



**RESEARCH ARTICLE**

**PERCEPTION OF MULTIPLE DENTAL VISITS FOR ROOT CANAL TREATMENT AMONG THE  
DENTAL STUDENTS - A QUESTIONNAIRE BASED STUDY**

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**ABSTRACT**

**Introduction:** Root canal treatment is a procedure that requires concentration and precision while performing in a confined space of the root canal system of the tooth. For the undergraduate students it's a challenging procedure. Hence a questionnaire survey was conducted among 200 students of 4 dental colleges. **Methodology:** A self-administered questionnaire was distributed among the students. The questionnaire was divided into four main sections, which evaluated student perception regarding single and multiplevisit treatment, patient cooperation, and the nontherapeutic reasons for multiplevisits treatment. The collected data were tabulated and analyzed. **Results:** Most of the students are currently practicing both single visit and multiple visits. The main factors consider for multiple visit Root Canal Procedure is allow time for lessening the symptoms before obturation, reduction of post-operative pain , high success rate , easy collection of treatment fees from patient during multiple visit, patient time constrain. **Conclusion:** Single-visit RCT is a stressful event for dental students especially if the treated tooth were multiple-rooted such as anterior and premolar teeth.

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**INTRODUCTION**

Root canal treatment is a procedure that requires concentration and precision while performing in a confined space of the root canal system of the tooth (Ahmad, 2015). Traditional endodontic treatment used to take multiple visits to complete with one of the main reason for this being the length of time required to complete the treatment. Multiple visit treatment is well accepted as safe and common therapy (Sathorn *et al.*, 2009). It is generally believed that remaining bacteria can be eliminated or prevented from repopulating by introducing an inter-appointment dressing in the root canal (Bystrom *et al.*, 1985; Chong *et al.*, 1992). Therefore, most of the infected canal prefers multiple visit root canal therapy. On the other hand, dental practitioners prefer multiple-visit RCTs (Sathorn *et al.*, 2009; Dorasani *et al.*, 2013). The popularity of multiple-visit RCT is mainly based on the use of intra-canal medicament to control microbial infection within the canal (Kawashima *et al.*, 2009). However, the current trend indicates that more than 50% of dental practitioners do not use intra-canal medicament in multiple-visit RCT (Sathorn *et al.*, 2009).

Moreover, multiple-visit RCT in clinical training is unavoidable owing to insufficient operator skills and/or limited patient cooperation. The aim of the present study was to investigate dental students who are practicing the root canal procedure regarding multiple visits RCT, how the information necessary for patient is acquired, by surveying dental students, a broad questionnaire study.

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**MATERIALS AND METHODS**

**Study participants:** This study involved the dental students who were practicing the root canal procedure, their participation was voluntary. The colleges involved in this study were Tagore Dental College and Hospital, Sri Venkateshwara Dental College and Hospital, Karpaga Vinayaga Dental College and Hospital, Adhiparasakthi Dental College and Hospital. Total of 200 samples of questionnaire were collected. Inclusion criteria were those who were practicing the Root Canal Procedure, exclusion criteria was post graduate students in Conservative Dentistry & Endodontics. This research has obtained ethical clearance from the institutional review board and ethical approval committee of Adhiparasakthi dental college and hospital.

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**Questionnaire development and validation:** To the best of our knowledge, this is study that aimed to evaluate students' perception towards the multiple visit root canal treatment. Therefore, the study questionnaire was piloted and tested among the dental students who were practicing the root canal procedure. The questions were divided into three sections, which were clear and concise.

**Study questionnaire:** The questions were divided into three section; knowledge, attitude, practice.

**Perception of multiple dental visits for root canal treatment among the dental practitioners: a questionnaire based study**

	No. of roots	Single visit	Two visits	More than two visits
a)	Single rooted (vital)			
b)	Single rooted (non-vital)			
c)	Multiple rooted (vital)			
d)	Multiple rooted (non-vital)			

### Knowledge

1) Are you currently practicing RCT?

- a) Yes b) No

2) How many years you have been practicing dentistry? -----

3) In general, would you prefer multiple visit or single visit RCT? -----

4) Number of visits to complete Endodontic therapy

1) Whether the patient is cooperative to multiple visits RCT?

- a) Yes b) No

2) When do you prescribe analgesics?

- a) During pain  
b) Sinus tract present  
c) During swelling  
d) Tender on percussion

### PRACTICE

1) How are you currently practicing RCT?

- a) Only single visit  
b) Only multiple visit  
c) Predominantly single visit  
d) Predominantly multiple visit  
e) Both single visit and multiple visit

2) What type of irrigant do you prefer for cleaning and shaping of the canal?

- a) Sodium hypochlorite  
b) Sodium hydroxide  
c) EDTA  
d) Chlorhexidinedigluconate  
e) MTAD

3) To prepare the canal what do you use routinely?

- a) Stainless steel hand file  
b) Ni-Ti hand file  
c) Endodontic instruments  
d) Rotary instruments

4) How long do you take to complete the RCT procedure?

	Less than 45 mins	One hour	More than one hour
a) Access opening			
b) BMP			
c) Obturation			

5) Do you prefer Intra Canal Medicaments?

- a) Yes b) No

6) If yes, what type of material do you prefer? (please specify)-----

7) Do you prescribe antibiotics for patient undergoing Endodontic Treatment?

- a) Yes b) No

### ATTITUDE

1) What factors would you consider for multiple visit RCT?

	Agree	Neutral	Disagree
a) Lengthy treatment can be shortened to several appointments			
b) Tooth with doubtful prognosis can be assessed during the treatment process			
c) Positive effects of inter appointment medication dressed in root canal			
d) Allow time for lessening of symptoms before obturation (example: pain, abscess)			
e) Reduction of post operative pain			
f) High success rate			
g) Easy collection of treatment fees from patients during multiple visits			
h) Dentists preference / Favourable previous experience			
i) Patient preference / favourable previous experience			
j) Patient time constraint			
k) Dentists time constraint			

Others: (Please specify) -----

1) Which factor above in Question no.1 would you consider to be the most important factor for you to prefer multiple visit RCT? -----

2) When would you start RCT?

- a) As soon as after diagnosis  
b) After prescribing medications for few days

### RESULTS

A total 200 questionnaire were returned, among them the students currently practicing the Root Canal Procedure is 81.5% (163/200).

Those who prefer multiple visit is 85% (170/200). Number of visits preferred to complete endodontic therapy in single rooted vital tooth 67.5 %( 135/200), they prefer two visit to complete Root Canal Procedure where as non-vital 61.5 %(123/200), they prefer single visit. In multiple rooted vital tooth 52.5% (105/200), they prefer more than two visit where as in non-vital 62.5% ( 125/200), they prefer two visit. 53.5% patient was cooperative to multiple visits Root Canal Procedure when compared to single visit. Most of the students are currently practicing both single visit and multiple visits(44.5%). The main factors consider for multiple visit Root Canal Procedure is allow time for lessening the symptoms before obturation example (pain, abscess), reduction of post-operative pain , high success rate , easy collection of treatment fees from patient during multiple visit, patient time constrain.

## DISCUSSION

Questionnaire-based studies are practical and allow information gathering from a large number of people in a short span of time and in a relatively cost-effective manner. In addition, questionnaires can be carried out by any number of people with limited effect on the study's validity and reliability (Popper, 2004; Ackroyd, 1981). The response rate in this study was high due to good communication with the study target and the use of a multimode approach (Fincham, 2008). As we mentioned earlier, two visits RCT is an acceptable procedure for both single-rooted, as well as multi-rooted teeth. To deliver this information and revise training guidelines, we should first understand how students perceive multiple-visit RCTs. The major findings of this study are that dental students perceive multiple-visit RCTs as a grateful event regardless of the tooth type, because it allow time for lessening the symptoms before obturation example (pain, abscess), reduction of post-operative pain , high success rate , easy collection of treatment fees from patient during multiple visit, patient time constrain . Clinical training and the concern of maintaining patient compliance to attend dental visits has been recognized as a stressful event by dental students in Saudi Arabia (Al-Saleh *et al.*, 2010) The endodontists documented that they preferred multiple visits to a single-visit even when there were no medical concerns and the choice of treatment depended upon the operator's preference and not on the patient's medical concerns. This questionnaire-based study was limited to dental students. However, to the best of our knowledge, this is the first study to document dental students' perception toward multiple-visit RCT and its effect on patient cooperation. Therefore, the focus should be made on such strategies that can be helpful in making the multiple visits comfortable for patients. A study conducted on special-needs patients in Australia documented that 69.1% specialist practitioners undertook single-visit root canal, and among general dentists, 75.7% opted for extraction in preference to RCT (Yap, 2015) Another study in Brazil reported that the need for single or multiple visits mainly depends upon tooth vitality, and the success rate of both is comparable (de Souza Netto *et al.*, 2014) However, a single-visit saves the patient's time and has good acceptance from the patient. Nevertheless, reasons such as pain, swelling, and tooth structure demand for multiple visits (Naito, 2008). The major listed problem to not perform root canal treatment in single visit is the importance of using an intracanal medication to promote a better disinfection process. The most reported intracanal medication was calcium hydroxide for the time of seven days.

Several studies highlighted the benefits of the use of calcium hydroxide during endodontic therapy (Sjogren *et al.*, 1997; Sjogren *et al.*, 1990). Trope (Trope, 1991) demonstrated that the use of intracanal medication with calcium hydroxide can improve healing when compared to single visit therapy. Despite of the well-known disinfection properties of this medication, several studies demonstrate its inability to completely eliminate microorganisms from the root canal system (Machado, 2007; Peters, 2002; Peters *et al.*, 2002). Vivacqua-Gomes *et al.* (2005) demonstrated that calcium hydroxide was unable to eliminate *Enterococcus faecalis* scompletely from dentinal tubules after seven or fourteen days. Multiple visit endodontic treatment could be a direct result of lacking adequate clinical time to complete the treatment in a single visit. They may prefer to wait till the complete subsidence of pain and other symptoms before obturating the canal system. Another possible explanation could be that the initial visit was used for treating the pain and acute symptoms. Endodontics is a dynamic, evolving discipline with considerable advances in techniques and materials over the last decade. The present small-scale study may not necessarily represent the true picture; however, it can be used as reference for a larger survey in the future.

## Conclusion

Single-visit RCT is a stressful event for dental students especially if the treated tooth were multiple-rooted such as anterior and premolar teeth. Dental students are aware of the negative effect of single-visit treatment on patient compliance. Clinical training should consider single-visit treatment for single-rooted teeth and multiple visit for multiple rooted teeth.

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