



## Knowledge and awareness of root canal treatment among general public of Arar, Saudi Arabia

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### Abstract:

**Background:** Root canal treatment (RCT) is mainstay nowadays to save the precious natural tooth in the oral cavity. The present study was done to assess the knowledge and awareness of the general public regarding the root canal treatment. **Materials and methods:** This cross-sectional questionnaire based survey was distributed to a random sample of the population of Arar, Saudi Arabia. It was done over a period of 3 months. The study was done with the help of specially prepared questionnaire which were validated by doing pilot study. The questionnaire was given to the participants by contacting them personally. The questionnaire used in the study comprised of 13 questions related to need of RCT, antibiotic role in endodontic infections, pain of RCT, etc. **Results:** A total of 305 participants responded including 221 (72.45%) males and 84 (27.54%) females. Most common age group which responded was 16 to 25 years (29.18%). It was found that 73.77 % participants answered that endodontic infections cannot be resolved only with antibiotics without endodontic treatment, 40.65 % participants answered that tooth becomes weaker with RCT, 50.24 % of the participants responded that two visits were required for treatment, 57.37% preferred specialist for endodontic treatment, 70.81% responded that anxiety was present during the procedure and 65.57% participants experienced pain during or after the treatment. **Conclusion:** Patients' knowledge and awareness regarding endodontic treatment may influence the decision-making and choice of the treatment. The results of this survey demonstrate the importance of integrating evidence-based practice concepts into teaching curriculum, continuous education courses, and post-graduate studies. However, further studies are necessary to evaluate this trend.

**Key words:** general public, endodontic treatment, root canal treatment

### Introduction:

Endodontics is one of the most to be afraid of procedures in all fields of dentistry. The dentist states that modern root canal treatment is comparatively painless because pain can be controlled. Major holdup of root canal treatment is that most patients lack the knowledge. They do not know what root canal treatment involves and what the benefits of such treatment are. Most patients fear root canal treatment because it is painful.<sup>1</sup>

Endodontics is the branch of dentistry concerned with the morphology, physiology and pathology of the human dental pulp and peri-radicular tissues. Its study and practice include the basic and clinical sciences including the biology of

the normal pulp and the etiology, diagnosis, prevention and treatment of diseases and injuries of the pulp and associated peri-radicular conditions.<sup>1</sup>

As oral healthcare neglect leads to advancement of dental caries to reach the pulpal space thereby indicating root canal treatment, patients seem to have a major concern regarding RCTs in terms of the number of visits required to complete the treatment and the amount of pain anticipated during treatment.<sup>2,3</sup> Moreover, there are other factors besides the pain and duration of treatment that may affect the conclusion when it comes to treatment planning; these include the patient's socio-economic status, patient's commitment to treatment, attitude and behaviour, and the patient's own preference.<sup>4</sup>

This survey study was conducted to evaluate the public's knowledge and perception toward endodontic treatments, and to evaluate their preference when it comes to different treatment options when provided.

### Materials and Methods:

This cross-sectional questionnaire based survey was distributed to a random sample of the population of Arar, Saudi Arabia. It was done over a period of 3 months. The study was done with the help of specially prepared questionnaire which was validated by doing pilot study. The questionnaire was given to the participants by contacting them personally or using e-mails. Approval of the ethical committee was taken before start of the study. Informed consent of each of the participants was also taken. Based on a pilot study and considering the population number, the sample size was calculated with the confidence level set to 95%.

The questionnaire used in the study comprised of 13 questions related to need of RCT, antibiotic role in endodontic infections, pain of RCT, visits required for RCT, criteria for selecting person for the treatment, anxiety during procedure, cost of the treatment, selection of the dental office, importance of proper treatment, etc.

### Inclusion criteria:

1. Persons over the age of 15 years in which permanent teeth have started erupting and exposed to the oral environment for some period of time and who will be able to respond to the questions correctly
2. Persons who are willing to participate in the study
3. Persons who have submitted responses

### Exclusion criteria:

1. Un-cooperative patients
2. Persons below the age of 15 years
3. Persons who were not mentally stable

4. Persons related to the field of dentistry or medical profession

The collected data was tabulated and analyzed using methods of descriptive statistics as percentage/ proportions. The responses of the participants were assessed by Chi-square test with the help of IBM SPSS statistics version 16.

### Results:

A total of 305 persons responded to the questionnaire and after evaluation of the adequacy of the responses, the data was subjected for statistical analysis. Out of these, 221 (72.45%) were males and 84 (27.54%) were females (**Table I**). Most common age group which responded was 16 to 25 years (29.18%) (**Table II**).

**Table I:** Demographic data of the participants

Gender	Number	%
Male	221	72.45
Female	84	27.54
<b>Total</b>	<b>305</b>	<b>100</b>

**Table II:** Demographic data of the participants (Age)

Age group (years)	Number of participants	%
16-25	89	29.18
26-35	74	24.26
36- 45	63	20.65
46- 55	47	15.40
56 and above	32	10.49
<b>Total</b>	<b>305</b>	<b>100</b>

When the participants were questioned related to resolve of endodontic infections using antibiotics alone, it was found that 73.77 % participants answered that it cannot be resolved with antibiotics without endodontic treatment. The descriptive analysis was shown in **Table III**.

When the participants were assessed for knowledge of each toothache requiring RCT, also most of the participants (71.47 %) responded that not each toothache indicates the need for the RCT.

Analysis of the participants' responses regarding the weakness of the tooth after endodontic treatment revealed that 40.65 % participants answered that tooth becomes weaker with RCT. The results were reflected in **Table III**.

When participants were analyzed for pain of RCT and tooth extraction, no significant difference was found between the participants. Regarding visits required for

endodontic treatment, 50.49 % of the participants responded that two visits require treatment, while 42.29% responded that three visits were required for completion of treatment. Most of the participants (57.37%) prefer specialist for endodontic treatment, while 35.73 % participants prefer recommended doctor for the treatment (**Table IV, Figure I**).

**Table III:** Questionnaires and answers

Questions	Answer	Total	%	'P' value
Can antibiotics alone resolve endodontic infections without the need to visit a dentist?	Yes	80	26.22	0.004*
	No	225	73.77	
Does any toothache indicate the need for RCT?	Yes	87	28.52	0.001*
	No	218	71.47	
Do teeth become weaker after RCT?	Yes	124	40.65	0.040**
	No	181	59.34	

**Table IV:** Questionnaires and answers

Questions	Answer	Total	%	'P' value
Is RCT more painful than tooth extraction	Yes	141	46.22	0.37***
	No	164	53.77	
How many visits does the RCT need to be completed?	One	22	07.21	0.041**
	Two	154	50.49	
	Three	129	42.29	
	Four	00	00	
The criteria for selecting the person for performing endodontic treatment	Students of dentistry	10	03.27	0.036**
	Recommended doctor	109	35.73	
	Specialist	175	57.37	
	Doctor without specialization	06	01.96	
	Not important	05	01.63	
	Yes	141	46.22	

**Table V:** Questionnaires and answers

Questions	Answer	Total	%	'P' value
Did you experience anxiety during the treatment?	Yes	216	70.81	0.001*
	No	89	29.19	
Have you experienced pain during or after root canal treatment?	Yes	200	65.57	0.001*
	No	105	34.43	
Have you got a post-endodontic (R.C.T) restoration and crown placement done?	Yes	195	63.93	0.001*
	No	110	36.07	

**Table VI:** Questionnaires and answers

Questions	Answer	Total	%	P value
What is the important thing that makes you scared of root canal treatment?	Pain after treatment.	21	06.88	0.26**
	Breaking the instrument in the root canal	42	13.77	
	Swallowing the chemical irrigation solution	62	20.32	
	Cost of treatment	27	08.85	
	Long treatment time	62	20.32	
	Pain during treatment	91	29.83	
Would you prefer to pay a high treatment price to make sure of the proper treatment?	Yes	208	68.19	0.001*
	No	97	31.81	
The criteria for selecting dental office-	Free of charge treatment	44	14.42	0.071
	Professional staff	126	41.31	
	Reasonable price	36	11.80	
	Painless treatment	28	09.18	
	Friendly service	43	14.09	
	Quick and easy access	28	09.18	
Does the price influence your decision about not taking endodontic treatment?	Yes	141	46.22	0.54***
	No	164	53.78	

\*Statistically highly significant. \*\* Statistically significant. \*\*\* Statistically not significant

When asked about the anxiety during RCT, 70.81% responded that anxiety was present during the procedure and 65.57 % participants experienced pain during or after treatment. The results of the descriptive statistics were shown in **Table V**.

When analyzed for the most important thing which makes patients scared during treatment, the response was more in favor for pain during the treatment (29.83%) followed by swallowing chemicals during treatment (20.32%) (**Figure II**). Most of the patients (68.19%) were ready to pay high cost for the surety of proper RCT. As expected, 46.22% of the participants responded for presence of professional staff for selecting the dental office (**Table VI, Figure III**).

### Discussion:

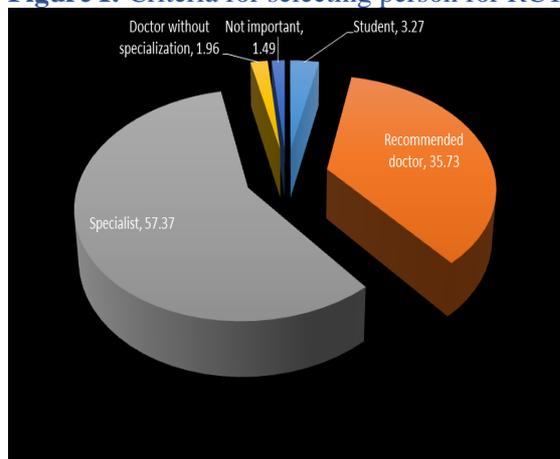
After a clinician has diagnosed an endodontic problem, he must define

whether the patient's oral health needs are best met by providing endodontic treatment and preserving the tooth or by advising extraction. Increased knowledge concerning the importance of anxiety control, pre-medication with a non-steroidal anti-inflammatory drug or acetaminophen, profound local anesthesia, appropriate occlusal adjustment, and biology-based clinical procedures enable clinicians to complete endodontic procedures deprived of intra-operative or post-treatment pain.<sup>1</sup>

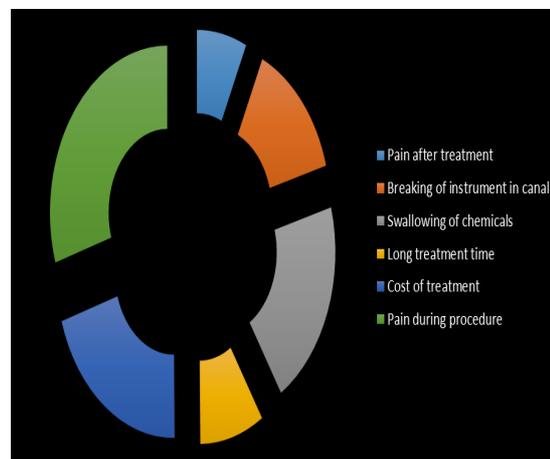
Indications of root canal treatment are irreversible pulpitis, per apical periodontitis, crown fractures involving the pulp, acute per apical abscess and when the vitality of pulp is doubtful. Root canal treatment is contraindicated in patient with poor oral hygiene, poorly motivated patients, patients with poor

general health, and the very old and in patients with infective endocarditis. However, the treatment modality is generally decided based not only on the diagnosis but also on complex factors such

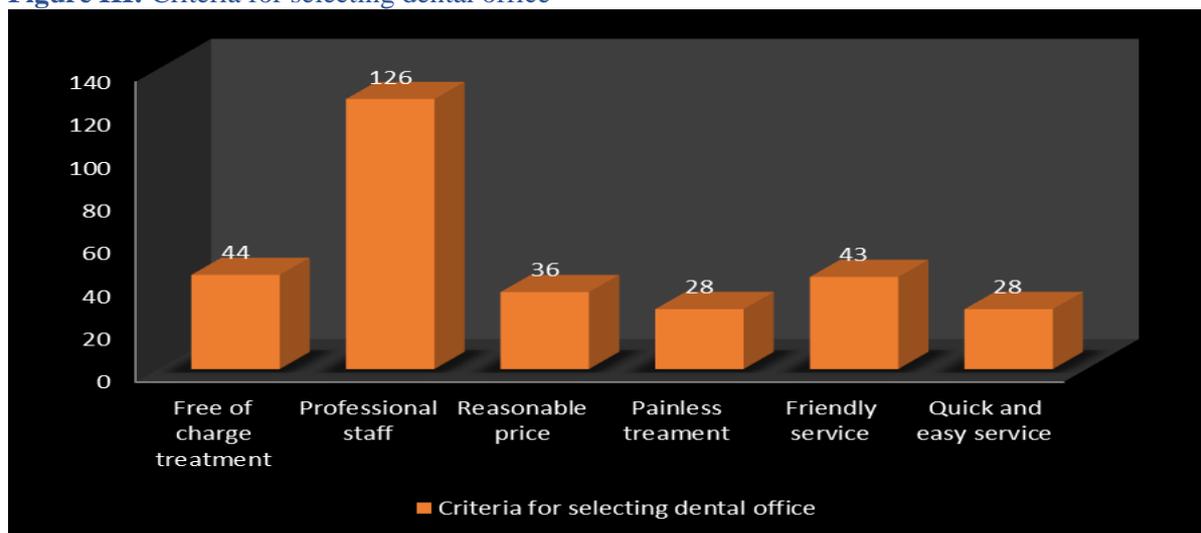
**Figure I: Criteria for selecting person for RCT**



**Figure II: What makes you scared of RCT?**



**Figure III: Criteria for selecting dental office**



as the dentist's judgment, the patient's opinions and expectations, and socio-economic factors, such as the patient's method of payment for treatment expenses.<sup>1</sup>

Endodontics deals with pulpal tissue of teeth which comprises of nerves and blood vessels. Endodontic therapy also known as endodontic treatment or the root canal treatment includes the removal of diseased tissue and protection of the disinfected tooth from future entrenchment by microorganisms.<sup>5</sup> Root canal treatment

avoids the severance of periodontal fibers that play an important role in proprioception for occlusal response which is of great importance for prevention of damage to temporo-mandibular joint.<sup>6</sup> Also, numerous systematic reviews suggest that RCT aids in the lengthier duration of retention of teeth having pulpal or peri-radicular infections that otherwise might have been extracted.<sup>7,8</sup>

When the participants were questioned related to resolve of the endodontic infections using antibiotics alone and

analysis of the participants' responses regarding the weakness of the tooth after endodontic treatment, it was found that 73.77 % and 40.65% of the participants answered that it cannot be resolved with antibiotics without endodontic treatment and tooth becomes weaker with treatment respectively. Similar results were seen in study by Aldaswari M et al<sup>3</sup>, where 89.1% answered that it cannot be resolved with antibiotics without endodontic treatment and 69.7% answered that tooth becomes weaker with RCT.

In the present study, most of the participants (57.37%) prefer specialist for the endodontic treatment; similarly in previous studies by Ahamed ZH et al<sup>9</sup>, Janczarek et al<sup>10</sup>, Doumani et al<sup>11</sup> and Habib AA<sup>1</sup> demonstrated that 86.6 %, 38%, 68% and 49.7% (respectively) of the subjects preferred a specialist to carry out the treatment. The high percentage of the participants willing to get their treatment done by the specialist in our present study is attributed to an increased awareness and knowledge regarding root canal treatment. When asked about the anxiety during the RCT, 70.81% responded that anxiety was present during the procedure and 65.57 % participants experienced pain during or after the treatment. Anxiety and pain are interlinked and considered pivotal factors that make the patients indecisive from undergoing a root canal treatment.<sup>5</sup>

Most of the patients (68.19%) were ready to pay high cost for the surety of proper RCT, which was in accordance with the results by Ahamed ZH et al<sup>9</sup> and Habib AA<sup>1</sup>, in which 67.4% and 78.3 % participants respectively were ready to pay high treatment price.

In a study by Ahamed ZH et al,<sup>9</sup> pain after treatment 30.28% and pain during treatment 20.10% were the most important things which makes patient scared during the treatment. Also in our study, 29.83% of the participants were scared of the pain factor.

The basic principle of modern endodontics is painlessness and effectiveness of the treatment. Properly conducted interview with the patient helps in deciding on the appropriate therapeutic treatment, especially with regard to endodontics, which often prevents tooth loss.

### Conclusions:

From the findings of this survey study, it seems that the public is aware of the importance of preserving natural teeth. Patients' knowledge and awareness regarding endodontic treatment may influence the decision making and choice of the patients; it may prevent them from receiving the therapy. There has been increased knowledge and concern of patients about endodontic treatment among Saudi population. Cost associated with endodontic treatment, professionalism and competence of clinician are crucial factors that affect decision making in endodontics.

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