

# Patient's Insights and Experience about the Root Canal Treatment among the Teaching Institutes in Karachi Pakistan



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**OBJECTIVE:** This study aims to explore how adult patients perceive RCT and how their perceptions change before and after treatment.

**METHODOLOGY:** Three hundred patients presenting for an endodontic visit were recruited for the study. A questionnaire was given. Patients' worries with RCT were identified using modified Visual Analog Scales (0-100%) and multiple choice questionnaires were used to record levels of pain and anxiety both pretreatment and posttreatment.

**RESULTS:** The most common pretreatment concerns were future maintenance (40%) which increased to (47%) after the treatment and pain during treatment (20%) which decreased to 7% posttreatment.

**CONCLUSION:** Results suggest that anticipated pain is bigger than the pain experienced during treatment and that after the treatment, anxiety for future RCT was significantly reduced.

**KEYWORDS:** Pain Perception, Anxiety, Anticipated Pain, Pulpitis, Insight

**HOW TO CITE:** Ahmed M, Moiz A, Aliuddin AM, Abdullah F, Askary SH, Ali J. Patient's insights and experience about the root canal treatment among the teaching institutes in Karachi Pakistan. J Pak Dent Assoc 2024;33(3):84-87.

**DOI:** <https://doi.org/10.25301/JPDA.333.84>

*Received: 04 January 2024, Accepted: 02 October 2024*

## INTRODUCTION

Endodontic therapy or root canal treatment involves the complete removal of infected pulpal tissues to prevent further peri radicular pathosis.<sup>1,2</sup> Root canal treatment not only prevents the severity of pulpal pathosis, but it is also one of the dental procedures that cause maximum patient anxiety and pain if compared to other dental procedures.<sup>3</sup> The International Association for the Study of Pain defines dental pain as an unpleasant sensation caused by the inflammatory reaction of infected pulpal tissue. In comparison, dental anxiety is defined as a patient's response to stress towards dental treatment.<sup>4,5</sup> Dental pain can create eagerness and impatience in patients which is a significant

challenge for the dentist.<sup>6</sup> Once RCT is advised neither a simple filling nor an antibiotic course can overcome the infection or resolve the tooth infection.<sup>7</sup> If the treatment of an infected tooth is delayed, there are chances the tooth can undergo extensive destruction from decay and can get compromised.

The only remaining option is extraction, which may trigger additional effects, such as collapsed occlusion or the drifting of adjacent teeth toward the extraction site<sup>8</sup> studies have reported that pain and anxiety are the main reasons attributed to the ignorance of patients about root canal treatment.<sup>9,10</sup> Therefore managing pain and anxiety is difficult in a dental practice and a challenging task for a dentist.<sup>11</sup> Recent research has shown there are variations in the severity of pain in men and women, most studies show women experience more sensitivity to pain than men, but there are discrepancies in the severity.<sup>12</sup>

Conducting surveys within communities can be incredibly beneficial for understanding the thoughts and feelings of patients towards root canal treatment (RCT), especially in places like Pakistan where oral health education is lacking and misconceptions about treatment are common. Dentists play a vital role in educating patients about root canal

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treatment options, addressing common myths, and guiding them through the process to encourage a positive outlook on the treatment. By understanding patients' concerns and misconceptions about root canal therapy, dentists can enhance the patient experience from the outset, helping to alleviate anxiety and concerns about post-operative pain. Which would lead to a better patient experience overall. The objective then becomes by providing patients with clear information and addressing their concerns, we can encourage them to embrace RCT and prioritize the preservation of their natural teeth.

## METHODOLOGY

The research was based on a questionnaire that was approved by the Institutions Ethical Committee with IBR Number, NOV-2023-OPR-11, the duration of the research was for 6 months. The study was conducted from 10 Nov 2023 to 10 April 2024. The house officers conducted this survey in various dental teaching hospitals throughout Karachi.

The surveys: one before their initial appointment with an endodontist about root canal treatment (pretreatment survey) and another after the endodontist had inserted the root canal filling to finish the procedure (posttreatment survey). Only patients who had completed the pretreatment survey were given posttreatment surveys. Patients above the age of 18 who visited these practices for their initial consultation appointment were asked to participate.

Postgraduate students were in charge of inviting patients to participate in the study and disseminating the pre- and post-treatment surveys. Patients found fit for the survey were selected to participate in this study. All participants were given an information leaflet and asked to sign a consent form indicating their informed consent. The participants were not given any assistance in filling out the surveys. If a patient did not complete the RCT or the posttreatment survey, their responses were eliminated from the analysis.

Only the pretreatment data were used for analysis in these cases. Pretreatment questions included demographics (age, gender, and degree of education) as well as whether the patient had previously undergone an RCT. Patients' worries with RCT were identified using modified Visual Analog Scales (0-100%) and multiple choice questionnaires. Patients were questioned about whether their treatment experience was better or worse than expected, if any discomfort was connected with or throughout treatment, their view on the value of tooth retention, and how they would feel about having RCT again in the posttreatment survey. Data were categorized and analyzed using Microsoft Excel and SPSS.

## RESULTS

The study included 300 patients who met the inclusion criteria based on responses from their pre-treatment surveys. Post-treatment surveys were completed by 280 (93%) of these patients. Among respondents, 157 (56%) were male, and 123 (44%) were female, with ages ranging from 19 to 60 years.

Educational levels varied by gender: for male participants, 0.05% had primary education, 22% middle, 64% secondary, and 7% university-level education. Among female participants, 9.7% had primary education, 79% middle, 7% secondary, and 3% university-level education. University education represented the highest level attained across all participants.

Regarding pain associated with treatment, 20% of patients reported pain as a concern before treatment, which decreased to 7% post-treatment. Concerns about the need for future treatment or maintenance increased slightly from 40% before treatment to 47% afterward. Additionally, concerns related to time, such as taking time off work or the number of appointments required, were significant before treatment at 30% but rose considerably to 43% post-treatment.

**Table 1:** Patient concerns before and following completion of RCT

CONCERN ASSOCIATED WITH RCT	PRETREATMENT (%OF TOTAL CONCERNS) n=300	POSTTREATMENT (%OF TOTAL CONCERNS) n=280
No concern	33	0
Pain associated with treatment	60	20
Time (eg. time taken off work, number of required appointments)	90	121
Needing future treatment or maintenance	120	132
Treatment failure	0	0
others	1	1

**Table 2:** Mean pre- and post-treatment anxiety scores for those patients who completed both the pre-and post-treatment surveys

PRETREATMENT ANXIETY (%)	POSTTREATMENT ANXIETY (%)
37%	30%

P=0.00054

**Table 3:** Anticipated and experienced pain severity as reported by the patients for those patients who completed both the pre-and post-treatment surveys

ANTICIPATED PAIN (%)	EXPERIENCED PAIN (%)
42%	38%

P=0.00038

**Table 4:** Demographic characteristics

EDUCATION	MALE	FEMALE
Primary	8	12
Middle	35	98
Secondary	102	9
University	12	4
Total	157(56%)	123(44%)

Table 2 shows the mean anxiety scores reported by the people who took the survey who completed the RCT before and after treatment. Gender, age, and educational level proved to have little bearing on pretreatment anxiety. Forty-two percent of the people were anticipating pain, which decreased to thirty-eight percent after the treatment. There is a decrease in pretreatment anxiety from 37% to 30%.

## DISCUSSION

The main objective of this study was to assess the patient's perception of root canal treatment and how it varied from pretreatment to post-treatment. According to one study, which found no correlation between predicted and real pain regardless of prior experience, patients may perceive each therapy as a unique experience.<sup>13</sup> because this investigation's sample size was small, the conclusions had some restricted validity. Despite this, the findings imply that pain is a major concern for patients and that patient anxiety is widespread in the Karachi population.<sup>14,15</sup> Patients without prior RCT experience reported more anticipated discomfort in this research. According to additional studies, patients who have previously experienced pain had reduced pain expectations and anxiety.<sup>16</sup> The data we collected had similar results.

As this study was being conducted by House officers and not residents or experienced dentists the amount of time and the appointments were severely increased. In a study comparing single-visit endodontic procedures with multiple-visit procedures, it was found that single-visit endodontic procedures reduced the chair time of the patient and increased patient comfort and risks associated with local anesthesia. It was also observed in the same study that with single visits there was also reduced anxiety and episodes of pain as compared to multiple appointments. Since our study was conducted by house officers, they took multiple visits, and the duration of the appointments was also lengthened.

Our study was conducted at multiple university hospitals across Karachi, while the other studies was only done in one location. An increase in location increases the reliability of the data. In comparing our study to others, we noticed an interesting difference. While some previous research included a question asking patients how they would feel about undergoing Rct (Root Canal Treatment) again, we didn't include that in our study.

Patients who complained about pain during the pretreatment was about 20% compared with other studies, the range was 12% to 60% Post-treatment pain however there was a reduction in pain to about 7%. There was also an anxiety reduction. Pretreatment was 37% reduced to about 30% posttreatment has previously been demonstrated that pretreatment anxiety is linked to both anticipated pain and

experienced pain. There was a reduction in this pain parameter from anticipated pain being 42% to experienced pain being 37%.

## LIMITATIONS

Due to a limited sample size, the study was only conducted on about 300 individuals. This caused the data to have some restrictions with regards to its validity. Another limitation was that the data that was collected was only from Karachi this effected the outcome of the results. Another big limitation was that house officers were performing the procedure, their lack of experience in dealing with patients and in their own work created some of the dental anxiety the patients experienced. Another big limitation of the study was that patients filled out surveys without assistance, which could lead to misunderstandings or incomplete responses, especially among those with lower education levels. The study did capture the patient perceptions but did not include clinician observations, which could provide additional insights into patient behavior and treatment outcomes.

## CONCLUSION

According to the findings of this study, pain experienced during endodontic treatment is frequently less than anticipated pain. This signifies that perceived pain was greater than the actual pain of root canal treatment. There was a significant decrease in post treatment anxiety, as the fear of the unknown was a big cause of the anxiety for most patients. The majority of patients were concerned about future maintenance when it came to root canal therapy as this concern increased post treatment. Another big concern for the patients was the time required for the treatment as the length of time in a hospital setting increases compared to private practice, this was seen to increase post treatment as well and had less to do with the root canal treatment and more to do with the setting at which the survey was conducted.

## CONFLICT OF INTEREST

None to declare

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