



## Root canal treatment from patients' perspective: knowledge, awareness, and expectations

Lečenje kanala korena zuba iz perspektive pacijenata: znanje, svest i očekivanja

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### Abstract

**Background/Aim.** Root canal treatment (RCT) is one of the most common endodontic procedures for which patients visit the dentist. Patient's knowledge, awareness, and attitude regarding root canal treatment are an interesting problem in everyday dentistry. Therefore, the study aimed to evaluate the knowledge, awareness, and attitude of patients coming for endodontic treatment. **Methods.** Questionnaire surveys were carried out in a group of 209 patients, including queries characterizing their knowledge, awareness, and attitude towards the RCT – their experiences, expectations, potential problems, and management expenses. **Results.** Exploring the knowledge of individuals concerning RCT, it was noticed that 51% of the surveyed patients in the past had experienced endodontics treatment. Fifty-two percent of participants reported that they knew the charges of the RCT, and 50% of them said that the price was sufficient for the difficulty of the process. The study confirmed that 47% of the participants still prefer specialists to perform the RCT. **Conclusion.** An enhancement of knowledge and awareness of people about the RCT has been observed, as well as a need of providing more information to patients about endodontics and the benefits of saving teeth.

### Key words:

attitude to health; awareness; endodontics; knowledge; pain; root canal therapy; surveys and questionnaires.

### Apstrakt

**Uvod/Cilj.** Lečenje kanala korena zuba (LKZ) je jedna od najčešćih endodontskih procedura zbog kojih pacijent posećuje stomatologa. Znanje, svest i stav pacijenta prema LKZ su zanimljiv problem u svakodnevnoj praksi stomatologa. Zbog toga je cilj rada bio da se procene znanje, svest i stav pacijenata koji dolaze na endodontsko lečenje. **Metode.** U grupi od 209 ispitanika sprovedeno je ispitivanje putem upitnika kojim se karakterišu znanje, svest i stav pacijenata prema LKZ – njihova iskustva, očekivanja, potencijalni problemi i troškovi procedure. **Rezultati.** Istraživanjem znanja pojedinaca koje se tiče LKZ, pokazano je da je 51% ispitivanih pacijenata u prošlosti lečeno endodontski. Od ukupnog broja ispitanika, 52% je izvestilo da je bilo obavješteno o troškovima procedure LKZ, a 50% da je cena bila odgovarajuća za kompleksnost procesa. Ispitivanjem je potvrđeno da bi 47% ispitanika za procedure LKZ izabralo lekara specijalistu. **Zaključak.** Zapaženo je poboljšanje znanja i svesti ljudi o LKZ, kao i potreba za pružanjem više informacija pacijentima o endodonciji i informacija o koristima očuvanja zdravlja zuba.

### Ključne reči:

stav prema zdravlju; svest; endodoncija; znanje; bol; lečenje korenskog kanala; ankete i upitnici.

### Introduction

Tooth disease may often lead the patient to seek dental care. Dental pain is the commonest reason observed among patients for seeking necessary management, which mainly comprises root canal treatment (RCT) or extraction of the diseased

tooth<sup>1</sup>. Extraction of the tooth may lead to a chain of events such as causing the adjacent or opposing teeth to shift, affecting the masticating ability, and harming the natural smile and esthetics of the patient. The main outcome of securing oral health is the conservation of the inherent dentition. In modern dentistry, RCT is an achievable and effective method to preserve teeth<sup>1,2</sup>.

RCT is a process in which the damaged and contaminated dental pulp is eliminated and replaced with sterile and antibacterial material. It eliminates the focus on infection, allowing a person to keep tooth performance and aesthetics<sup>2</sup>. Tooth replacement, if indicated for esthetic and functional rehabilitation, is accomplished with prosthetic appliances, including implants making it a costly enterprise. Therefore, RCT should always be considered whenever indicated as it not only favors the preservation of natural teeth but also has excellent clinical outcomes<sup>3,4</sup>.

Current endodontics is constantly evolving. This development offers not only new gadgets but also new management modalities. The most basic rule of contemporary endodontics is a painless and effective treatment<sup>2</sup>. However, fear of dental treatment is somehow frequent in the population.

Although RCT is highly prevalent, it is still considered by several patients as a process to be feared. Studies have shown that fear and anxiety are the main deterrents in looking for RCT<sup>5,6</sup>. These fears can be attributed to the ignorance of patients about root canal procedures. Patients often do not understand the nature of endodontic treatment and what it involves<sup>7,8</sup>. Studies in the past have highlighted the need to provide more information about it<sup>4,9</sup>.

Awareness is defined as information that somewhat exists or understanding of a condition or matter at the current time based on knowledge or practice<sup>2</sup>. Awareness of endodontic management is significant in educating persons on saving their natural teeth. Many studies on the awareness of RCT are still limited. Some studies recommend that the level of knowledge is highest in people of developed countries. Research carried out by the American Association of Endodontics (AAE) observed that 76% of participants have a preference for RCT over tooth extraction<sup>3</sup>. Just to compare, only 20% of Indian people are interested in endodontic treatment, while 38.5% choose extraction<sup>1</sup>. In contrast, the level of knowledge on roots canal may be impacted by different factors such as the attitude about dental health and sociodemographic<sup>2</sup>.

Janczarek et al.<sup>6</sup> reported that there is an enhancement of awareness and knowledge of individuals about the RCT.

This study aimed to evaluate patients' knowledge, awareness, and attitude toward endodontics treatment among the Lahore population. The criterion that directed the persons in deciding on root canal treatment has been investigated.

**Table 2**

**The patient's own experience regarding root canal treatment**

Questions	Response	Respondents, %
Have you had any endodontic treatment done before?	Yes	51
	No	49
How do you recall your endodontic treatment?	Well	76
	Bad	24
Was it a painful treatment?	Yes	49
	No	32
	Don't remember	19
Who performed the treatment?	Student	6
	Intern	18
	Experienced dentist	33
	Don't Know	43

**Methods**

Questionnaire surveys were carried out on a group of 209 patients at the Department of Operative Dentistry, Lahore Medical and Dental College, Lahore, Pakistan. A multiple-choice questionnaire was designed comprising sociodemographic questions of participants, as well as their awareness about RCT – their experiences, expectations, treatment costs, and possible complications. The obtained data are presented in tabular form.

The inclusion criteria were male or female patients from 14–75 years old that attended the Outpatient Department of Lahore Medical and Dental College, Lahore, Pakistan, while the exclusion criteria for the participants were the mentally handicapped patients, pediatric patients, and those older than 75.

*Statistical analysis*

The analysis of data was carried out by descriptive statistics and expressed as a percentage. The answers of the participants were analyzed by the  $\chi^2$  test with a 5% level of significance using IBM Statistical Program for Social Sciences Version 23.0 (SPSS Inc., Chicago Illinois, USA).

**Results**

Out of the 209 participants in the study, 43.5% were males and 56.5% were females. Table 1 shows the sociodemographic characteristics of the participants. The mean age of participants was  $34.72 \pm 13.61$  years, between 14 and 75 years of age.

**Table 1**

**Socio-demographic profile of participants**

Characteristics	n (%)
Gender	
male	91 (43.5)
female	118 (56.5)
Age range (years)	
14–29	94 (45.0)
30–39	49 (23.4)
40–49	33 (15.8)
50–59	19 (9.1)
60–69	11 (5.3)
≥ 70	3 (1.4)

Table 2 shows the patient's experience with endodontic treatment, in which 51% of subjects had experienced RCT in the past while 49% had no experience of the RCT. Out of the

total, 76% of subjects who had undergone endodontic treatment recalled it as a good experience, but 24% of participants had a bad experience with it. Interestingly, almost half of the participants did not remember who performed the treatment.

Concerning the reasons behind the endodontic treatment of the respondents, the majority of them reported toothache while eating or biting (15%) or strong spontaneous pain (29%) (altogether 67%), but many of them reported some other symptoms as strong spontaneous toothache and color discoloration (1%).

In the case of toothache, the majority of participants (60%) used some home remedies to relieve toothache.

Among participants, 22% of them had average knowledge concerning the endodontic treatment, and they were willing to learn more information about it, but 42% reported that they did not know anything (Table 3).

The majority of the participants (47%) worried about possible pain associated with the endodontic treatment, and 23% indicated a high cost of endodontic treatment value such as breaking of the instrument in the canal or multiple X-rays/Orthopantomographs (OPGs).

The high price of endodontic treatment plays a vital role in choosing between the endodontic treatment or tooth extraction. Of the total number of participants, 86% answered that high price changes their decision on endodontic treatment, while only 14% answered that high prices did not affect the decision of choosing endodontic treatment. Only 37% of participants were willing to pay a high cost for proper endodontic treatment, and 63% were reluctant to pay a high cost for dental treatment. However, 70% of respondents would not go for extraction in any case.

Considering the criteria for selecting the person who would perform the endodontic treatment, most participants (47%) reported that they would choose a specialist to perform the endodontic treatment, 33% answered that they would choose a dentist recommended by a friend or relative, a dentist without specialization 6%, and a dentistry student 1%. However, 13% of participants reported that the person performing the endodontic treatment was irrelevant.

In the final part of the survey, the participants were inquired regarding the criteria for choosing the dental office. The majority of them answered that highly professional staff was the most significant criterion for selecting the dental clinic. Of the total, 21% participants reported painless treatment as the criteria for selecting a dental office, and 14% reported friendly service (Table 4).

## Discussion

Nowadays, the RCT has been one of the fastest-growing fields of dental sciences. The use of the latest gadgets, such as new restoration materials, microscopes in daily practice, and rubber dams, considerably influences the durability and quality of the treatment. Conversely, the level of awareness concerning the RCT in individuals in the world varies from one area to another due to various technologies accessible, human population and resources, and many more reasons<sup>2, 9, 10</sup>.

Pain experience causes patients to hesitate the treatment and become more frightened of it<sup>8</sup>. The main reason for patients to avoid going to the dentist was the fear of pain<sup>10, 11</sup>. This may be the reason why patients delay treatments until they experience a spontaneous toothache<sup>12</sup>. Nevertheless, further studies revealed that dental fear may create oral health problems, as well as psychosocial problems for the individual<sup>13-15</sup>. Participants stated that painless treatment is much more important than the expense of the treatment. Physicians should always try to reduce the stress level of the patient, and the dentist should always make decisions in favor of the patients<sup>7, 16</sup>. A few studies<sup>11, 12, 17</sup> showed that people avoid check-ups at the dentist due to fear. The participants most often take pain killers, anti-inflammatory drugs, or even antibiotics. Patients also said that they prefer custom-made preparations or locally applied cotton swabs soaked in alcohol, placing ash from a burnt newspaper on the tooth lesion, keeping the cigarette smoke in the mouth, rinsing the mouth with water, baking soda, and vinegar. One of the patients applied the acupuncture technique in reducing pain. Acupuncture was also applied in the practice of decreasing the stress of dental visits and

**Table 3**

<b>Self-evaluation of patient's knowledge on the endodontic treatment</b>	
Knowledge parameters	Respondents, %
I know a lot	12
Average knowledge, I will ask from the dentist	22
Average knowledge, I am not interested in the course	6
I don't know anything	42
Will know from media/internet	18

**Table 4**

<b>The criteria for selecting a dental office</b>	
Selection criteria	Respondents, %
Free of charge treatment	7
Reasonable price	7
Friendly service	14
Professional staff	44
Painless treatment	21
Easy access for you	7

brought shockingly good outcomes. It has been recommended that the most suitable puncture points are the hand's feet and ears<sup>11, 18</sup>. Nevertheless, due to the decreased number of studies, such information needs further study.

Prices related to the RCT are still debatable. Patients often complain that they are too high and the treatment should be financed by insurance companies. However, half of the respondents were ready to pay even higher amounts to prevent tooth loss<sup>6</sup>.

According to the survey conducted by Daud et al.<sup>2</sup>, 52% of the patients gained knowledge about the treatment through their relatives and friends. Subjects who were unaware of the specialized treatment, reported the use of home remedies for relieving pain, which comprised the use of clove oil, balm application, self-medications, and heat pack, but they were mainly among the geriatric group (12.73%)<sup>8, 19</sup>.

Nearly half of the patients said they would prefer an endodontist to perform the treatment. This rate was much higher in other studies (68%). The proportion of patients who had not yet been acquainted with the concept of endodontists was much more than we expected. We believe that this was because patients were unaware of endodontics<sup>2, 20</sup>. In previous studies, the most important criterion for patients was the skill and experience of the staff<sup>6, 8, 21</sup>, which we noticed, too. More than half of the participants reported their endodontics treatment done before. Previous studies revealed that the patient–dentist relationship strongly affects a patients' feeling to be safe and secure<sup>19, 20</sup>. Therefore, practitioners should explain the course of the treatment to patients, including alternative treatment plans.

Participants stated that almost half of them would prefer a specialist for their treatments (47%). However, 33% stated that the RCT should be performed by an experienced dentist. That reveals patients' lack of knowledge about the endodontic concept.

The awareness of people regarding the RCT has improved considerably over the past years. This is not only due to school education but also mostly due to mass media – television, newspapers, and the internet. People are aware of the chances accessible by the latest dental practices – not just to achieve instant relief of pain, but also to perform the management at the utmost level – ensuring long-term radiological surveillance, enabling observation of outcomes achieved, allowing immediate intervention in case of exacerbation of symptoms, and monitoring the effects of treatment.

### Conclusion

Awareness levels of the patients concerning the RCT are different among races and populations. Knowledge of patients about endodontic treatment has been increased, and specialist dentist is the first choice of the majority of patients.

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