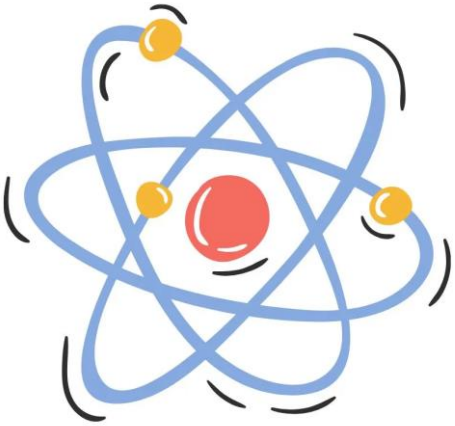

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DO YOU PREFER CROWN AFTER ENDODONTICALLY TREATED TEETH: A COMPREHENSIVE SURVEY AMONG THE GENERAL DENTISTS IN UTTARAKHAND

Dr. Kancha Shalvini, Dr. Anshdeep Singh, Dr. Arpit Arora, Dr. Anil Dhingra, Dr. Seema Dixit, Dr. Sheetal Grover

Department of Conservative Dentistry & Endodontics

Seema Dental College & Hospital, Rishikesh-249203, Uttarakhand, India

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Dr. Kancha Shalvini*, Dr. Anshdeep Singh, Dr. Arpit Arora, Dr. Anil Dhingra, Dr. Seema Dixit, Dr. Sheetal Grover

Department of Conservative Dentistry & Endodontics
Seema Dental College & Hospital, Rishikesh-249203, Uttarakhand, India

Corresponding Author: shalvinikanchagmail.com

Abstract - Aim: *This study aimed to determine whether a crown is necessary after post-endodontic restoration through a comprehensive survey conducted among general dentists in Uttarakhand.* ***Objectives:*** *The objective of this research was to determine and analyze the necessity of crowns following post-endodontic restoration, based on a survey conducted among dental practitioners in Uttarakhand.* ***Materials & Methods:*** *A detailed questionnaire comprising 13 inquiries was formulated and distributed via Google Forms to gather data on the inculcation of new endodontic technologies among Uttarakhand Dental Practitioners. A random sampling of dental practitioners all over Uttarakhand was conducted to ensure a varied representation. The questionnaire focused on awareness about newer technologies, procedures, and perspectives of youngsters for their enhancement of smile and approach towards professional care. Data collection was facilitated through online responses.* ***Results:*** *The survey of Uttarakhand Dental Practitioners reveals that 80% prefer composite for endodontically treated teeth and 71% believe crowns are necessary post-treatment. Zirconia crowns are favored by 43% for all teeth, 51% for anterior teeth, and 37% prefer PFM for posterior teeth. 60% think a tooth risks fracture without a crown, with 54% highlighting fracture risk and 23% concerned about microleakage. Additionally, 70% believe a crowned tooth is more fracture-resistant compared to 22% for non-crowned teeth.* ***Conclusion:*** *In summary, the survey findings underscore the widespread preference for composite materials in dental restoration among Uttarakhand Dental Practitioners, along with the perceived necessity of crown placement post-endodontic treatment. Preferences for specific crown materials highlight nuanced treatment planning considerations, while concerns regarding tooth fracture risk without a crown and the long-term implications emphasize the importance of crown placement in maintaining dental health. These insights offer valuable guidance for practitioners, emphasizing the significance of informed decision-making and personalized treatment approaches in endodontic care.*

Keywords: *Dental Practice, Endodontics, Root Canal Treatment, crown, post endodontic restoration, tooth fracture, microleakage, fracture resistance, Newer Technologies, Survey, survival rate.*

INTRODUCTION

Endodontic therapy boasts a success rate ranging from 86% to 98%. Teeth that have undergone endodontic treatment and exhibit extensive coronal hard tissue defects are at a higher risk of biomechanical failure compared to vital teeth due to compromised structural integrity. Successful endodontic treatment relies not only on effective root canal therapy but also on quality restorative treatment. Completing the root canal procedure is just one part of the process; the tooth must be restored to its normal function, form, and aesthetics. The quality of the final restoration significantly impacts the survival and success rates of endodontically treated teeth[4,6]. Recently, minimally invasive restorations have received more attention as these

preserve the tooth structure. Moreover, recent studies showed that the post has no substantial role in the success rates after endodontic treatment; however, it deteriorates the remaining tooth structure. Different clinical studies have investigated the effect of coronal restorations Ray and Trope concluded that the health of the periapical area is more significantly influenced by the quality of the coronal restoration than by the endodontic treatment itself[9]. a coronal seal may be produced by a well-filled root filling, a coronal restoration with margins that prevent bacteria penetration, or both, data derived from a retrospective clinical study suggest that a favorable endodontic treatment outcome may be achieved even in poorly filled root canals when the quality of the coronal restoration is adequate [13]. Those results appear to be supported by epidemiologic data showing that inadequately filled root canals can remain in a normal state of periapical health

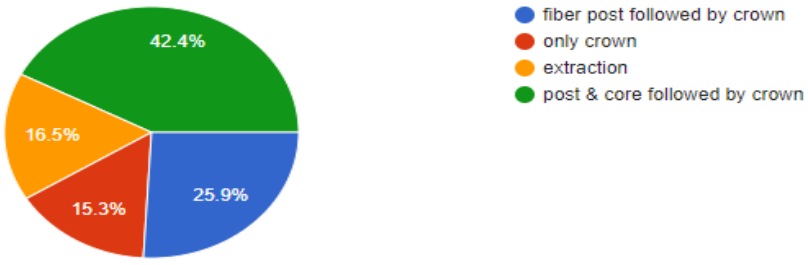
MATERIALS AND METHODOLOGY

The investigation targeted general dental practitioners in Uttarakhand, with a sample of 100 selected from a list of registered dentists to represent this population. Before commencing the survey, ethical committee approval was secured, and random selection was employed to mitigate bias. A questionnaire was designed, written in English, and kept succinct at one page on Google Forms. Question categories encompassed various facets of endodontic treatment followed by crown, including stages of root canal therapy, post endodontic restoration, anterior crown, posterior crown, classII endodntics, fracture resistance, microlekage. To assess the questionnaire's validity and reliability, 20 dental practitioners served as controls in filling it out. Respondents were instructed to complete the questionnaire within a week. Non-respondents received reminders three weeks after the initial mailing, emphasizing the study's aim, confidentiality assurances, and outlining risks and benefits. The 1-page questionnaire comprised 13 questions, with responses tallied and percentages calculated for each section. Data analysis employed descriptive statistics at a significance level of 0.05.

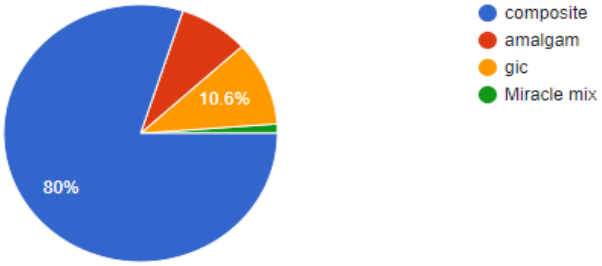
STATISTICAL ANALYSIS:

Data obtained from the Google Forms responses were subjected to thorough statistical analysis. Descriptive statistics, including frequencies and percentages, were employed to summarize the demographic characteristics and key variables.

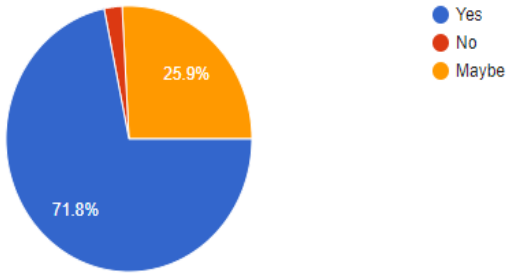
what are the other options in 80% destruction of teeth?



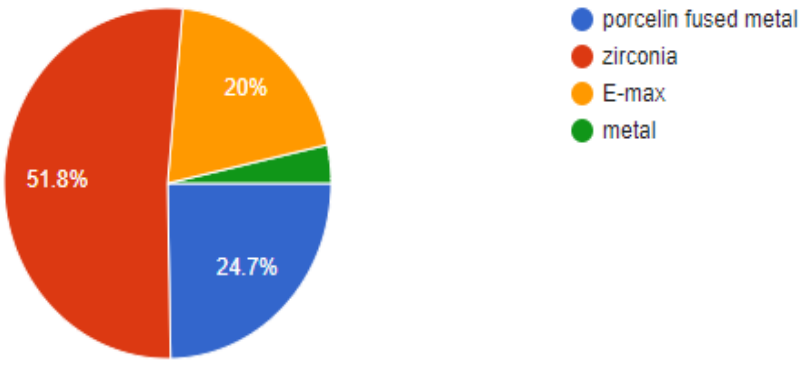
What is your option for restoration in root canal treated teeth?



Do you go for crown in endodontically treated teeth?

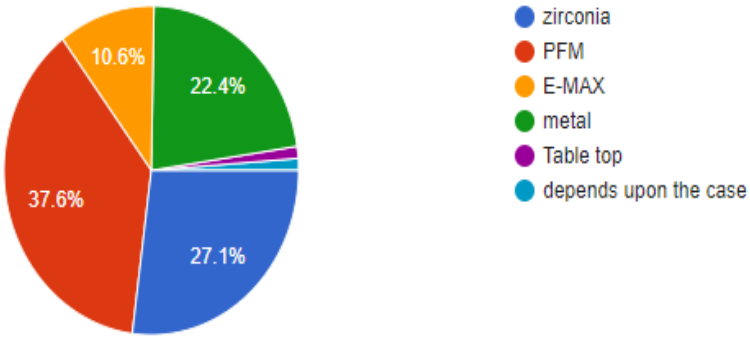


If yes, which crown do you prefer after endodontically treated teeth?



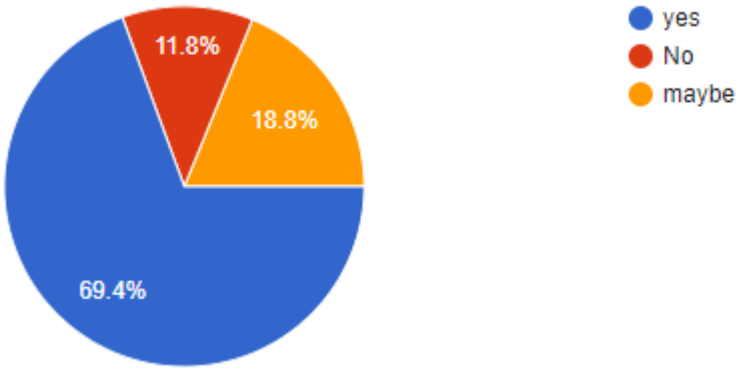
What is your choice of crown for anterior endodontically treated teeth?

What is your choice of crown for posterior endodontically treated teeth?

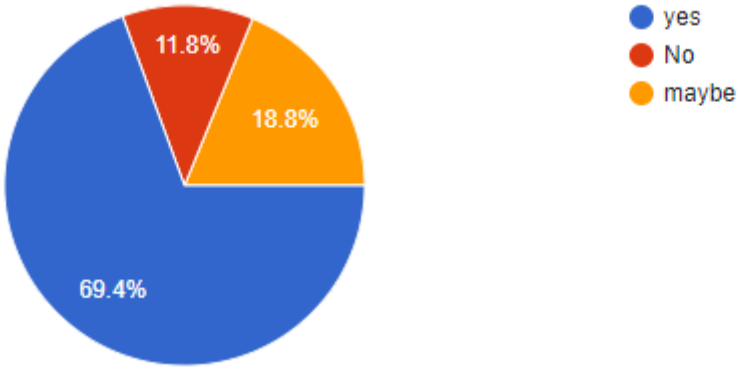


Based on what criteria you decide placement of crown?

do you think Is crown required after completing post endodontic restoration?*

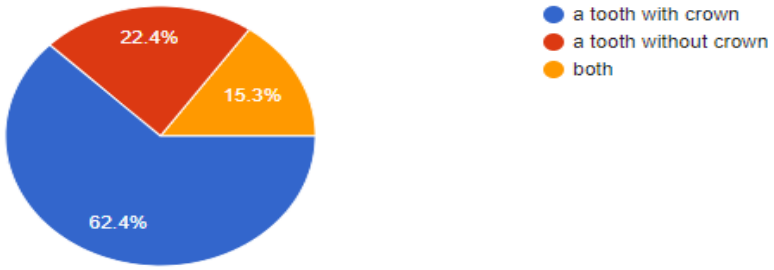


do you prefer alternative for crown in endodontically treated



if yes, what is your choice of alternative option other than crown?

what is more resistant to fracture with crown or without crown



RESULTS

The survey conducted via Google Forms has unveiled intriguing disparities in awareness among Indian Dental Practitioners regarding the integration of new endodontic technologies:

- Composite Preference: A significant majority, accounting for 80% of dental practitioners in India, prefer using composite for the restoration of endodontically treated teeth.
- Crown Placement: A notable 71% of practitioners believe that crown placement is necessary after endodontic treatment.
- Crown Material Preferences:
    - For all teeth: 43% favor zirconia crowns.
    - For anterior teeth: 51% prefer zirconia crowns.
    - For posterior teeth: 37% prefer porcelain-fused-to-metal (PFM) crowns.

Additionally, the survey findings shed light on perceptions regarding the necessity of crowns for preventing tooth fracture. 60% of respondents believe a tooth is at risk of fracture without a crown, while 11% disagree, and 18% are uncertain about the risk.

Furthermore, without a crown, there are significant long-term implications for the tooth, as indicated by the survey results. 54% of respondents highlighted the risk of tooth fracture, while 23% mentioned concerns about microleakage, and 13% expressed worries about the loss of tooth structure.

In terms of fracture resistance, the survey results demonstrate a strong preference for crowns. Specifically, 70% of respondents believe that a tooth with a crown is more resistant to fracture, while only 22% think the same for teeth without a crown. These findings underscore the perceived importance of crowns in enhancing the durability and resilience of teeth against fractures. Moreover, the survey highlighted a growing trend among practitioners to adopt advanced endodontic technologies, such as bioceramic sealers and digital imaging, to improve treatment outcomes. Despite the evident preferences for specific materials and techniques, a portion of the practitioners expressed the need for further education and training on the latest advancements in endodontic therapy. This suggests an ongoing evolution in clinical practices and an openness to incorporating innovative solutions to enhance patient care and treatment efficacy.

DISCUSSION

The discussion on the necessity of crown placement after post-endodontic restoration encompasses several key points that warrant consideration.

Firstly, it is crucial to evaluate the structural integrity of the tooth following root canal therapy and restoration. While root canal treatment effectively eliminates infection and inflammation within the tooth's pulp, it often leaves the tooth weakened and more susceptible to fracture due to the removal of vital tissues and the loss of tooth structure. In cases where significant coronal damage is present or where the tooth is subjected to substantial occlusal forces, crown placement may be necessary to reinforce the tooth and prevent fracture.

Crown placement can significantly improve the longevity of the restoration by providing additional support and protection against fracture, thus enhancing the tooth's prognosis and reducing the likelihood of future complications.

In addition to structural considerations, functional aspects play a crucial role in determining the necessity of crown placement. Teeth in the posterior region are subjected to higher occlusal forces during mastication, increasing the risk of fracture and failure of the restoration. Crown placement in these cases can distribute occlusal forces more evenly across the tooth, reducing the risk of structural damage and ensuring long-term functionality.

However, it is essential to recognize that crown placement may not be necessary in all cases of post-endodontic restoration. In teeth with minimal coronal damage or low functional demands, alternative treatment options such as direct restorations or onlays may provide adequate strength and longevity without the need for a full coverage restoration. Additionally, patient-specific factors such as esthetic concerns, financial constraints, and oral hygiene compliance should be taken into consideration when determining the most appropriate treatment plan.

Overall, while crown placement can offer significant benefits in terms of reinforcing the tooth, improving longevity, and enhancing functionality, it should be approached on a case-by-case basis, considering the individual needs and circumstances of the patient. Collaborative decision-making between the dentist and the patient, guided by evidence-based principles and clinical judgement.

CONCLUSION

In conclusion, our comprehensive survey on the necessity of crown placement after post-endodontic restoration among general dentists has provided valuable insights into clinical practices and decision-making processes. Our findings suggest that while there is a general

consensus on the importance of preserving tooth structure and ensuring long-term prognosis, there are variations in treatment approaches based on factors such as tooth location, extent of damage, patient preferences, and financial considerations.

It is evident that the decision to recommend or forego crown placement is multifactorial and requires careful consideration of various clinical and patient-specific factors. While crown placement may be deemed necessary in cases where there is significant coronal damage or functional demands, alternative treatment options may be appropriate in select scenarios where preserving tooth structure and minimizing costs are prioritized.

Furthermore, our survey highlights the need for evidence-based guidelines and continued education to support dental practitioners in making informed decisions and providing optimal care to their patients. Future research endeavors should focus on further elucidating the long-term outcomes and prognostic factors associated with different treatment approaches, thereby refining our understanding and enhancing clinical decision-making in post-endodontic restorative dentistry. Overall, this survey contributes to the ongoing dialogue on the necessity of crown placement after post-endodontic restoration, ultimately aiming to improve patient outcomes and satisfaction in dental practice.

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