

## A Qualitative Study on Understanding of Endodontic Procedures among Undergraduate Students

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### Abstract

**Aim:** The present study aimed to identify undergraduate student's perceptions of endodontic treatment through a survey, which analyzed student profiles and their difficulties. **Materials and methods:** Fifty students who had experienced endodontic, laboratory or clinical procedures responded a survey based on their experiences, concerning their perceptions, experience and self confidence levels. **Results:** About 50.9% of the undergraduates noted having some trouble when taking periapical radiographs. About 67% of the undergraduates had problems identifying root canals. Whereas in case of intracanal medication and irrigation doesn't pose any significant difficulty. **Conclusion:** This survey study helped to discover various loop-holes in the education agenda which, if changed correctly, would be of great help to both the quality of undergraduate's performance and the time dentistry schools spend trying to deal with these issues.

**Keywords** Endodontics, Undergraduate, Dentistry, Experience.

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### INTRODUCTION

The common objective of dental programs is to generate graduates capable of delivering quality dental care to all sectors of the population. Undergraduate (UG) dental education in India is characterized by a high number of theoretical classes that result in complete knowledge of various dental materials and procedures along with laboratory and clinical courses those results in frequent patient encounters during the clinical years [1]. The perceptions of dental undergraduates about their educational experiences is a significant aspect in the development of teaching methodologies. A number of issues, such as clinical experience, teacher/student/patient relationships, clinical application of theory, extracurricular activities, self-confidence and student commitment, can hugely influence learning and practice. Dentistry programs intends to educate dental professionals based on knowledge and training. Students enrolled in Endodontics must be able to work at all levels of health care, built on technical and scientific knowledge [2]. Bruce J. Baum recommended

that dental schools should aim to produce a graduate who:

- Is a lifelong learner, capable of being able to grow and acclimatize as change occurs in our science base and health care system?
- Has a sense of civic responsibility.
- Is technically capable enough at dental surgical procedures.
- Is competent at handling oral medical disorders.
- Is competent in treating ambulatory, medically compromised individuals [3].

Among other things, the undergraduate Endodontic discipline aims to develop tactile augmentation and improve familiarity with external and internal dental anatomy in all phases involving endodontic treatment and diagnosis. Due to the anatomical intricacy of root canals, many students, during their training, report not feeling sufficiently prepared to perform some treatments, for example molar endodontic treatment. This fact combined with the personal responsibility related to the patient's health is considered a huge challenge, although it can also be a

impetus for self-improvement [2]. Many students report that they do not feel sufficiently equipped to carry out some treatments during their practice. This is especially true of molar root canal therapy, because of the anatomical variety and difficulty of root canals [4]. It is essential to understand how dental students feel about the worth of different components during their studies. Hence, feedback is an essential part of the assessment process, and competent evaluation can be achieved by the right information, geared toward the success of students and the program [5].

## AIM OF THE STUDY

The present study aimed to identify student's perceptions of the difficulties of endodontic treatment using a survey to analyze student's profiles and difficulties and to have a discourse about possible solutions.

## MATERIALS AND METHODS

The study comprised of 50 undergraduate dental students. Participation was voluntary, and students were informed that they could refuse

participation. A questionnaire was distributed to 10 3<sup>rd</sup>-year and 40 4<sup>th</sup>-year students in the final month of the academic year after they had had the maximum amount of training. The study was briefly described to the participants.

The questionnaire consisted of 13 open-ended questions. Participants were assessed by their response to questionnaire. The questionnaire is formulated in English language in a close-ended format. The questions evaluated confidence at executing non-surgical root canal treatment and experiences in this discipline. Once questionnaire was filled by all the participants and data was entered in the Excel and was subjected for statistical analysis.

## STATISTICAL ANALYSIS

To compare results, the Chi-square test and Mann-Whitney U-test were used. Statistical analyses were carried out using SPSS version 20.0 (SPSS, Chicago, IL, USA). Statistical significance was set at  $P < 0.05$ .

## RESULTS

**Table-1: Student's responses for the 13 questions (percentage)**

STUDENT RESPONSES	YES	NO
Question 1: Is it difficult to take periapical radiograph?	50.9 %	49.1%
Question 2: Is it difficult to perform anesthesia?	20.8	79.2
Question 3 Is there any difficulty in placing Rubber- dam?	37.7	62.3
Question 4: Is there any difficulty in opening endodontic access cavity?	36.8	63.2
Question 5: Is there any difficulty in removing pulp chamber roof?	47.2	52.8
Question 6: Is there any difficulty in identifying root canals?	67	33
Question 7: Is it difficult to determine working length?	47.2	52.8
Question 8: Is there any difficulty in mechanical preparation?	35.8	64.2
Question 9: Is there any difficulty during irrigation procedure?	12.3	87.7
Question 10: Is it difficult to apply intracanal medicament?	10.4	89.6
Question 11: Is there any difficulty in the radiographic verification of master cone adaptation?	41.5	58.5
Question 12: Is there any difficulty during root canal obturation?	54.7	45.3
Question 13: Is it difficult to remove excess gutta- percha from pulp chamber at desired level?	35.8	64.2

**Table-2: Co-Relation between answers to specific questions in form of P value**

Answers to which questions which were co-related	P value
Question 4: Having trouble in opening access cavity	0.002
Question 5: Having trouble in removing pulp chamber roof	0.013
Question 7: Having trouble in determining working length	0.078
Question 11: Having trouble in adaptation of master gutta- percha cone	0.016

The survey was given to 50 undergraduates who had commenced all endodontic courses during the same semester. (Table 1) About 50.9% of the undergraduates noted having some trouble when taking periapical radiographs. About 67% of the undergraduates had problems identifying root canals. On the other hand, there was a declining percentage (58.5%) of those facing problems related to radiographic corroboration of master cone placement.

The outcomes for "root canal obturation" showed that 54.7% of the dentistry students reported trouble. Most of the students did not report any trouble; particularly, in the irrigation procedure (87.7%) and application of intracanal medication (89.6%) (Table 2).

## DISCUSSION

Root canal treatment is a very subtle procedure, depending on the success of several stages.

Even a single complication in only one step can cause a negative prognosis [6]. Although the latest advances and techniques used in root canal treatment have been anticipated to make the procedure easier, it is still sufficiently multifaceted to be overwhelming for both patient and practitioner [7]. Many dental students have reported feeling stressed and overwhelmed at some point in their education [8]. A large percentage of the dental students find learning endodontics to be intricate, challenging, and stressful because of the various anatomies of teeth and root canals, their responsibility to the patient, and low self-confidence. Because of these issues, many of the students claimed to be incompletely prepared to perform procedures or to make accurate judgments in difficult cases [9]. Changing the methods of teaching endodontics so that students can complete root canal treatment more effortlessly and quickly, with negligible procedural accidents, will improve clinical outcomes [10]. Low self-confidence can be amended by increasing clinical exposure, which will help students to obtain the necessary skills through experience [11]. With this study, the quality of their endodontic education could also be considered. An efficient student-teacher relationship has been reported to be fundamental for good student development [12]. The learning experience of a dental student has commonly been centered on the teaching crew, whose role is to transfer theoretical and practical knowledge and skills based on their clinical experience. To absorb this knowledge and these skills, dental students must understand why they are learning certain content so that they can make judgments that apply in actual situations [13]. Regarding the complications in taking periapical radiography, our study showed that more than half of the students were having distress. Likewise, in 2009, Peker and Alkurt specified that the incorrect angulation with regard to anatomical areas was one of the most common errors amongst the students when taking periapical radiographs [14]. To overcome this problem, the theory must be demonstrated using practical models [15]. In our view, using apex locators and precise radiographic film positioners may be useful once undergraduates approach and apply this knowledge properly. Additional problem was related to root canal obturation which students in this study find it difficult. Likewise, some studies have specified that the quality of root canal obturation was far from ideal [16]. In addition, root canal therapy is an extensive procedure with many steps because of manual preparation and obturation techniques. On the other hand, the students described having the minimum difficulty in irrigation procedures and intracanal medicament application. This may be linked to the irrigation procedure needing less time and effort than other stages of root canal treatment, predominantly when associated to mechanical preparation and root canal obturation [3].

## CONCLUSION

Defining the major problems of undergraduate students during endodontic treatment may help detailing teaching plans during the endodontics education process [4]. According to the present study, points that need to be given greater importance during the education process are periapical radiographs, identification of root canals, and root canal obturation. Although additional studies should be obligatory about this subject, this survey study helped to realize various gaps in the education agenda which, if transformed correctly, would be of great benefit to both the quality of undergraduate's performance and the time dentistry schools spend trying to deal with these issues.

## REFERENCES

1. Soni, A., Jain, P.(2019). Obstacles in the Journey of a Dental Undergraduate Student. *Int J of Curr Med Pharm Res*, 5(5), 4223-4236.
2. Lorrane, G.(2019). Tavares. Undergraduate dentistry student's perception of difficulties regarding endodontic treatment. *Aust Endod J*, 45: 98-105.
3. Kaplan, T., Sezgin, G.P., Sönmez- Kaplan, S.(2020). Dental students' perception of difficulties concerning root canal therapy: A survey study. *Saudi Endod J*, 10:33- 38.
4. Jirge, V.L.(2015). Need for paradigm shift in Indian dental education: A case for change toward competency based education. *J Indian Acad Oral Med Radiol*, 27(2):230-236.
5. Seijo, M.O., Ferreira, E.F., Ribeiro, Sobrinho, A.P., Paiva, S.M., Martins, R.C.(2013). Learning experience in endodontics: Brazilian students' perceptions. *J Dent Educ*, 77:648- 655.
6. Barrieshi- Nusair, K.M., Al- Omari, M.A., Al- Hiyasat, A.S.(2004). Radiographic technical quality of root canal treatment performed by dental students at the dental teaching center in Jordan. *J Dent*, 32:301- 307.
7. Kuzekanani, M.(2018). Nickel- titanium rotary instruments: Development of the single- file systems. *J Int Soc Prev Community Dent*, 8:386- 90.
8. Henzi, D., Davis, E., Jasinevicius, R., Hendricson, W., Cintron, L., Isaacs, M.(2005). Appraisal of the dental school learning environment: The students' view. *J Dent Educ*, 69:1137- 1147.
9. Rolland, S., Hobson, R., Hanwell, S.(2007). Clinical competency exercises: Some student perceptions. *Eur J Dent Educ*, 11:184- 191.
10. Peru, M., Peru, C., Mannocci, F., Sherriff, M., Buchanan, L.S., Pitt, Ford, T.R.(2006). Hand and nickel-titanium root canal instrumentation performed by dental students: A micro-computed tomographic study. *Eur J Dent Educ*, 10:52-59.

11. Rolland, S., Hobson, R., Hanwell, S.(2007). Clinical competency exercises: Some student perceptions. *Eur J Dent Educ*, 11:184–191.
12. Gerzina, T.M., McLean, T., Fairley, J.(2005). Dental clinical teaching: Perceptions of students and teachers. *J Dent Educ*69:1377- 1384.
13. Alam, M.(2013). Banking model of education in teacher- centered class: A critical assessment. *Res Hum Soc Sci*, 3:27- 31.
14. Peker, I., Alkurt, M.T.(2009). Evaluation of radiographic errors made by undergraduate dental students in periapical radiography. *N Y State Dent J*, 75:45- 48.
15. Chandrasekaran, B., Cugati, N., Kumaresan, R.(2014). Dental students' perception and anxiety levels during their first local anesthetic injection. *Malays J Med Sci*, 21:45- 51.
16. Moradi, S., Gharechahi, M. (2014). Quality of root canal obturation performed by senior undergraduate dental students. *Iran Endod J*, 9:66- 70.