

# Knowledge, Attitude And Practice Of Root Canal Retreatment Procedure Among Dentists In Melmaruvathur -A Questionnaire Survey

M. Sureka

CRRI, Department Of Conservative Dentistry And Endodontics, Adhiparasakthi Dental College & Hospital, Melmaruvathur, Tamilnadu 603319

Dr. Sriram Sankar

MDS, Reader, Department Of Conservative Dentistry And Endodontics, Adhiparasakthi Dental College & Hospital, Melmaruvathur, Tamil Nadu 603319

Dr. Veni Ashok

Professor And HOD Of Conservative Dentistry And Endodontics, Adhiparasakthi Dental College & Hospital, Melmaruvathur, Tamil Nadu 603319

Dr. Ravisankar

MDS Assistant Professor, Department Of Public Health Dentistry, Adhiparasakthi Dental College & Hospital, Melmaruvathur, Tamil Nadu 603319

---

## Abstract

**Aim:** The aim of the survey was to assess the dentists knowledge, attitude and practice of root canal retreatment Procedures in Melmaruvathur. The study aims to identify the factors influencing their approach to retreatment, including their understanding of indications, techniques, and patient outcomes.

**Materials and methods:** A descriptive cross-sectional study was conducted using a structured questionnaire distributed among practicing dentists in Melmaruvathur. The questionnaire was designed to assess their knowledge of endodontic retreatment techniques, diagnostic methods, and factors that influence the decision to opt for retreatment over extraction. The attitude section of the questionnaire focused on their perceptions about the effectiveness, challenges, and importance of retreatment. Lastly, the practice section explored the frequency, techniques, and tools commonly used in their clinical practice.

**Results:** The study sample consisted of general dentists, endodontists, and dental practitioners from various private and public clinics. Descriptive statistics were used to analyze the responses, and results were presented in the form of percentages and frequencies.

**Conclusion:** The study concludes that there is a need for continued education and access to advanced endodontic tools that could contribute to improving retreatment outcomes and enhancing the overall quality of care provided by dentists in the region.

**Keywords:** Endodontic retreatment, dentists, knowledge, attitude, practice, Gutta percha removal, survey, Melmaruvathur,

---

Date of Submission: 02-02-2025

Date of Acceptance: 12-02-2025

---

## I. Introduction:

Root canal treatment (RCT) is a common and effective procedure for saving a tooth with pulpal disease. However, in some cases, primary root canal therapy may fail, necessitating retreatment to salvage the tooth. Root canal retreatment (RCR) is a complex procedure that demands specific skills, knowledge, and clinical expertise. The success of RCR heavily depends on the dentist's understanding of the procedure, their attitudes toward its efficacy, and their actual clinical practices. Root canal retreatment involves the removal of the original filling material, cleaning and reshaping the root canal system again, and placing a new filling to ensure that the infection is eradicated and the tooth is restored to its proper function. The decision to perform retreatment, as opposed to extraction or other alternatives, relies heavily on the dentist's knowledge of the factors that could lead to failure, such as persistent infection, underfilled canals, or overinstrumentation. The knowledge, attitude, and practice of root canal retreatment can vary significantly across regions and

practitioners, influenced by factors such as educational background, exposure to continuing education, and available resources. In the context of Melmaruvathur, a growing town in Tamil Nadu, India, with an expanding healthcare sector, understanding how local dentists approach root canal retreatment is essential. As dental care providers in Melmaruvathur serve a diverse population with varying oral health needs, it is important to assess their approach to managing endodontic failures, especially considering the local challenges that may influence treatment decisions, such as access to advanced materials, technologies, and postgraduate training. While numerous studies have evaluated the KAP of dentists in different regions regarding endodontic procedures, there is a paucity of data focused specifically on Melmaruvathur. This research will assess the knowledge, attitudes, and practices of dentists regarding root canal retreatment, as it is essential for improving clinical outcomes and ensuring patient satisfaction. The objective of this questionnaire survey was to evaluate the level of knowledge, attitude and practice among dentists in Melmaruvathur regarding the root canal retreatment procedure.

**II. Materials And Methods:**

The study is a questionnaire based survey comprising of 72 dentists practicing in Melmaruvathur (kanchipuram district)of Tamil Nadu. The survey was held during the period of November 2024- December 2025. The target population for this study comprised practicing dentists in Melmaruvathur, including those working in academic institutions, clinical settings, or a combination of both.

The inclusion criteria involved licensed dentists who were actively engaged in clinical or academic practice. Dentists who were not practicing or not involved in endodontics were excluded from the study. A convenience sampling method was employed, where dentists who were available and willing to participate were included in the study. Based on the demographic characteristics and expected response rate, a sample size of 72 participants was determined to be adequate to achieve meaningful insights.

A structured, pre-tested questionnaire was developed to assess the knowledge, attitudes, and practices of dentists regarding root canal retreatment. The questionnaire consisted of 10 questions , including Demographic Information: in 3 sections Age, gender, years of experience, type of practice (academic, clinical, or both). Knowledge Questions: These focused on the indications for retreatment, diagnostic tools, and the primary goals of retreatment. Attitude Questions: These assessed the dentists' confidence levels in performing root canal retreatment, their perceptions of its importance, and their approach to handling challenges. Practice Questions: These explored the techniques used for retreatment, such as methods for removing gutta-percha (GP), the importance of complete filling removal, and the number of visits required for retreatment procedure.

**Table 1 Represents The Descriptive Statistics Based On Demographic Details Of The Study Population**

Parameter	Options	Frequency	Percentage
Age In Years	20-30	62	86.1
	31-40	9	12.5
	41-50	1	1.4
Gender	Female	49	68.1
	Male	23	31.9
Experience In Years	5-10 Years	8	11.1
	Less Than 5 Years	60	83.3
	More Than 10 Years	4	5.6
Type Of Practice	Academic Institution	28	38.9
	Both	9	12.5
	Clinician	33	45.8

**Table 2 Represents The Responses Provided By The Study Population To The Questionnaire Given**

Questions	Options	Frequency	Percentage
What Are The Indications For Endodontic Retreatment?	All Of The Above	59	81.9
	New Various Lesion In The Same Tooth	1	1.4
	Persistent Symptoms	7	9.7
	Radiographic Evidence Of Persistent Infection	5	6.9
What Is The Primary Goal When Performing A Root Canal Retreatment?	All Of The Above	50	69.4
	Place The Root Canal Filling Material	1	1.4
	Reclean And Reshape The Root Canals	14	19.4
	Remove The Existing Gp	7	9.7
.Which Diagnostic Tools Are Essential For Assessing The	All Of The Above	46	63.9
	Clinical Examination	2	2.8

<b>Need For Root Canal Retreatment?</b>	Pulp Vitality Test	1	1.4
	Radiographic Imaging	23	31.9
<b>How Confident Are You In Performing Endodontic</b>	Not Confident	11	15.3
	Somewhat Confident	44	61.1
	Very Confident	17	23.6
<b>Retreatment Procedure?</b>			
<b>What Are The Main Challenges That You Encounter During Endodontic Retreatment?</b>	Ledge Formation	14	19.4
	Others (Specify If Any)	6	8.3
	Retrieval Of Gp	29	40.3
	Root Perforation	9	12.5
	Time Constraints	14	19.4
<b>Which Method Do You Use For The Removal Of Gp?</b>	H Files	40	55.6
	Heat Technique	2	2.8
	Others (Specify If Any)	5	6.9
	Rotatory Files	25	34.7
<b>How Important Is The Complete Removal Of Previous Filling In Ensuring A Successful Retreatment?</b>	Not Important	3	4.2
	Somewhat Important	11	15.3
	Very Important	58	80.6
<b>What Impact Does Proper Disinfection And Sealing Of Root Canals Have On Retreatment Outcomes ?</b>	Major Impact	48	66.7
	No Impact	5	6.9
	Significant Impact	18	25.0
<b>In How Many Visit Do You Complete The Re- Rct Procedure?</b>	Multiple Visit	62	86.1
	Single Visit	10	13.9
<b>What Is The Success Percentage Of Retreatment?</b>	40-70%	34	47.2
	70-90%	22	30.6
	Less Than 40%	11	15.3
	More Than 90%	5	6.9

**Table 3 Represents The Association Between The Association Between The Type Of Practice And Questions Given**

Type Of Practic E	What Is The Primary Goal When Performing A Root Canal Retreatment?				Chi Square	Sig
	All Of The Above	Place The Root Canal Filling Material	Reclean And Reshape The Root Canals	Remove The Existing Gp		
Academic Institution	19	0	7	2	6.003	0.740
Both	7	0	2	0		
Clinician	23	1	4	5		
Type Of Practic E	Which Diagnostic Tools Are Essential For Assessing The Need For Root Canal Retreatment?				Chi Square	Sig
	All Of The Above	Clinical Examinati On	Pulp Vitality Test	Radiograp Hic Imaging		
Academic Institution	17	1	0	10	2.723	0.986
Both	6	0	0	3		
Clinician	22	1	1	9		
Type Of Practic E	What Are The Main Challenges That You Encounter During Endodontic Retreatment?				Chi Square	Sig
	Ledge Formati On	Others (Specify If Any)	Retrieva L Of Gp	Root Perforatio N		
Academic Institution	6	0	14	4	21.763	0.041
Both	3	0	3	2		
Clinician	3	6	12	3		
Type Of Practic E	Which Method Do You Use For The Removal Of Gp?				Chi Square	Sig
	H Files	Heat Technique	Others (Specify If Any)	Rotatory Files		
Academic Institution	13	1	2	12	5.415	0.797
Both	7	0	1	1		
Clinician	18	1	2	12		
Type Of Practic E	What Is The Success Percentage Of Retreatment?				Chi Square	Sig
	40-70%	70-90%	Less Than 40%	More Than 90%		

Academic Institution	14	6	7	1	<b>9.051</b>	<b>0.433</b>
Both	4	3	1	1		
Clinician	16	11	3	3		

### III. Results:

Table 1 represents Demographic Analysis of Study Population The descriptive statistics provide insights into the study population's age distribution, gender, years of experience, and type of practice. Age in Years: A majority of participants (86.1%) fall within the 20-30 age group. A smaller percentage (12.5%) are aged 31-40, and only 1.4% are in the 41-50 age bracket. This suggests that the study population primarily consists of younger individuals.

Gender: Female participants constitute a significant majority at 68.1%, while males make up 31.9%. The gender distribution indicates a higher representation of females in this study.

Experience in Years: Most participants (83.3%) have less than 5 years of professional experience. A smaller proportion (11.1%) have 5-10 years of experience, and only 5.6% have more than 10 years of experience. This highlights that the majority of the study population consists of professionals in the early stages of their careers.

Type of Practice: Participants practicing in academic institutions account for 38.9%, while clinicians constitute the largest group at 45.8%. A smaller proportion (12.5%) reported being involved in both academic and clinical practices. This indicates a diverse professional background within the study group, with a stronger emphasis on clinical practice.

The study population is predominantly young, female professionals with limited professional experience, primarily working as clinicians or in academic institutions. This demographic profile may influence the outcomes and relevance of the study findings to specific contexts.

Table 2 represents Indications for Endodontic Retreatment: The majority of participants (81.9%) recognized "All of the above" as the correct option, showing a comprehensive understanding of the indications. Other responses, such as "Persistent symptoms" (9.7%) and "Radiographic evidence of persistent infection" (6.9%), were selected less frequently, indicating a lack of complete understanding among a small subset of respondents.

Primary Goal of Root Canal Retreatment: Most respondents (69.4%) selected "All of the above," indicating that they understand the multifaceted nature of retreatment goals (removal of gutta-percha, cleaning, reshaping, and filling). A smaller percentage focused on individual steps, such as "Reclean and reshape the root canals" (19.4%) and "Remove the existing GP" (9.7%).

Essential Diagnostic Tools: "All of the above" was chosen by 63.9%, reflecting an awareness of the importance of combining diagnostic tools like clinical examination, pulp vitality tests, and radiographic imaging. However, 31.9% emphasized "Radiographic imaging," highlighting its perceived importance as a standalone tool.

Confidence in Performing Retreatment: A majority (61.1%) reported feeling "Somewhat confident," indicating moderate self-assurance. 23.6% felt "Very confident," while 15.3% were "Not confident," reflecting varying levels of expertise and comfort among practitioners.

Main Challenges Encountered: The most common challenge was "Retrieval of GP" (40.3%), followed by "Ledge formation" (19.4%) and "Time constraints" (19.4%). Fewer respondents cited "Root perforation" (12.5%) or "Others" (8.3%), indicating these are less frequent but still notable issues.

Method for Gutta-Percha Removal: "H files" were the most commonly used method (55.6%), followed by "Rotatory files" (34.7%). "Heat technique" (2.8%) and "Others" (6.9%) were less frequently chosen, suggesting that conventional techniques dominate.

Importance of Complete Filling Removal: An overwhelming majority (80.6%) rated this as "Very important," emphasizing its critical role in successful retreatment. A small percentage (15.3%) considered it "Somewhat important," while 4.2% believed it was "Not important," indicating some divergence in perceptions.

Impact of Proper Disinfection and Sealing: Most participants (66.7%) agreed on a "Major impact," while 25.0% identified a "Significant impact." Only 6.9% believed there was "No impact," showing strong consensus on the importance of these factors.

Number of Visits for Retreatment: A large majority (86.1%) reported completing retreatment in "Multiple visits," with only 13.9% opting for "Single visit." This reflects a preference for a staged approach to ensure thorough treatment.

Success Percentage of Retreatment: Nearly half (47.2%) estimated the success rate at "40-70%," with 30.6% selecting "70-90%." A smaller group chose "Less than 40%" (15.3%) or "More than 90%" (6.9%), indicating varied expectations of success. The responses highlight a generally good understanding of endodontic retreatment principles among the study population. However, there are variations in confidence levels and the methods used. Most participants recognize the importance of thorough diagnosis, complete filling removal,

proper disinfection, and sealing for successful retreatment. The challenges, such as gutta-percha retrieval and time constraints, remain common, emphasizing the need for advanced training and tools.

Table 3, focusing on the association between the type of practice and responses to various questions: Association Between Type of Practice and Study Parameters Primary Goal When Performing Root Canal Retreatment: "All of the above" was the most selected option across all types of practices: Academic institution (19), Both (7), and Clinician (23). Other options were selected minimally, with "Reclean and reshape the root canals" chosen by 7 (Academic institution), 2 (Both), and 4 (Clinicians). Chi-Square: 6.003,  $p = 0.740$  (not significant). There is no statistically significant difference in the perception of retreatment goals based on the type of practice. All groups largely agree on the importance of comprehensive treatment.

Diagnostic Tools for Assessing Retreatment Needs: "All of the above" was the most common response across all groups, with Academic institutions (17), Both (6), and Clinicians (22). Radiographic imaging was also frequently selected, particularly in Academic institutions (10) and Clinicians (9). Chi-Square: 2.723,  $p = 0.986$  (not significant). All groups agree on the importance of multiple diagnostic tools, with no significant differences based on the type of practice.

Main Challenges Encountered During Retreatment: "Retrieval of GP" was the most reported challenge for Academic institutions (14) and Clinicians (12). "Ledge formation" was reported by Academic institutions (6) and Both (3). "Others" were primarily reported by Clinicians (6). Chi-Square: 21.763,  $p = 0.041$  (statistically significant).

The type of practice significantly affects the challenges encountered. Academic institutions face more issues with GP retrieval, while clinicians experience a broader range of challenges, including "Others" and "Root perforation."

Method for Gutta-Percha Removal: "H files" was the most commonly used method across all groups: Academic institutions (13), Both (7), and Clinicians (18). "Rotatory files" were also frequently used in Academic institutions (12) and Clinicians (12). Chi-Square: 5.415,  $p = 0.797$  (not significant). There is no significant difference in the preferred method for GP removal across practice types, with "H files" being the most commonly used tool.

Success Percentage of Retreatment: Most participants estimated a success rate of "40-70%," with Academic institutions (14), Both (4), and Clinicians (16). Higher success rates ("70-90%" and "More than 90%") were more commonly reported by clinicians compared to those in Academic institutions or Both. Chi-Square: 9.051,  $p = 0.433$  (not significant). No statistically significant difference was found in perceptions of success percentages based on practice type, though clinicians tend to report higher success rates. The type of practice significantly influences the challenges encountered during retreatment ( $p = 0.041$ ). Clinicians face a wider range of challenges, while Academic institutions primarily report GP retrieval as the main issue. Responses related to retreatment goals, diagnostic tools, GP removal methods, and success percentages do not vary significantly across practice types. This suggests a general agreement across different practice types, with challenges during retreatment being the only notable variable.

#### **IV. Discussion:**

The findings from the study provide valuable insights into the demographic characteristics, clinical practices, and challenges faced by professionals involved in endodontic retreatment.

Demographic profile: The study population is predominantly young, with the majority (86.1%) falling within the 20-30 age group. This is consistent with the high representation of early-career professionals, as seen in the high percentage (83.3%) of participants with less than 5 years of experience. Such a demographic composition suggests that the study reflects the perspectives of individuals who may still be gaining confidence and refining their skills in endodontics. Additionally, the overrepresentation of females (68.1%) in the study could reflect broader gender trends within the field or specific recruitment strategies. The high number of clinicians (45.8%) and participants from academic institutions (38.9%) further indicates that the study's findings cover a diverse group with both practical and educational orientations in endodontics. This diversity is beneficial, as it helps to provide a more comprehensive understanding of endodontic retreatment practices from different settings.

Knowledge and Practices Regarding Endodontic Retreatment: **In terms of knowledge, the majority of participants displayed a comprehensive understanding of the indications for root canal retreatment, with 81.9% selecting "All of the above" as the correct response. This reflects a solid grasp of the multifaceted nature of retreatment, which includes persistent symptoms, radiographic evidence of infection, and new lesions. However, the relatively low selection rates for specific issues like persistent symptoms (9.7%) and radiographic evidence of infection (6.9%) suggest that some participants may not fully recognize the variety of factors that influence the decision to pursue retreatment. Regarding the primary goal of root canal retreatment, the majority (69.4%) of respondents correctly identified that all aspects (removal of gutta-percha, cleaning, reshaping, and refilling the root canal) are essential.** However, smaller groups

focused on individual steps, particularly the recleaning and reshaping (19.4%) or removal of the existing filling material (9.7%), indicating a potential gap in recognizing the holistic approach required for successful retreatment. The diagnostic tools considered essential for assessing the need for retreatment were well understood, with 63.9% selecting "All of the above" (clinical examination, pulp vitality tests, and radiographic imaging). This reflects an awareness of the importance of a multi-faceted diagnostic approach. However, the significant emphasis on radiographic imaging (31.9%) suggests that some practitioners might prioritize imaging over other diagnostic methods.

**Confidence and Challenges in Retreatment:** The varying levels of confidence in performing endodontic retreatment were evident, with most participants (61.1%) feeling "somewhat confident" and only 23.6% feeling "very confident." This aligns with the high proportion of relatively inexperienced practitioners in the study, as many may still be building their clinical expertise. The identification of challenges, particularly the retrieval of gutta-percha (40.3%), ledge formation (19.4%), and time constraints (19.4%), points to common difficulties faced during retreatment procedures. The prominence of gutta-percha retrieval as a challenge suggests that further training and technological advancements could help improve retreatment success rates and practitioner comfort.

**Methods and Techniques:** In terms of methods for gutta-percha removal, "H files" were the most commonly employed technique (55.6%), with "rotatory files" being the second most frequent method (34.7%). The relatively low usage of heat techniques (2.8%) and other methods (6.9%) suggests that traditional manual and rotary methods dominate the practice. These findings underscore the need for additional investigation into the efficacy of various gutta-percha removal techniques to refine endodontic retreatment approaches. The majority (80.6%) of respondents identified complete removal of the previous filling as "very important" for ensuring a successful retreatment. This reflects a strong consensus on the critical role of this step, which is consistent with established endodontic practices.

**Success Rates and Number of Visits:** A large majority (86.1%) of participants reported completing root canal retreatment in multiple visits. This preference aligns with the general consensus that a staged approach allows for more thorough treatment and reduces the risk of complications. When estimating success rates, nearly half of the respondents (47.2%) estimated that retreatment success falls between 40-70%, while clinicians generally reported higher success rates (70-90%). This variation in success expectations could be attributed to the different levels of experience, with clinicians possibly having more refined techniques and better outcomes over time.

**Association Between Practice Type and Responses:** The analysis of practice type and its association with various aspects of endodontic retreatment revealed interesting patterns. For example, while there was no significant difference in perceptions regarding the primary goal of retreatment, diagnostic tools, or methods for gutta-percha removal, significant differences were observed in the challenges encountered during retreatment. Specifically, academic institutions faced more issues with gutta-percha retrieval, while clinicians reported a broader range of challenges, including root perforation and other issues not as frequently encountered by academic practitioners. This highlights the practical challenges clinicians face in the real-world setting, which may be less frequently encountered in academic or training environments. Moreover, perceptions of success rates showed some differences, with clinicians reporting slightly higher success percentages compared to academic institutions. However, the lack of statistical significance in most comparisons suggests that core practices and beliefs around retreatment are largely consistent across different practice settings, with notable exceptions in the challenges faced.

## **V. Conclusion:**

This study provides a snapshot of the endodontic retreatment practices among a largely young and moderately experienced group of professionals. The data highlight an overall solid understanding of retreatment principles, although there are variations in confidence levels and the challenges encountered. While there is a consensus on the importance of certain procedural elements (e.g., complete removal of gutta-percha, proper disinfection, and sealing), there are distinct differences in the challenges faced by different practice types, suggesting that clinicians may encounter more complex issues in comparison to academic institutions. These findings underscore the need for targeted training and further research to address the challenges and refine endodontic retreatment techniques, particularly in clinical practice settings.

## **References:**

- [1] Barreto, M. S., & Freitas, J. A. (2017). Success Rate Of Non-Surgical Retreatment: A Systematic Review Of The Literature. *Journal Of Endodontics*, 43(5), 678-684. <https://doi.org/10.1016/j.joen.2017.01.004>
- [2] Mellonig, J. T., & Johnson, M. M. (2018). Advances In Endodontic Retreatment. *Endodontic Topics*, 38(1), 1-10. <https://doi.org/10.1111/Etp.121173>. Ng, Y. L., Mann, V., &
- [3] Ng, Y. L., Mann, V., & Gulabivala, K. (2010). Outcome Of Root Canal Treatment And Retreatment: A Systematic Review Of The Literature. *International Endodontic Journal*, 43(3), 171-185. <https://doi.org/10.1111/j.1365-2591.2009.01652.x>

- [4] Hussey, D. L., & Loushine, R. J. (2014). Factors Influencing The Decision To Retreat Or Extract A Tooth After Root Canal Failure. *Journal Of The American Dental Association*, 145(7), 622-630. <https://doi.org/10.14219/Jada.Archive.2014.0134>
- [5] Siqueira, J. F., & Rôças, I. N. (2008). Clinical Implications And Microbiology Of Bacterial Persistence After Treatment Procedures. *Endodontic Topics*, 18(1), 1-22. <https://doi.org/10.1111/J.1601-1546.2008.00139.X>
- [6] Candeiro, G. T., De Moraes, J. E., & Silva, S. G. (2013). Methods Of Root Canal Disinfection In Retreatment Procedures. *Journal Of Conservative Dentistry*, 16(3), 256-260. <https://doi.org/10.4103/0972-0707.114210>
- [7] Ruddle, C. J. (2007). Endodontic Retreatment Techniques: The Role Of Rotary Instrumentation And Techniques In Retreatment. *Dental Clinics Of North America*, 51(3), 535-558. <https://doi.org/10.1016/J.Cden.2007.02.00>
- [8] Gulabivala, K., & Aung, T. (2002). Radiographic Evaluation Of Root Canal Retreatment Outcomes. *Journal Of Endodontics*, 28(5), 314-318. <https://doi.org/10.1097/00004770-200205000-00004>
- [9] Tait, P. R., & Patel, S. (2017). Understanding Success And Failure In Root Canal Retreatment: A Review Of The Factors That Affect Treatment Outcomes. *British Dental Journal*, 222(5), 343-350. <https://doi.org/10.1038/Sj.Bdj.2017.113>
- [10] Estrela, C., & Gava, E. (2019). Root Canal Retreatment Techniques And Outcomes: A Comprehensive Review. *Journal Of Endodontics*, 45(6), 735-744. <https://doi.org/10.1016/J.Joen.2019.03.006>
- [11] McGinnis, M. (2012). The Role Of Retreatment In Endodontics: Retreatment Options And Technique Overview. *Endodontic Practice*, 5(6), 34-40.
- [12] Siqueira, J. F., & Rôças, I. N. (2013). Microbiological Techniques For Endodontic Retreatment. *Endodontic Practice*, 6(4), 12-21.
- [13] Sundqvist, G., Et Al. (2018). "Endodontic Retreatment: Concepts And Outcomes." *Endodontic Topics*, 39(1), 25-37.
- [14] Gupta, S., Et Al. (2017). "Knowledge, Attitude, And Practice Regarding Root Canal Retreatment Among General Dental Practitioners." *Journal Of Conservative Dentistry*, 20(2), 109-114.
- [15] Patel, S., & Dawood, A. (2017). "Diagnosis And Management Of Endodontic Failures: The Role Of Retreatment." *British Dental Journal*, 222(7), 511-520.
- [16] Kumari, M., & Sreenivasan, P. (2020). "Root Canal Retreatment: Clinical Insights And Management Strategies." *Journal Of Endodontics*, 46(4), 533-544.
- [17] Patel, S., & Ricucci, D. (2019). "The Role Of Retreatment In The Management Of Endodontic Failures." *International Endodontic Journal*, 52(6), 759-769.
- [18] Anderson, R. W., & Smith, R. (2018). "Attitude Of Dentists Towards Root Canal Retreatment: A Survey Of Practitioners." *Journal Of Dental Research*, 97(8), 789-795.
- [19] Kohli, M. R., & Mclean, A. (2016). "The Importance Of Proper Diagnosis In Retreatment Procedures." *Journal Of Endodontics*, 42(11), 1628-1634.
- [20] Gómez-Polo, C., Et Al. (2021). "Survey On The Knowledge And Attitudes Of Dentists Regarding Endodontic Retreatment." *Journal Of Clinical And Diagnostic Research*, 15(1), 72-76.
- [21] Hasselgren, G., Et Al. (2017). "The Role Of The Dentist's Experience In Root Canal Retreatment Success Rates." *Journal Of Endodontics*, 43(7), 1090-1095.
- [22] Mejia, G. O., & Soto, A. (2019). "Knowledge And Practice Of Retreatment Techniques Among General Dental Practitioners In Mexico." *Journal Of Mexican Dental Association*, 28(2), 76-80.