

COMPARISON OF THE NON-SURGICAL ENDODONTIC TREATMENT VERSUS SURGICAL TOOTH EXTRACTION IN RIYADH, SAUDI ARABIA

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ABSTRACT

Dental therapy choice and treatment strategy are significant aspects of Non- Surgical/ Surgical endodontic treatment. The Dental practitioners must arrange the therapy strategy based on their knowledge, abilities, skills and more significantly the patients choice and dentition. Indubitably, the therapy plan for each patient is exclusive and cannot use for all patients. Dental practitioner's self-estimation of their abilities opens up treatment options; however, in severe or difficult cases it is advised to refer to a specialist. Presently, one of the most

challenging aspects of dentistry is the choice between extractions instead of a complicated root canal treatment (RCT). Overemphasis on one treatment plan while neglecting other options, not only mislead the dentist but also impose unnecessary charges to the patients. This mini-review compares RCT to Extraction from various aspects to help practitioners in routine decision making.

KEYWORDS: Non-Surgical Endodontic Treatment, Surgical Tooth Extraction, Dentistry, Dental therapy.

INTRODUCTION

In recent years the number of people seeking endodontic treatment has dramatically increased because of conservative tendency towards root canal treatment over tooth extraction (Ruddle 2002). The aim of root canal treatment is to clean and disinfect the root canal system in order to reduce the number of micro-organisms, remove necrotic tissue, and finally seal the system to prevent recontamination. Success rates up to 97% have been reported for endodontic initial treatment (Friedman 2004) but failure may occur after treatment.^[1, 2, 4]

When a tooth gets badly infected at the nerve, there are two options for addressing the issue: a root canal or tooth extraction. These procedures have various pros and cons, but general consensus from dental professionals is that it's best to save the tooth whenever possible. Of course, certain situations call for the tooth to be entirely extracted as well. From a consumer point of view, deciding between these two options can be rather complicated.

A tooth extraction may appear to be cheaper at first, which encourages many people to opt for having the tooth pulled rather than undergoing a root canal. Yet an extraction comes with its own set of risks and requires follow-up procedures to implant a spacer or false tooth in the gap. While your dentist will be able to make a recommendation based on your specific situation, the final decision is ultimately yours. What is important is addressing an infected tooth, as ignoring this issue not only leads to oral health problems, but also larger medical issues if the infection spreads.

When a large cavity or other factor causes a tooth's root to become infected and inflamed, a root canal is often done to remove the infected root without taking out the tooth. An opening is made through the crown of the tooth and then special files are used to remove the infected pulp. Next, the canals are shaped and thoroughly cleaned before they are filled with a permanent material and sometimes a support known as a post. A filling is then placed over the canal to seal off the tooth, and a crown is added on top.^[3]

A root canal has several advantages over a tooth extraction. Each tooth in the mouth supports the teeth around it, so when a tooth is extracted the neighboring teeth will start to push into the gap. According to a survey by the American Association of Endodontists, 76 percent of people prefer the idea of a root canal to a tooth extraction, likely due to a desire to keep their own teeth. In recent history, this procedure has become increasingly popular, whereas extractions were more common in the past.^[6]

From a cost standpoint, a root canal is generally more expensive than the price of a tooth extraction, but the latter procedure requires getting a dental bridge or implant in place of the lost tooth. Overall, this means that the work needed to complement a tooth extraction is potentially more expensive than a root canal in the end. No matter what procedure you have done, having a dental discount plan will ensure that you save on the price of dental care.^[5,7]

A tooth extraction in plain terms is just having a tooth entirely removed. Some teeth, such as wisdom teeth, may have to be extracted to prevent crowding and other issues. The Consumer

Guide to Dentistry notes that there are two types of extractions: simple and surgical. A simple extraction is usually performed by a dentist and involves removing a tooth that is easily visible. A surgical extraction is needed when a tooth is harder to reach and may require an oral surgeon.

There are several situations in which a tooth may need to be extracted. The Consumer Guide to Dentistry lists severe tooth damage, orthodontic treatments, extra teeth and malpositioned teeth may all cause the need for a tooth to be removed. Moreover, some conditions and therapies heighten the risk of teeth getting infected, and therefore can lead to an increased need for an extraction.^[8]

This study aims at comparing the success rates of surgical versus non-surgical endodontic therapy for the treatment of periapical lesions, based on the survey in order to provide clinicians with the best evidence-based information for their decision making process.^[9, 10, 11]

AIM & OBJECTIVE OF STUDY

AIM: This study aimed to investigate treatment decision preferences with regard to selecting between retention of a tooth with AP using non-surgical RCT, versus its surgical tooth extraction in Riyadh, Saudi Arabia.

MATERIALS AND METHODS

DESIGN AND DISTRIBUTION

After obtaining approval from the Supervisor, a thirty question survey and informed consent was developed and distributed to dentists in Riyadh, Saudi Arabia. Questions evaluated both their perceptions of non-surgical endodontic and surgical tooth extraction treatment prognosis as well as their current and projected utilization. Also the sources of information upon which these opinions are based were evaluated. Phone calls were made to each dentist to obtain their preferred form of communication: fax, email or postal mail. The final number of dentists surveyed was thus: 150. The web interface www.surveymonkey.com was the central form of distribution with 120 dentists choosing to be emailed; the other 30 were faxed.

COLLECTION OF SURVEY DATA

The data was collected during a 2 month period. Two reminder emails, after a two week interval, were sent to the dentists who chose to be emailed. To facilitate collecting unbiased data respondents were informed that the survey was completely anonymous and identification of the participant was not linked to the individual responses. The survey was formatted so

that participants were allowed to skip questions and give partial answers. Any emails that were returned as undeliverable were resent with amended correct contact information.

DATA ANALYSIS

Raw data was entered into an Excel (Microsoft Corp, Redmond, WA) spreadsheet. Data analysis was performed using SPSS (ver. 16.0; SPSS Inc., Chicago, IL, USA). To analyze the data from question number 21 the Z-test was used and the level of significance was set at $P < 0.5$. Multinomial logistic regression and linear odds ratios were used to evaluate significant differences among groups at the 95% confidence interval. Frequency distribution analysis was used to analyze the data sets in many of the questions.

Dependent variables were extraction versus root canal treatment of a vital pulp, extraction versus root canal treatment of a necrotic pulp, extraction versus a retreatment, endodontic treatment of a salvageable or restorable tooth versus an extraction, endodontic retreatment of a failing root canal treatment versus extraction. Independent variables were years since graduation, sources of information and specialist versus general dentist.

RESULTS

An overall 75% response rate was obtained ($n=150$); 120 from email, 30 faxed.

61.7 % responders were general dentists and 33.3 % were interns and 2.5 % specialists. Many of the orthodontists and pediatric dentists responded that they were not going to complete the survey since it was not in their realm of dentistry. 90.7% responders were in private practice. 63.3 % responders were in the age group between 25-35 years, and 34.2% responder's were below 25 years as show in the figure below.

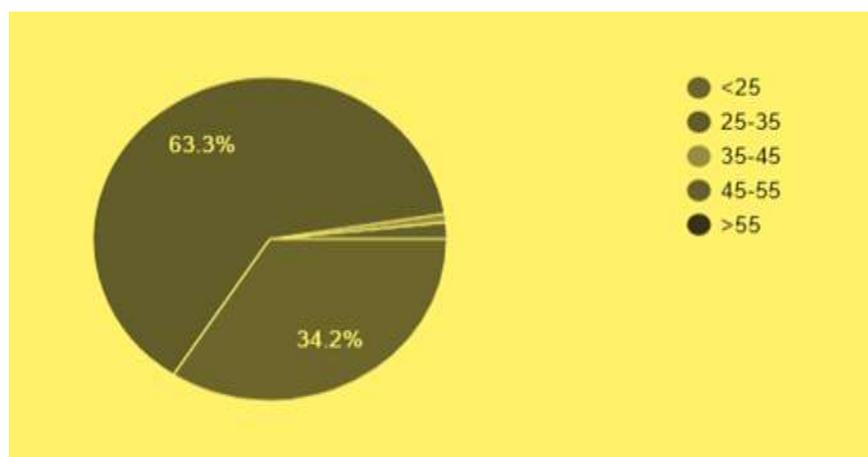


Figure No 3: Showing the percentage age groups of Dentists.

The majority of the dentist who answered the survey were females, ranging about 80.8% responders being Females and 19.2 % being Males as shown in the below figure.

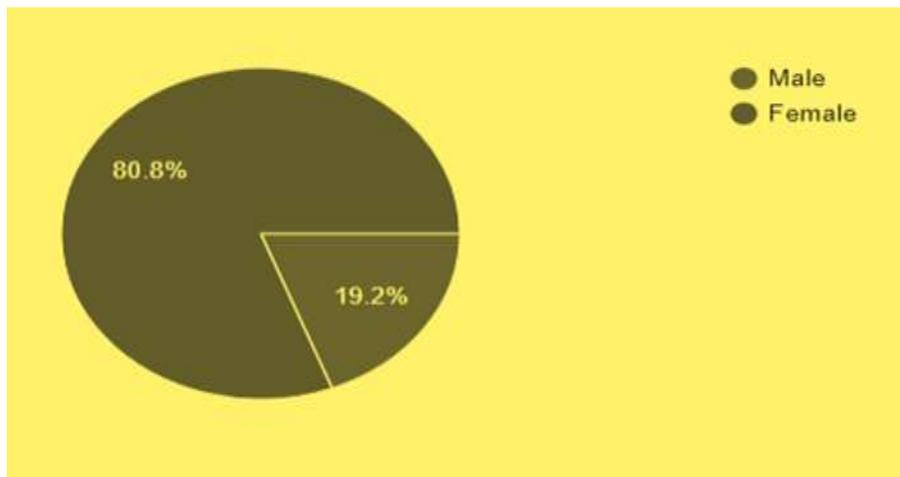


Figure No 4: Showing the percentage of the Gender of the Dentist.

The Chart shows that 61.7 % responders were General Dentist and 33.3 % responders were interns.



Figure No 5: Illustrates the number of responders per specialty.

Almost 80% of the responders were experienced below 5 years and 11.5 % responders were experienced in the range between 5-10 years of experienced. 54.2% of the responders said that Severe toothache pain upon chewing or application of pressure is a sign for tooth infection followed by 49.2% responders saying that Swelling and tenderness in nearby gums.

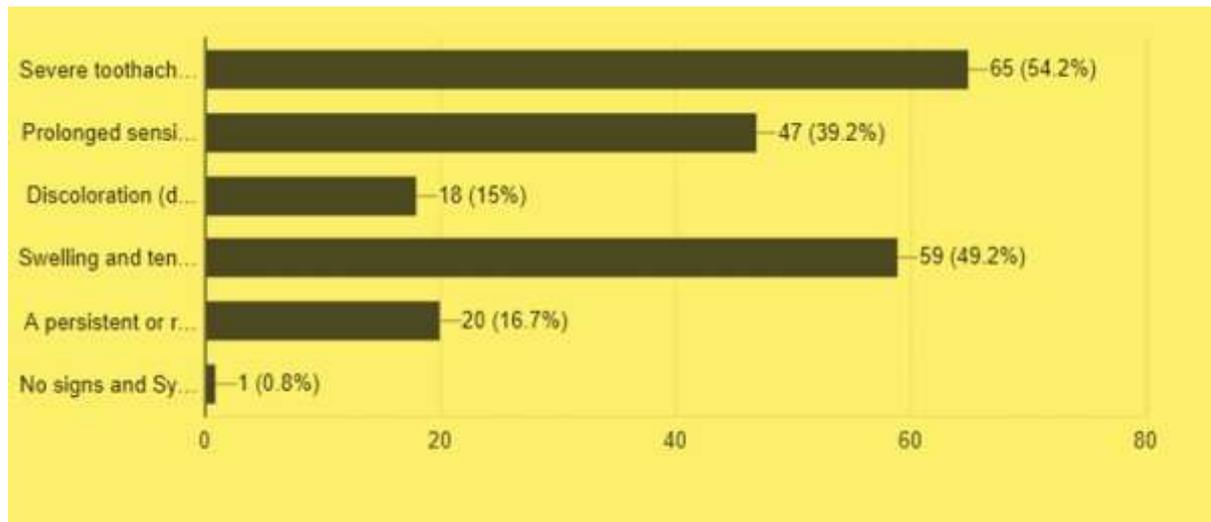


Figure No 6: The common Signs and symptoms for tooth infection.

About 88.2% responders feel that Infection by bacteria in the Pulp of the tooth causes the tooth infection whereas 5.9% responders feel that infection by bacteria in the Enamel of the tooth causes the tooth infection among the patients in Riyadh, Saudi Arabia.

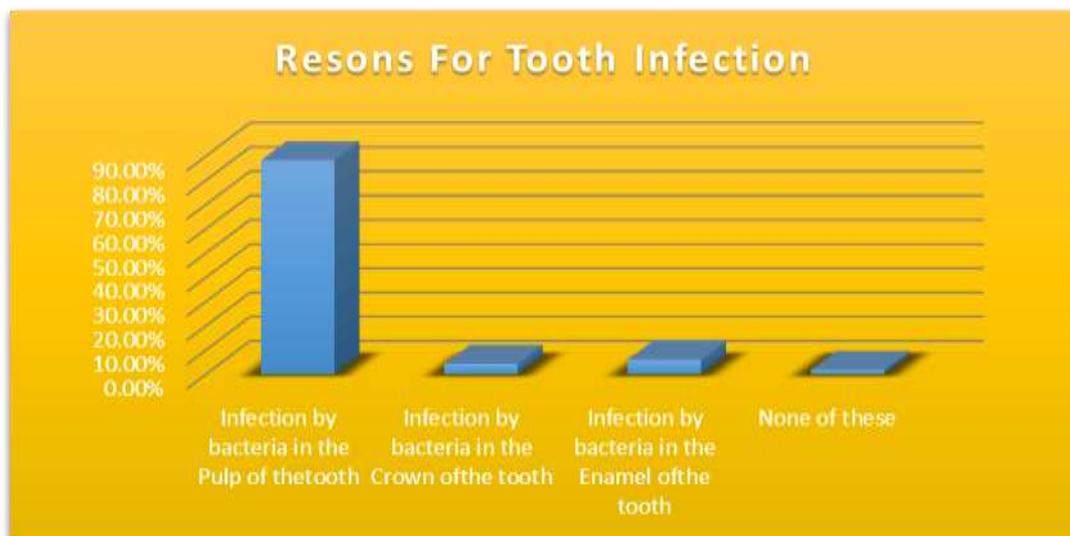


Figure No 7: Chart showing the comparison of reasons for tooth infection.

88.3% responders confirm that tooth decay is the most common cause for the infection of the tooth with tooth abscess been the next most common cause of tooth infection with 23.3% responders confirming it.

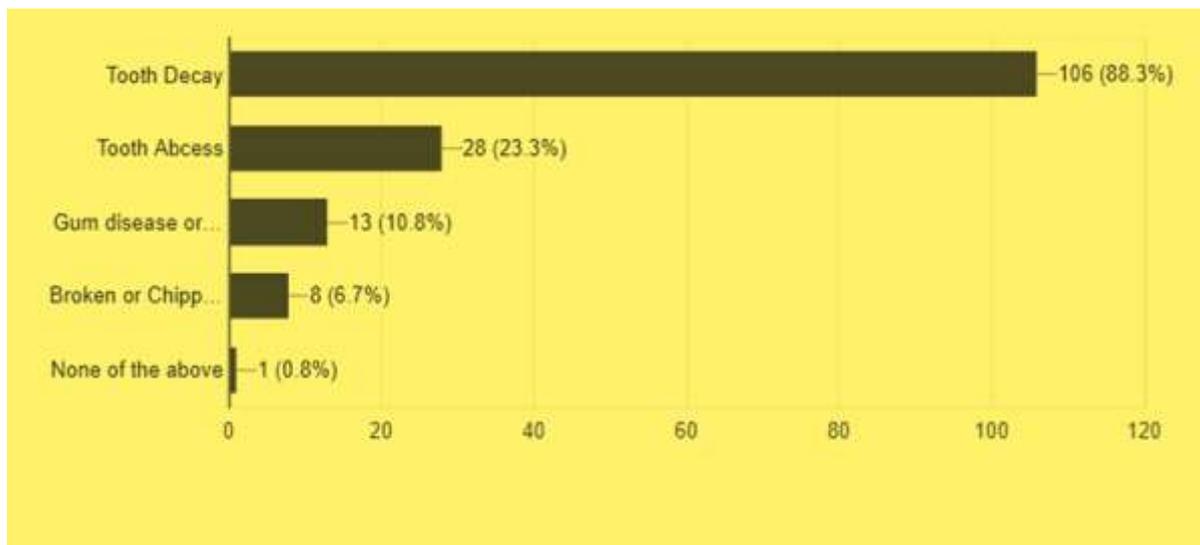


Figure No 8: Illustrates the comparison of various causes of tooth infection.

For about 95.8% the choice of treatment of the tooth which could not be treated by medication is Root canal Treatment, and for 4.2% responder's extraction is the choice of treatment.

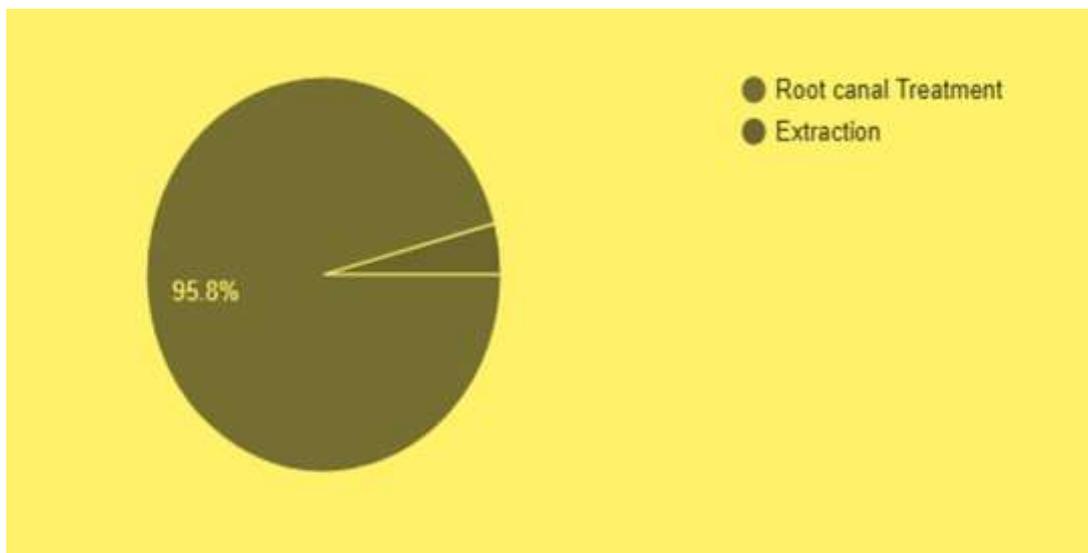


Figure No 9: The percentage of choice of treatment for infected tooth.

About 98.3 % responders feel that Root canal treatment is better compared to extraction to treat the patients in Riyadh, Saudi Arabia. 93.3% responders say that Root canal treatment is much more expensive than Extraction.

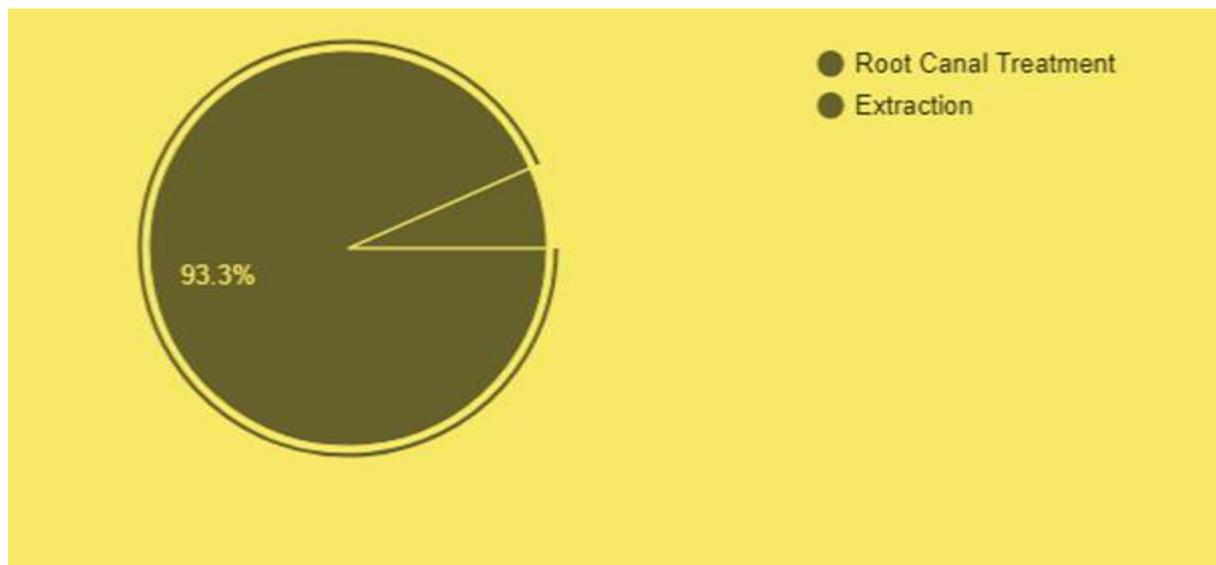


Figure No 10: The percentage of comparison of RCT and extraction expenses.

According to 56.7 % responders Extraction causes much less pain in the patients compared to 43.3% choosing Extraction to be less painful.

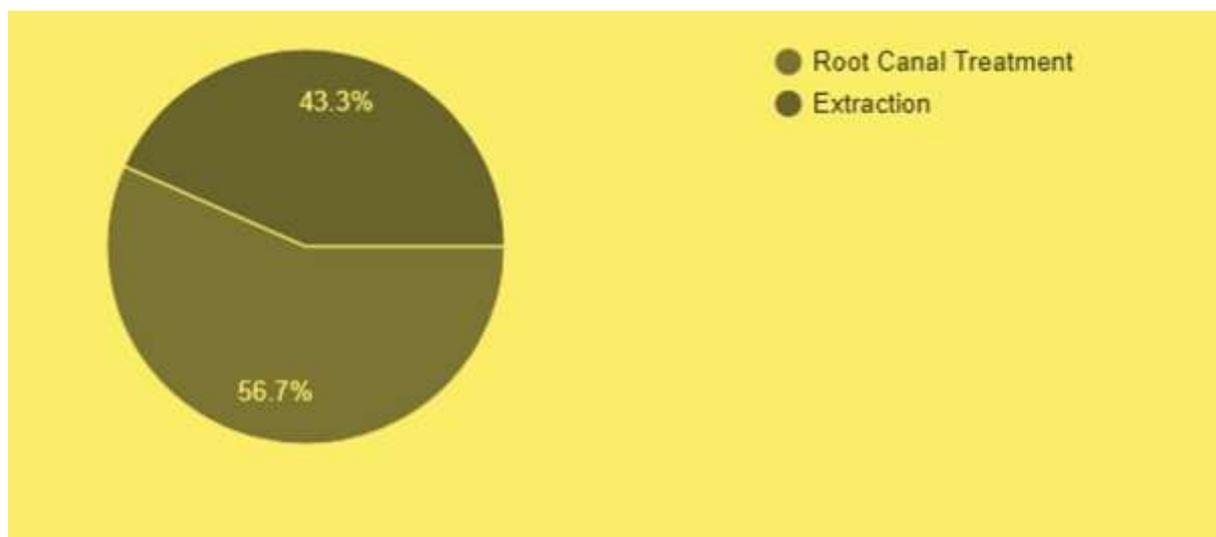


Figure No 11: Illustrates the less painful tooth treatment.

The most common reason (55.5%) because of which the patients opt for Extraction over Root canal treatment is the Number of sittings required in the root canal treatment are more compared to extraction and 16.8% responders feel that the reason is Root canal been expensive over extraction.

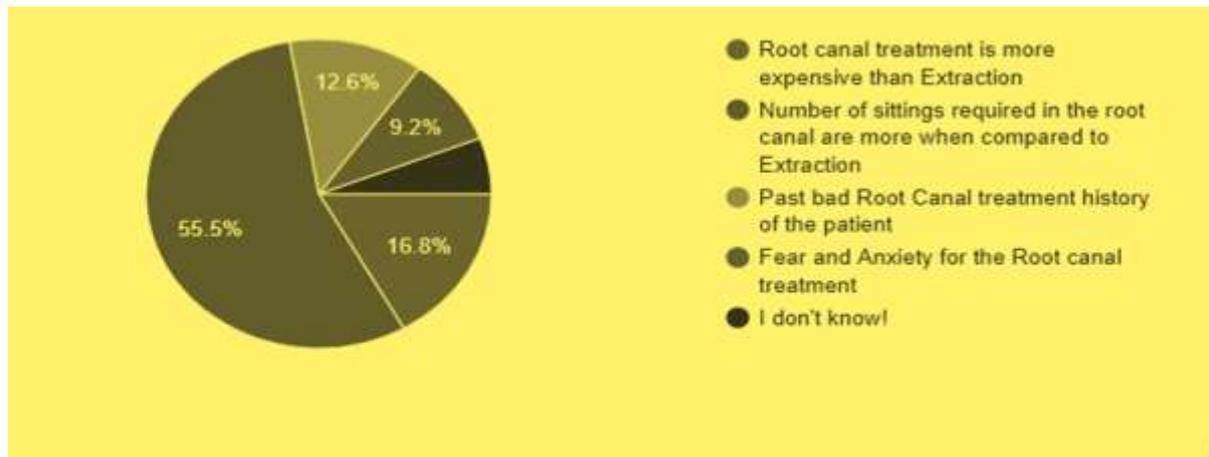


Figure No 12: The most common reasons for opting Extraction over Root Canal Treatment.

Dentists were asked to strongly agree, agree, undecided, disagree or strongly disagree with the following statement: Does endodontic treatment of a salvageable or restorable tooth provide a better outcome than extraction. For statistical analysis the 5 groupings were combined to three: agree, undecided, and disagree. Frequency analysis revealed that 65% of respondents agreed with this statement. When asked, “Is endodontic retreatment of a failing root canal in a restorable tooth preferable to extraction”, 47% were undecided. When asked, “In published studies criteria used to determine a successful root canal treatment are the same as criteria used to determine a successful extraction”, 46% were again undecided.

This is a frequency analysis asking the responders to choose agree, disagree or undecided with the following questions. The most common answer is in bold.

DISCUSSION

According to this survey, dentists feel the prognosis of root canal therapy of a tooth with a vital pulp is still superior to that of an extraction. This is in contrast to a survey of dentists in Virginia completed in 2007 where respondents preferred endodontic retreatment 66% of the time over extraction. 43 Our results showed that 41% of the junior dentists disagree that retreatment is preferable to extraction and an extraction versus 50% of the senior dentists disagreeing. So our results contradicted these findings by reporting that the older dentists choose the implant more.

The recent AAE survey in part addressed this dilemma by assessing understanding of outcomes among dental educators and students. Our study complemented this data by

broadening the scope of surveyed individuals to include all types of practitioners. The only area that did not increase was endodontic treatment completed by respondents. The increase in tooth treatment and referrals may be a result of an increase in insurance reimbursements by some carriers for tooth treatment. The interval of time surveyed represented a time of economic prosperity. As general dentists in the Connecticut area were overwhelmed by patient's restorative needs, their response in most cases was to increase referrals including the less complex endodontic cases.

CONCLUSION

The majority of respondents were unaware that a difference in criteria for success exists between the endodontic and tooth extraction literature. Older dentists were the least likely to appreciate this difference. Dentists feel the prognosis of a vital pulp is still superior to tooth extraction. General Dentists have a more positive outlook on the prognosis of root canal treatment of a vital pulp than specialists.

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