and after completion of root canal treatment.

**Results:** It was observed that females reported greater anxiety concerning root canal therapy than males. Older subjects reported less anxiety than younger subjects. Local anesthetic injection was ranked as the most unpleasant or anxiety-arousing aspect of root canal therapy.

**Conclusion:** High-anxiety subjects reported feeling more apprehension upon hearing or reading stories concerning root canal treatment than low-anxiety subjects. Nearly everyone indicated that they would agree to future root canal therapy to save a tooth.

**Keywords:** Anxiety, Drilling, Fear, Injection, Pain, Root canal treatment.

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## INTRODUCTION

Tooth pain causes suffering, impairs functioning, and is a major component of oral health and quality of life.<sup>1-3</sup> Pain often drives an individual to seek dental care,<sup>4-6</sup> although for some patients the fear and anxiety associated with dental pain prevent them from requesting

needed care.<sup>7,8</sup> Fear during dental treatment is a major problem for patients and dentists alike. Anxious patients tend to avoid treatment and once they are in the dental chair, they are difficult to manage. Surveys show that a sizable proportion of the general population avoids making regular visits to the dentist because they are “too frightened” to do so, and they go only when experiencing trouble with their teeth.<sup>9-11</sup> Dental fear being a universal phenomenon is not specific for a particular age, gender, ethnicity, region, or population.<sup>12-14</sup> Many studies have concluded that women report of a higher prevalence of dental anxiety.<sup>15,16</sup> In its severe form, this emotional state may impinge on the dentist–patient relations and bring misdiagnosis in its wake.<sup>17</sup>

Endodontic therapy has been considered as a taboo by many due to severe pain experienced during it. Fear of pain, due to actual painful experience in the past, is the principal factor causing dental anxiety and is responsible for most of the cases of avoidance of endodontic therapy.<sup>18-20</sup> Injection was found as the primary anxiety-provoking stimuli in the dental situation,<sup>21</sup> followed by the “drill” used during root canal treatment. Of various dental procedures, extraction and root canal treatment were found most frightening. However, researchers have also found that edentulous patients sometimes delay visiting the dental clinic because they were “scared” of the dentist, suggesting that a previous experience had left a substantial mark on these patients’ dental memory. In a study, root canal therapy and oral surgery procedures were found to be the most anxiety-provoking treatments.<sup>22</sup> Also, the results of a survey concluded that the general public’s perception of root canal therapy is negative because this treatment is associated with pain: preoperative, intraoperative, and postoperative.<sup>23</sup>

The purpose of this study was to evaluate the dental anxiety expressed among patients undergoing endodontic treatment with respect to some social and dental parameters.

## MATERIALS AND METHODS

The present survey was conducted to ascertain the fear of endodontic therapy. A questionnaire in English and local language Hindi consisting of 25 questions related to certain social and dental parameters of endodontic

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therapy was given to 1,300 patients; 250 patients refused to participate in the survey, while 50 patients gave incomplete responses; 1,000 complete questionnaires consisting of 500 male and 500 female respondents were included in the study. All respondents were adult patients receiving nonsurgical root canal therapy. The survey consisted of 25 questions (Sections 1 and 2). Participants were asked to complete 6 questions before the start of therapy and 19 upon completion of treatment.

### Section 1: Pretreatment Questions

1. Age of the patient:
2. Sex of the patient:
3. Educational qualification of the patient:
4. Are you fearful of undergoing root canal therapy?  
a) No b) Very Little c) Much d) Very Much
5. Do you have prior knowledge of root canal therapy?
6. Do other people's experiences of root canal therapy make you feel fearful of endodontic therapy?  
a) No b) Very Little c) Much d) Very Much

Questions 1 to 3 were asked so as to analyze the basic attitude of patient toward root canal treatment and the role of family and peers in it. These questions also helped to assess participants' response for questions 7 to 24. Question 4 of the pretreatment questions was asked to ascertain the fear of endodontic therapy. This question had four responses which were given values from 1 to 4, 1 being "No" and 4 being "Very much." These values helped in categorizing the respondents under low anxiety, moderate anxiety, and high anxiety. Questions 5 and 6 highlighted the patient's initial perception about endodontic therapy.

### Section 2: Posttreatment Questions

7. Did you mind the dentist tapping or pushing (percussion) on a sore tooth?  
a) No b) Very Little c) Much d) Very Much
8. Did you mind the use of heat and cold tests on your tooth?  
a) No b) Very Little c) Much d) Very Much
9. Did you mind the use of electric pulp tester on your tooth?  
a) No b) Very Little c) Much d) Very Much
10. Did you mind having multiple X-rays taken on your tooth?  
a) No b) Very Little c) Much d) Very Much
11. Did you mind having X-rays film placed in your mouth?  
a) No b) Very Little c) Much d) Very Much
12. Did you mind the use of rubber dam for your treatment?  
a) No b) Very Little c) Much d) Very Much

13. Did you mind when the metal clamp of rubber dam was on placed on your tooth?  
a) No b) Very Little c) Much d) Very Much
14. Did you mind getting an anesthetic injection?  
a) No b) Very Little c) Much d) Very Much
15. Did you mind the drilling on your tooth?  
a) No b) Very Little c) Much d) Very Much
16. Did you mind the sensation of root canal files?  
a) No b) Very Little c) Much d) Very Much
17. Were you ok with the length of appointments for root canal therapy?  
a) No b) Very Little c) Much d) Very Much
18. Do you think that root canal treatment is painful?  
a) No b) Very Little c) Much d) Very Much
19. Have you had pain/swelling after endodontic therapy that had made you seek an emergency appointment from your dentist?  
a) Yes b) No c) Don't Know
20. Have you ever canceled or missed your appointment because of fear or apprehension?  
a) Yes b) No c) Don't Know
21. Have you had previous root canal treatment of any front tooth?  
a) Yes b) No c) Don't Know
22. Have you had previous root canal treatment of any back tooth?  
a) Yes b) No c) Don't Know
23. Did an endodontist do your previous root canal treatment?  
a) Yes b) No c) Don't Know
24. Are you still fearful of root canal treatment?  
a) Yes b) No c) Don't Know
25. Would you have root canal treatment again to save one of your teeth?  
a) Yes b) No c) Don't Know

All the phases of root canal therapy from diagnosis, application of local anesthesia, isolation, access cavity preparation, chemomechanical preparation to length of treatment that might cause discomfort to the patient were arranged sequentially as questions and were incorporated in the present questionnaire as questions 7 to 17. The responses were given numerical values as No being 1; Very little = 2; Much = 3; and Very much = 4. These values also helped in grouping the respondents as low-, moderate- and high-anxiety participants.

Questions 18, 24, and 1 compared patient's fear of root canal treatment before initiation, during the course of it and after its termination. Questions 19 to 23 determined the incidence of intra-appointment flare-up in a patient and whether or not patient missed/canceled appointment during treatment. These also inquired about patient's previous history of dental therapy. These questions had "yes," "no," or "don't know" as responses.

**Table 1:** Summary of values of the questionnaire

	Less fearful (negative value)	No change (less value)	More fearful (positive value)	Total
Frequency (n)	468	438	94	1000
Percentage	46.8%	43.8%	9.4%	100
p-value	0.23	0.043	0.011	
Significant/not significant	Not significant	Significant	Significant	

**Table 2:** Most fearful phases of endodontic treatment

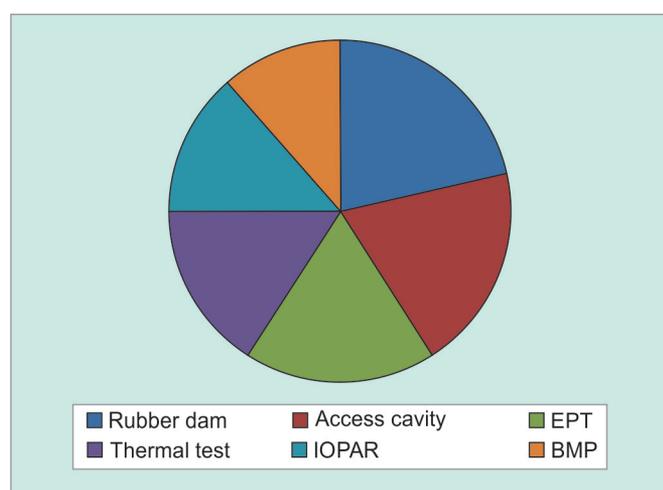
Phase	%	n	p-value	Significant/not Significant
Local anesthetic injection (LA)	100	1000	0.001	Not significant
Rubber dam clamp	85	850	0.026	Significant
Drilling during access cavity preparation	77	770	0.024	Significant
Electric pulp tester (EPT)	71	710	0.021	Significant
Heat test (Thermal Test)	63	630	0.034	Significant
Radiographs during treatment (IOPAR)	54	540	0.032	Significant
Filing (biomechanical preparation)	45	450	0.041	Significant

Question 25 was asked directly so as to check patient's attitude toward endodontic treatment after its completion.

## RESULTS

The present survey was completed by 1,000 patients. Of that number, 468 qualified for the high-anxiety category and 532 qualified for the low-anxiety category; 488 of the participants were under 45 years of age, while 512 were over 45 years of age. There were 500 females and 500 males in the study. The results were statistically analyzed using Mann-Whitney U test and it was observed that almost 90.6% of the subjects reported either no change or a decrease in fear after root canal therapy (Table 1).

All the participants of the survey cited fear of injection as the most common cause of fear of dental treatment while filing (biomechanical preparation) was considered as the least painful episode during endodontic therapy (Table 2 and Graph 1). The results were statistically

**Graph 1:** Graphical representation of most fearful phases of endodontic treatment

evaluated using Student's t-test where the mean age  $\pm$  standard deviation was  $41.23 \pm 0.341$ .

Education of the patient also played a major factor in their apprehensions of dental therapy. An educated patient had less fear of endodontic therapy and majority (92%) agreed that proper explanation of the procedure reduced their phobia toward dental therapy and they would resort to the same in future in order to save other teeth.

No significant statistical difference was observed with anxiety level and age, and gender at  $p = 0.071$  and  $p = 0.063$ .

## DISCUSSION

The present study was conducted to ascertain patients' fear of root canal treatment. Under the limitations of this questionnaire-based study, it was observed that age, sex, and educational status play an important role in determining patients' attitude toward endodontic treatment. Younger adults, females, and less educated individuals were more fearful of endodontic therapy than others. It was also concluded that 92% of the participants had positive attitude toward endodontic treatment after its completion and agreed to resort to it if need arises for it in future. This study also revealed that phobia of injection was the most common cause that refrained patients from timely seeking dental help. Past experience of patient's friends and relatives also played an important role in their attitude toward dental treatment.

A similar study was conducted by LeClaire et al<sup>23</sup> where they interviewed 82 adult patients who received nonsurgical root canal therapy in West Virginia University Endodontic Department. Participants were asked to complete pre- and posttreatment questionnaires. Data revealed that 43.9% of the subjects reported

a decrease in fearfulness to endodontic procedures as the result of having experienced root canal therapy. Local anesthetic injection, sensation of files introduced into or worked in root canals, and tapping or pushing on a sore tooth were ranked as the most unpleasant or anxiety-arousing aspects of root canal therapy.

The present study and the one conducted by LeClaire and other researchers had almost similar results.<sup>1,2,6,10-16,21-23</sup> Any discrepancies in the results can be attributed to the change in demography of the studies. Educational status of the patients also influenced the results. Moreover, the sample size of the present study was 1000, significantly more than the ones conducted earlier.

Although root canal therapy is usually performed with minimum of discomfort, many patients express fear and apprehension concerning therapy before its initiation. This apprehension is often based on stories of traumatic episodes related by family members, friends, or mass media rather than by actual experience. But after culmination of the treatment, people are less fearful of the endodontic therapy as is summarized in Table 1. Almost all the participants cited fear of local anesthetic injection as the most fearful phase of endodontic therapy, followed by placement of rubber dam and preparation of access cavity (drilling), while filing was considered as the least fearful experience during the course of root canal treatment. Separate studies conducted by Molin and Seeman,<sup>24</sup> Gale,<sup>25</sup> Messer,<sup>26</sup> Bemstein et al.,<sup>27</sup> Corah et al.,<sup>28</sup> and Hirschman et al.<sup>29</sup> also concluded that pain of anesthetic injection and fear of drilling were the most fearful phase of endodontic therapy while filing was the least.

In the present study, chi-square analysis of individual questions was attempted in order to detect any significant differences between self-reported degree of anxiety (ranging from "not at all" to "very much" responses) and the variables of age, sex, and high or low anxiety. However, due to the homogeneous nature of the sample population, chi-square analysis did not provide a valid test.

## CONCLUSION

The present survey was conducted with the aim to ascertain the factors that induced fear among patients and refrained them from seeking endodontic treatment. In this study, 1,000 patients participated. Under the limitations of this study, it is concluded that females reported greater anxiety concerning root canal therapy than males. Older subjects reported less anxiety than younger subjects. After therapy, a decrease in fear regarding root canal work was reported by majority of respondents. Local anesthetic injection, drilling, placement of rubber dam clamp, sensation of files introduced into or worked

in root canals, and tapping or pushing on a sore tooth were ranked as the most unpleasant or anxiety-arousing aspects of root canal therapy. High-anxiety subjects reported feeling more apprehension upon hearing or reading stories concerning root canal treatment than low-anxiety subjects. High-anxiety subjects reported root canal treatment as more painful than low-anxiety subjects. Nearly everyone indicated that they would agree to future root canal therapy to save a tooth.

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