

Survey of attitude, skills, materials and methods employed in endodontic treatment by general dental practitioners in Delhi

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Citation of this Article: Nimra Iqbal, Rohit Kochhar, Ruchika Dewan, Manju Kumari, “Survey of attitude, skills, materials and methods employed in endodontic treatment by general dental practitioners in Delhi”, IJDSIR- June - 2020, Vol. – 3, Issue -3, P. No. 09 – 14.

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Type of Publication: Original Research Article

Conflicts of Interest: Nil

Abstract

Background: Root canal treatment is considered an essential element in the dental services provided to the population in developed countries. Various investigations were, therefore, carried out to explore the standard of root canal treatment carried out by general dental practitioners in Delhi.

Aim: This study aimed to evaluate attitude, skills, materials and methods employed in endodontic treatment by general dental practitioners in Delhi.

Materials and Methods: A cross-sectional survey was carried out on 50 dental surgeons of dental clinics in Delhi. A 10 question based questionnaire was developed to assess their attitude, awareness, skills, materials and methods employed in endodontic treatment. Data were subjected to appropriate statistical measures and analyzed.

Statistical Analysis: The dentists' knowledge, awareness, skill, social work and attitude as well as newer approaches

in management were expressed in proportions. The 3-point scale was adapted for each of the 10 questions.

Result: Among 50 dentists 33.33% have one year of experience, 16.67% have 2 years of experience and 50% dentists have more than one year of experience. 16.67% dentist use step back technique, 83.33% use crown down technique and no dentist opted for other technique. 66.67% choose lateral condensation, 33.33% choose single cone obturation and no dentists opted for other technique. 16.67% dentists use normal saline as an irrigating solution, 83.33% use Sodium Hypochlorite.

Conclusion: This study indicates that dentists practicing in Delhi do not comply with international quality standards and do not use recently introduced techniques. Many clinicians never take a radiograph for determining the working length and never used rubber dam or any other method of isolation.

Keywords: RCT, Endodontic treatment, Single visit RCT

Introduction

The main goal of endodontic treatment is to maintain teeth by preserving the health of pulp or periradicular tissues. The success of endodontic treatment is mostly related with the effectiveness of the cleaning and shaping of the root canal system which determines the quality of disinfection and obturation. Unfortunately, the clinical procedures of endodontics are technically challenging because of the complex root canal systems. These challenges can be listed as identification and enlargement of all canals without procedural errors, maintaining correct working lengths, selecting the right preparation size for effective irrigation and adequate obturation. Multiple new instruments, materials and techniques are being developed in order to overcome these challenges.¹ Single and multiple visit root canal treatment has been the subject of long-standing debate in the endodontic community, not only on the biological and efficiency point of view, but also on the operator and patient's comfort, satisfaction and preferences.² Furthermore, the concepts and treatment protocols have been changing with these innovations. The past 10-15 years has altered the way of endodontic practice. Contemporary endodontics especially encompasses rubber dam, flexible nickel-titanium files with rotary engines and apex locators.^{3,4} These advances may provide better treatment outcomes by reducing procedural errors and also increase the comfort for both the clinician and the patient. However, it is questionable how far the changes in endodontic discipline have been incorporated into daily practice.⁵ Beside adoption of these advances, treatment protocols such as number of sessions,⁶ usage of medicaments⁷ may differ among practitioners. It is the responsibility of the academics and dental schools to prepare their students to adopt the guidelines and recommended standards in root canal debridement, shaping and obturation.^{8,9}

Materials and methodology: A cross-sectional study was conducted on 50 dentists in Delhi to Know their attitude, skills and knowledge employed in endodontic treatment. A whatsapp based survey was conducted in two phases (survey tool development and data collection) for a period of 3 days to the contacts of the invigilator.

Survey tool development: After a thorough literature search a survey tool of 10 item questionnaire was drafted in form of whatsapp based questionnaire. The settings of the survey were such that one phone could only take the survey once to remove bias.

Data Collection: Statistical Analysis: The dentists' knowledge, awareness, skill, social work and attitude as well as newer approaches in management were expressed in proportions. The 3-point scale was adapted for each of the following 10 questions.

Results:

Fig 1: Among 50 dentists 33.33% have one year of experience, 16.67% have 2 years of experience and 50% dentists have more than one year of experience

1. How many years of practice?

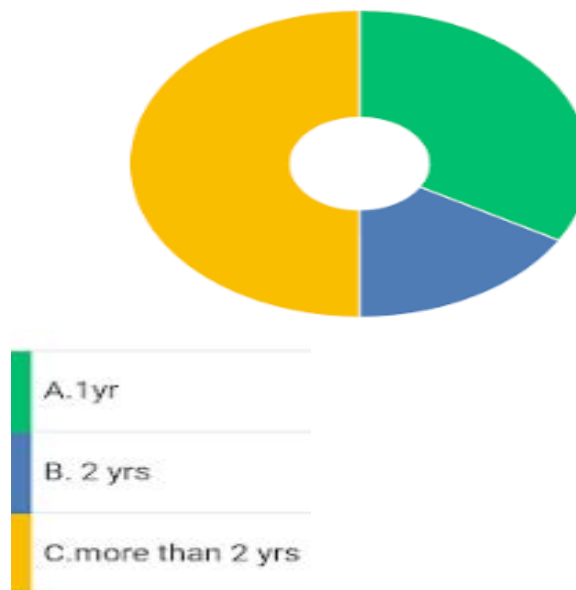


Fig 2: Among 50 dentists, 16.67% dentist use step back technique, 83.33% use crown down technique and no dentist opted for other technique.

2. Which root canal preparation technique you prefer?

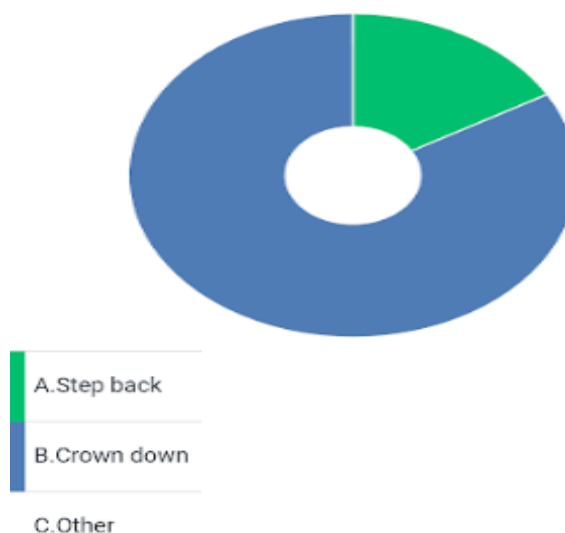


Fig 3: Among 50 dentists, 66.67% choose lateral condensation, 33.33% choose single cone obturation and no dentists opted for other technique

3. Which obturation technique you prefer?

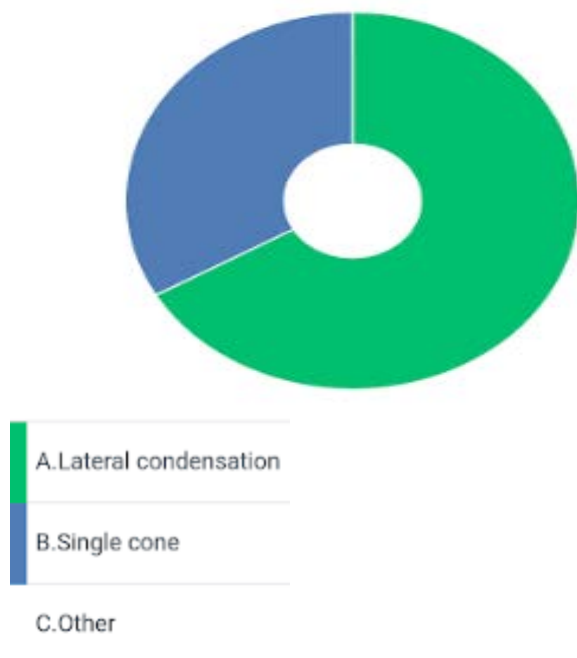


Fig 4: 16.67% dentists use normal saline as an irrigating solution, 83.33% use Sodium Hypochlorite.

4. Which root canal irrigant you prefer?

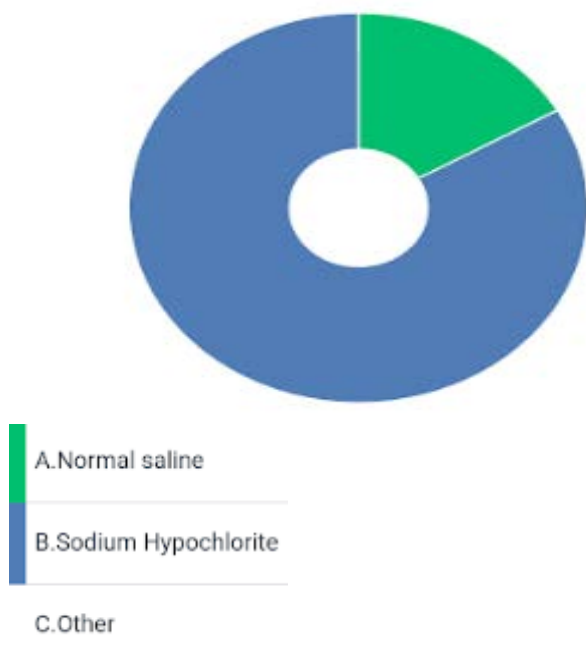


Fig 5: 16.67% dentists did not use different isolation methods during treatment, 66.7% dentists opted for always and 16.67% dentists opted sometimes.

5. Do you use different isolation methods?

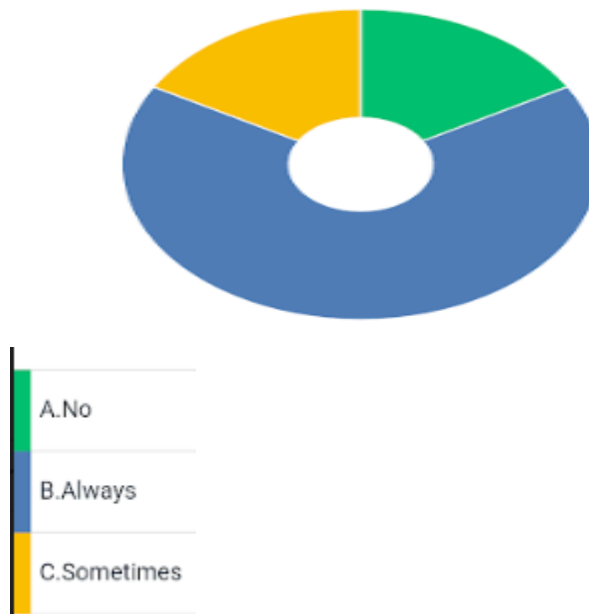


Fig 6: 16.67% dentists said that they do not take pre operative radiograph before endodontic treatment, 66.67% dentists always take pre operative radiograph and 16.67% said that they do it sometimes

6. Do you take preoperative radiograph before endodontic treatment?

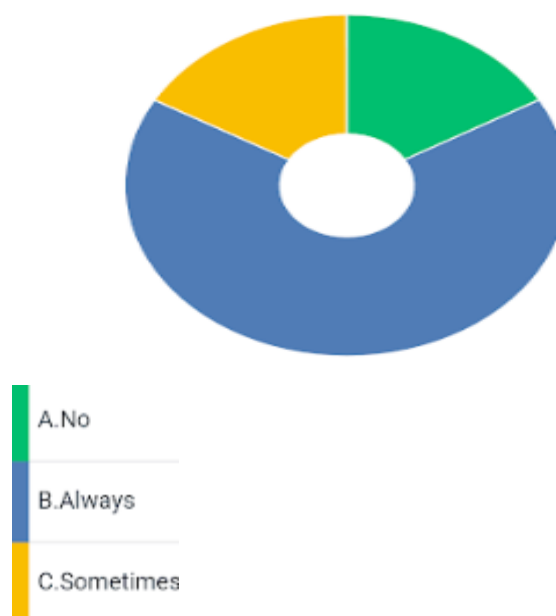


Fig 7: 66.67% dentists prefer radiographic method for working length determination, 33.33% dentists prefer apex locators and no dentist opted for other option

7. Which method you prefer for working length determination?

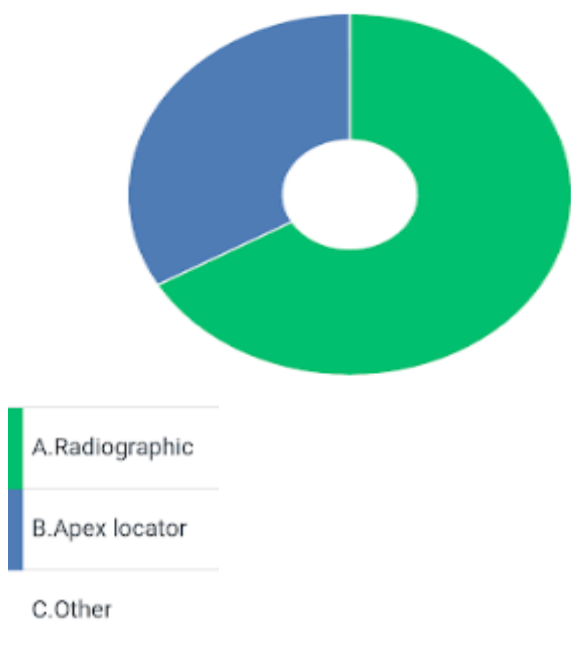


Fig 8: 66.67% dentists prefer single visit RCT in vital tooth and 33.33% dentists prefer multiple visit RCT in vital tooth

8. What RCT do you prefer in a vital tooth?

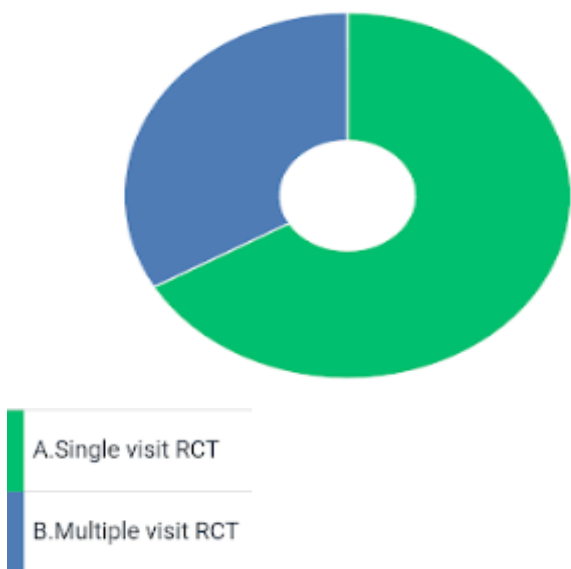


Fig 9: Among 50 dentists 16.67% dentists do not prefer using rotary NiTi instruments during endodontic treatment, 16.67% dentists always use them and the remaining 66.67% dentists use them sometimes.

9. Do you prefer using rotary NiTi instruments during endodontic treatment?

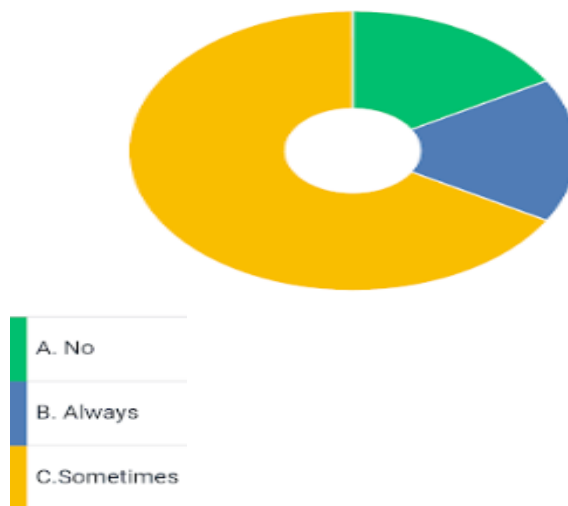


Fig 10: Among 50 dentists, 16.67% dentists have an average number of 0 to 6 RCTs per week, 33.33% have an average of 6 to 12 and 50% dentists do more than 12 number of endodontic treatment in a week.

10. Average number of endodontic treatment in a week?

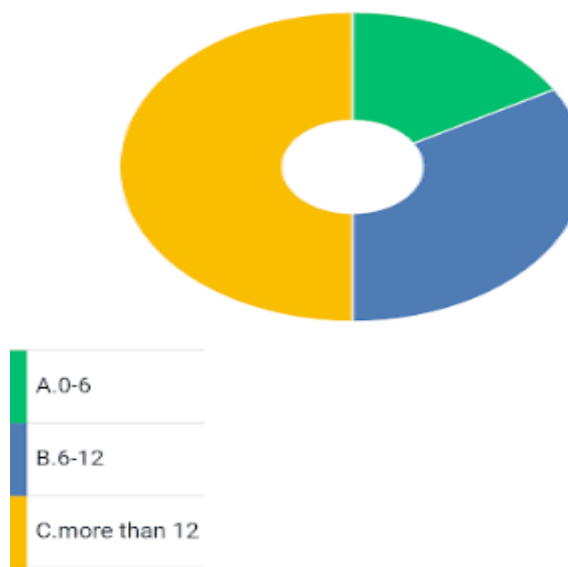


Table 1 :The percentage of dentist that choose option A,B and C for particular questions

S.N	A	%age	B	%age	C	%age	Skipped
Q1	17	33.33%	8	16.67%	25	50%	0
Q2	8	16.67%	42	83.33%	0	0%	0
Q3	33	66.67%	17	33.33%	0	0%	0
Q4	8	16.67%	42	83.33%	0	0%	0
Q5	8	16.67%	33	66.67%	8	16.67%	0
Q6	8	16.67%	33	66.67%	8	16.67%	0
Q7	33	66.67%	17	33.33%	0	0%	0
Q8	33	66.67%	17	33.33%			0
Q9	8	16.67%	8	16.67%	33	66.67%	0
Q10	8	16.67%	17	33.33%	25	50%	0

Discussion: A questionnaire must contain enough questions to provide necessary data for surveyor, but also it must attract attention for respondent to finalize the questionnaire.¹⁰ The questionnaire of over 50 practitioners from different type of practice could also provide some useful information about general endodontic practice within Delhi. In this present study, most interviewed Dentists reported Crown-Down technique. It has been shown that this technique can reduce the chance of accumulation of smear-layer in the apical area, improving the prognosis of immediate obturation.¹¹ Also, some studies demonstrated that shaping the canal by using Crown-Down philosophy provides a cleaner apical third of the root canals.¹² Almost more than half of the general dental practitioners in Delhi used lateral compaction of gutta-percha to obturate the root canal space. This technique is acknowledged universally and is the most common obturation technique.¹³ In the current survey, most general dental practitioners used hydrogen peroxide and sodium hypochlorite solutions as canal irrigants. The same result was demonstrated amongst dentists in Switzerland.¹⁴ Sodium hypochlorite is recommended as the material of choice for irrigating the root canal system because of its effective antimicrobial and tissue solvency action.¹⁵ Although various isolation methods are always recommended as a standard during root canal treatment procedure to provide isolation, protection and improve visual access, but in this study it was found that some dentists are still not using it in their daily practice. The necessity of radiographic examination before root canal treatment was well-established.¹⁶ It leads to determine the diagnosis by combining the findings of oral examination and symptoms which are expressed by patient. Moreover, evaluating preoperative radiographs provides an opinion about length, curvature and number of roots for practitioner before starting endodontic treatment.¹⁷ Despite these benefits, only 66.67% of respondents routinely took preoperative radiographs. As radiographic working length determination has a disadvantage which is the ionizing radiation.¹⁸ But various advantages are also associated with it. Electronic apex locators which do not require radiation exposure, locate the canal terminus by means of electronic measurements. There are multiple comparative studies which show one of them is superior.¹⁹⁻²² Therefore, both radiographic and electronic techniques should be combined for precise estimation of working length.²³

Most of the dentists opted for single visit root canal treatment in a vital tooth. Some opted multiple visit root canal treatment. 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. Dentists perform single-visit root canal treatment in cases of vital pulp endodontic therapy, but in cases of necrotic pulp, most of the participants perform multiple-visit endodontic treatment. The main and most important reason to perform a single-visit endodontic treatment is pulp vitality.²⁴ In this study most of the dentists use NiTi rotary files in their daily practice despite of being them 'too expensive' or any kind of 'fear of complication' which may have originated from bad experiences of themselves or colleagues.²⁵

Conclusion: This study indicates that dentists practicing in Delhi do not comply with international quality standards and do not use recently introduced techniques. Many clinicians never take a pre operative radiograph and never used rubber dam or any other method of isolation. The need of endodontic training after graduation seemed to be a common opinion among practitioners. This questionnaire had a positive effect in raising awareness and knowledge in the dental surgeon who took part in the study.

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