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Original Article

Assessment of Knowledge and Practice on Post-Endodontic Restorations Among Dental Practitioners in Riyadh

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ABSTRACT

The primary goal of post-endodontic therapy restoration is to maintain regular operations, occlusion, and stability of the dental arch. Endodontically treated teeth requiring treatment are becoming more common, and a variety of post-endodontic restorative materials are available. The present study sought to determine the practices and knowledge concepts of dental professionals in Riyadh regarding restorations that come after endodontic treatment. An online survey was used to conduct this cross-sectional study among dental practitioners in Riyadh, Saudi Arabia. Social media was used to reach 374 dentists, including general practitioners and specialists/consultants, who were part of the present study. In addition to questions on knowledge, attitude, and practice regarding the restoration of endodontically treated teeth, an online survey was created that asked about personal, professional, and demographic data. 47.1% of respondents said they preferred ceramic crowns, 50.5% said they preferred fiber-reinforced prefabricated posts, and 43.3% said they preferred tapered, smooth prefabricated posts. The participating dentists were assessed to have an acceptable overall level of knowledge and practice.

Keywords: Post-endodontics, Restorations, Dentists, Knowledge

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Introduction

Maintaining regular operations, occlusion, and stability of the dental arch are the main goals of post-endodontic therapy restoration. Endodontically treated teeth that require treatment are becoming more and more common, and there is also a growing variety of post-endodontic restoration materials available to dentists. However, there are several largely material-oriented and likely perplexing discoveries from this field of study. Thus, it is not shocking that the implementation of post-endodontic restorative therapy is influenced by variables like specialized status rather than just replicating ideas from the literature. These findings suggest that every dentist develops a unique experience-based treatment model [1].

The repair of teeth that have had endodontic therapy is still a topic of much discussion in modern dentistry, and there are still some contentious issues surrounding post-endodontic treatment. Although the prognosis of endodontically treated teeth can be affected in many ways, the type of tooth and the amount of dental matter remaining after removing caries and endodontic procedures are the primary factors that determine if to place a post as well as the kind of basic that is used [2]. Glass-fiber posts were a very frequently utilized repair material by participant dental professionals, independent of the type of prosthodontic restoration being planned, according to a German study. Much of the participating dentists preferred composite resin cores; 50% of them used adhesive post-placement, and there was consensus regarding the significance of Ferrell and its effects. Most dentists said they would not place a post for direct restoration, while only a small minority said they would do so for abutment teeth

for laboratory restoration [3].

A separate survey of dentists in Jeddah, Saudi Arabia, found that the nonmetallic prefabricated post was the most often used option for molars and front teeth. The current trend of employing all-ceramic restorations for anterior teeth may clash with the usage of cast posts and cores, which were the second most common post types. Dentists who were asked how often they applied different types of posts for premolars showed a comparable preference for cast post and core and nonmetallic prefabricated post. According to the majority of research participants, composite resin is typically used as a core construction for teeth that have undergone endodontic treatment. On the other hand, the research participants reported that they frequently restored molars that had received root canal therapy using amalgam as a basic building material. This trend toward amalgam use is expected to decline soon due to Saudi Arabia's recent commitment under the Minamata Convention to reduce mercury-containing items [4].

Another study conducted in Riyadh, Saudi Arabia, found that most participating dentists believed that using posts to restore endodontically treated teeth is a good way to enhance the ETT. Regardless of the material, the most popular choice was to utilize prefabricated, parallel-sided posts, and it was found that composite resin was frequently employed as a core material [5].

Aims of the study

- Assessing the awareness and practices of dental professionals in Riyadh about endodontic therapy after repairs.
- To contrast the results according to qualifications and job experience.

Materials and Methods

Design

This cross-sectional investigation was conducted utilizing an online survey of dental practitioners in Riyadh, Saudi Arabia.

Samples

Social media was utilized to reach 374 dentists for the present investigation, including general practitioners and specialists/consultants.

Instrument

An online survey was created that asked questions about personal, professional, and demographic data in addition to questions about knowledge, attitudes, and practices related to endodontic tooth restoration.

Instrument reliability and validity

Twenty participants were given the questionnaire, and its dependability was established using Cronbach's alpha (0.708). Authenticity was assessed by sending the survey form to experienced REU professors, who made adjustments based on their comments.

Statistical analyses

P-values < 0.05 were deemed significant using the Chi-square test, and inferential and descriptive statistics were conducted employing SPSS version 22.

Results and Discussion

As shown in **Figures 1-3**, 67% of the study participants were male and 33% were female. According to their qualifications, 25.7% were specialists/consultants, and 74.3% were ordinary dentists. 75.4% and 24.6%, respectively, have less than 10 years of work experience.

Table 1 presents the survey's findings, which show that 58% of dentists favored composite if there was over 50% of the crown still in place, 50% believed that all teeth with post and core needed to be capped, and 61% said that teeth that had received endodontic therapy were more fracture-resistant because of the ferrule impact. Ceramic crowns were chosen by 47.1% of respondents, fiber-reinforced prefabricated posts by 50.5%, and tapered, smooth prefabricated post designs by 43.3%.

Table 2 displays a comparison of the survey answers by qualifications, which indicates that there was no statistically significant variation in the general understanding and practice of post-endodontic restorations across qualifications. Nevertheless, when asked if all teeth should be crowned (P-value = .016) and if rubber dam isolation was necessary (P-value = .004), statistically significant differences were seen.

The comparison of answers according to the participants' work experience is shown in **Table 3**, The data indicates that there were statistically significant differences when asked about the rubber dam demand (P-value = .000), the favored crown type (P-value = .045), the material selected for regaining ETT (P-value = .005), the type of prefabricated post preferred (P-value = .028), and the prefabricated post design (P-value = .007).

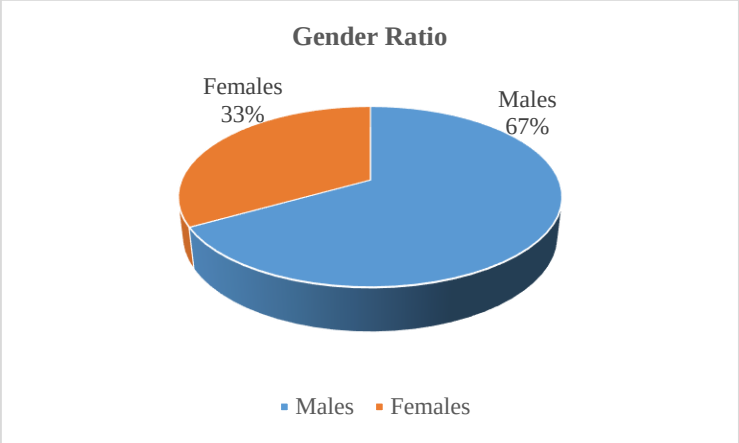

Figure 1. Gender ratio of the study participants

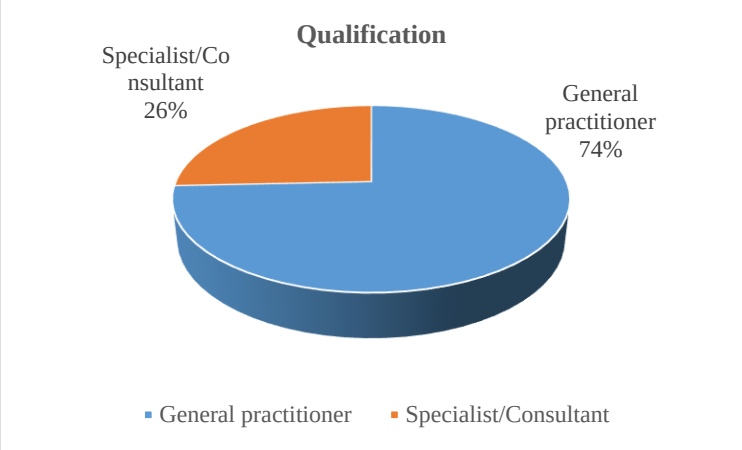

Figure 2. Qualification of the study participants

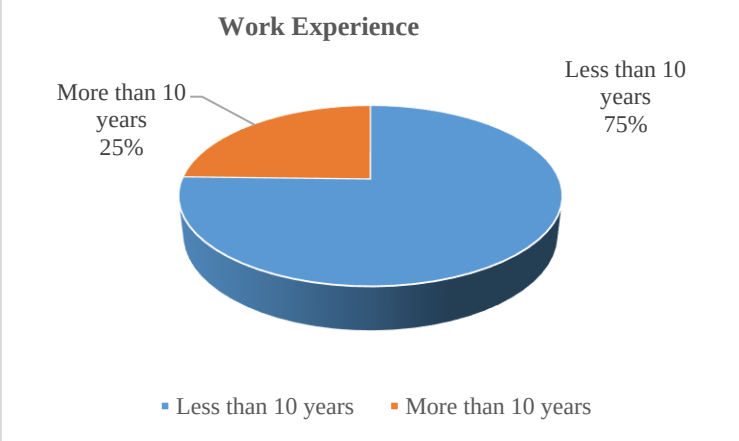

Figure 3. Work experience of the study participants

Table 1. Frequencies of survey responses

Survey questions	Frequencies
Does a post-endodontic repair necessitate rubber dam isolation?	Yes: 61.8% No: 16.3% Not sure: 21.9%
Which material is your favorite selection for endodontically treated teeth with over 50% of the crown still present?	Composite:58% Amalgam: 26.2% GIC: 15.8%
Do teeth that have received endodontic treatment have a higher breakage	Yes: 61%

resistance because of the ferrule impact?	No: 18.2% Not sure: 20.9%
And what kind of posts are you going to use?	Custom cast posts: 44.9% Prefabricated posts: 55.1%
Should crowns be placed on all teeth that have a post and core?	Yes: 50% No: 34.8% Not sure: 15.2%
When is your preferred time to complete the post and core?	24 hours after obturation: 50% One week after obturation: 50%
Which kind of crown is your favorite?	Metal: 24.6% PFM: 28.3% Ceramic: 47.1%
Which prefabricated post is your favorite?	Fiber-reinforced: 50.5% Metallic: 21.7% Composite: 16.3% Ceramic: 11.5%
What is your preferred prefabricated post styling?	Tapered, smooth: 43.3% Parallel, serrated: 15.5% Tapered, self-threading: 13.9% Parallel, threaded: 10.4% Parallel, serrated, tapered end: 16.8%

Table 2. Comparison of survey responses based on qualification

Survey questions	General practitioner	Specialist/Consultant	P-value
Is separation of the rubber dam necessary during post-endodontic restoration?	Yes: 64% No: 13% Not sure: 23%	Yes: 54% No: 27% Not sure: 19%	.004
When a tooth has had endodontic treatment and more than 50% of the crown is still there, what material is your preferred selection?	No statistically significant association		.182
Does the ferrule influence make teeth that have had endodontic treatment more resistant to fracture?	No statistically significant association		.888
Which type of posts would you use?	No statistically significant association		.721
Should every tooth with post and core be crowned?	Yes: 53% No: 35% Not sure: 12%	Yes: 42% No: 34% Not sure: 24%	.016
When would you prefer to do the post and core?	No statistically significant association		.407
What is your preferred type of crown?	No statistically significant association		.117
Which prefabricated post would you prefer?	No statistically significant association		.342
Which design of prefabricated posts would you prefer?	No statistically significant association		.539

Table 3. Comparison of survey responses based on work experience

Questions	Less than 10 years	More than 10 years	P-value
Is rubber dam isolation required during post-endodontic restoration?	Yes: 67% No: 15% Not sure: 17%	Yes: 45% No: 20% Not sure: 36%	.000
What is your material of choice to treat an endodontically treated tooth when more than 50% crown is remaining?	Composite: 62% Amalgam: 22% GIC: 16%	Composite: 47% Amalgam: 39% GIC: 14%	.005
Does the ferrule effect increase the fracture resistance of endodontically treated teeth?	No statistically significant association		.279
Which type of posts would you use?	No statistically significant association		.400
Should every tooth with post and core be crowned?	No statistically significant association		.063

When would you prefer to do the post and core?	No statistically significant association		.118
What is your preferred type of crown?	Metal: 22% PFM: 28% Ceramic: 50%	Metal: 34% PFM: 28% Ceramic: 38%	.045
Which prefabricated post would you prefer?	Fiber reinforced: 13% Metallic: 11% Composite: 54% Ceramic: 21%	Fiber reinforced: 25% Metallic: 12% Composite: 39% Ceramic: 24%	.028
Which design of prefabricated posts would you prefer?	Tapered, smooth: 48% Parallel, serrated: 14% Tapered, self-threading: 13% Parallel, threaded: 8% Parallel, serrated, tapered end: 16%	Tapered, smooth: 28% Parallel, serrated: 20% Tapered, self-threading: 16% Parallel, threaded: 17% Parallel, serrated, tapered end: 18%	.007

This research investigated the inclination and expertise of dentists in Riyadh towards the use of restorative procedures following the completion of root canal therapy. We shall compare the results of several research studies that have been conducted in this field of dentistry with our own. According to research by Alenzi *et al*. [6], the majority of dentists did not think that ETT should be assigned to a position. All-ceramic crowns were the preferred choice, but the majority insisted that ETT must be crowned. A post can strengthen ETT, according to the majority of dentists. The anatomy of the remaining tooth was the primary determinant of whether or not to use any kind of post. Numerous dentists believed that the presence of ferrules could improve the fracture resistance of ETT. When comparing these findings to our study, we discovered that the majority of participants favored all-ceramic crowns, which is the same as the previously mentioned research, and that more than half of the dentists believed that ferrule influence would improve the fracture resistance of ETT, which is the same as the investigation that was compared.

When asked about their preferences and level of expertise regarding ETT restoration, our results indicate that there was no significant distinction between general practitioners and experts. When asked if rubber dam isolation was necessary during post-endodontic restoration and whether all teeth with post and core must be crowned, only statistically significant variations were found. However, when comparing our findings with those of another similar study conducted by Sharma *et al*. [7], it was found that, when asked about the same variables, there was an overall statistically significant distinction between the two groups and that specialists were more informed than general practitioners.

According to a different study conducted in India, the participants lacked a theoretical understanding of case selection for post and core restorations. However, the approach and practice skills made up for it. Additionally, a statistically significant correlation was seen between the research participants' year of post-graduation and their responses to the comprehension, approach, and practice-based questions. When it came to selecting cases for post and core, most of the more experienced dentists were more knowledgeable and had more expertise than the less experienced [8]. Nevertheless, the findings of our study likewise revealed a statistically significant difference in experience between the two groups; nevertheless, the less experienced participants had a higher degree of understanding and mindset, which is the reverse of what the comparable research was able to accomplish.

One of the limitations of the research is the modest number of highly skilled dentists and specialists/consultants that took part; this number may be raised to get more reliable findings.

Conclusion

- The general level of awareness and practice was deemed to be adequate among the participating dentists.
- Nevertheless, when comparing based on qualification, no statistically significant distinction was found.
- In contrast to dentists with more experience, those with less experience demonstrated superior understanding and practice.

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Conflict of Interest: None

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Ethics Statement: Ethical approval was obtained from the REU review board.

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