

Arab Dentists' Knowledge About Root Canal Treatment Outcome (Survey Based Research)

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Abstract: The optimal outcome for root canal treatment consists of controlled reducing of inflammation, accompanied by healing through regeneration, although sometimes repair may follow instead. The evaluation process is further complicated by the lack of direct correlation between measures of the disease process and its clinical manifestation.

Objectives This research aimed to assess the opinion of Arab Dentists regarding the predictable initial root canal treatment, expected long-term outcome and the importance of placing a coronal coverage after finishing root canal treatment.

Materials and Methods: An eleven questions questionnaire was sent to the Arab dentists through Emails, Facebook accounts, and phone messages.

Results: There were 21.2% of dentists who answered that the expected retention rate of teeth 5 to 10 years after endodontic treatment was in the range (61-70) %, whereas 19.3% responded that such retention rate was more than 90%. 62.8% of the dentists responded that the need for another treatment, like retreatment, endodontic surgery or tooth removal, was expected to occur within the first 3 years after root canal treatment if the first treatment has failed. 6.1% of dentists answered that placing coronal coverage after completion of root canal treatment in premolars and molars was not important for long-term tooth retention. 71.4% responded that root canal treatment was a predictable procedure with long-term tooth retention rate.

Conclusion: It appears that most dentists participating in this survey consider root canal treatment to be a predictable procedure with long-term tooth retention rate.

Keyword : Initial root canal treatment, opinion, root canal treatment success, root canal treatment outcome, survey, tooth retention

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I. Introduction

The outcome of root canal treatment may be assessed in four dimensions as in other medical disciplines(1). The first dimension is physical/physiologic and related to presence or absence of pulpal/periapical health/disease, pain, and function. The second dimension assesses longevity or tooth survival. The third dimension relates to economics and assesses direct and indirect costs. Finally, the fourth dimension examines psychological aspects involving perceptions of oral health-related quality of life (OHRQoL) and aesthetics. The outcome measures that quantitate healing subsequent to root canal treatment are the absence of clinical signs and symptoms of persistent periapical disease(2,3) Longevity measures include survival of the root canal fillings or treatment(4) and tooth retention or survival(5). Cone-beam computed tomography (CBCT), a new three dimensional imaging technique requiring only 8% of the effective dose of conventional computed tomography,(6) has been proposed as a means of overcoming the problem of superimposition of tissue layers and structures. CBCT was found to be significantly more accurate in detecting minor bone lesions compared with two-dimensional radiology(7). Many studies consider the treatment successful only when both radiographic and clinical criteria are satisfied(8).Friedman and Mor(8) preferred the terms healed, healing, and diseased instead of success and failure because of the potential of the latter to confuse patients. The "healed" category corresponds to "success" as defined by Strindberg,(9)whereas "healing" corresponds to "success" as defined by Bender and colleagues(2,3).root canal treatment outcome is related to treatment expectations of the dentist and

can affect case selection and treatment plan(10). Follow-up clinical studies have shown that root canal treatment using recent principles can reveal favorable outcome with healing rates more than 90%(11). When assessing the retention rate of endodontically treated teeth, it has been found that nonsurgical endodontic treatment is a predictable procedure with excellent long-term prognosis(5,12). Lazarski et al.(5) studied patient populations in Washington State and assessed the outcome of initial treatment in 44,613 patients. They found that about 94% of the teeth kept its function after 3.5 years (5). Salehrabi and Rotstein(12) assessed the outcome of initial endodontic treatment in 1,462,936 teeth of 1,126,288 patients from 50 states across the United States. It was found that 97% of teeth were retained in the oral cavity at least 8 years after initial nonsurgical endodontic treatment. The combined incidence retreatments, apical surgeries, and extraction was 3% and occurred mostly within 3 years from completion of treatment. In addition, examining of the extracted teeth showed that 85% had no full coronal coverage and a significant difference was found between covered and noncovered teeth(12). Several studies assessing the opinions of dentists about the restoration of endodontically treated teeth have been published(13,14). However, information regarding dentists' opinions regarding endodontic treatment outcome and tooth retention rate is still lacking. The aim of recent study was to assess the opinion of Arab dentists regarding the predictability of initial endodontic treatment, expected long-term outcome and the importance of placing a coronal coverage after completion of treatment.

II. Materials And Methods

An eleven questions questionnaire was sent to the Arab dentists through Emails, Facebook accounts, and phone messages. The questionnaire included seven items on practice profile and demographics and four multiple choice questions regarding dentists' opinions on root canal treatment outcome (similar to that in Ilan Rotstein et al study 2006) (15). The 947 participants of this questionnaire was general dentists and specialists, distributed as in (Table1). Survey questionnaires were anonymous and participants were not required to give their names or any other identifying information. Descriptive statistical methods were used to evaluate the data obtained by this questionnaire.

III. Results

(67.4%) of participants were general practitioners and the rest were specialists (32.6%). (83.6%) were between 35 to 64 years old (Table2), had more than 20 years of professional experience (48.7%)(Table3), and practiced more than 40 hours per week (28.9%) (Table4). 19.3% of the participants responded that the expected retention rate of teeth 5 to 10 years after endodontic treatment was more than 90%, whereas 21.1% responded that such retention rate was between 71 to 80%, and 17.4% indicated it was less than 60% (Table5). 62.8% of the participants responded that the need for additional treatment, such as retreatment, apical surgery or extraction, was expected to occur within the first 3 years after endodontic treatment if initial treatment has failed(Table 6).65.2% of participants responded that placing coronal coverage after completion of endodontic treatment in premolars and molars was very important for long-term tooth retention(Table 7) while 71.4% responded that overall, endodontic treatment was a predictable procedure with long-term tooth retention rate(Table 8).

IV. Discussion

A high percentage of participants expected scenarios such as retreatment, apical surgery or extraction to occur within the first 3 year after initial endodontic treatment, this expectation is compatible with the mentioned data in the literature (12, 16). In a study in United States, it was found that most endodontic failures requiring another intervention were recognized within the first 3 years from initial treatment (12). The most percentage of apical surgeries was done within the first 2 years following completion of endodontic treatment (16). About 66A% of the Arab dentists, found that placing coronal coverage after completion of endodontic treatment in premolars and molars was very necessary for long-term tooth retention, and this result matches that in many studies (5, 12, 17). Salehrabi (12) found that more than 83% of teeth extracted after initial endodontic treatment had no full coronal coverage. The quality of the root canal treatment and the restoration plays an important role in long-term treatment outcomes (18). From our study it appears that participants who expected the long term tooth retention rate to be more than 90% were not in alignment with the findings of Lazarski et al. (5) and Salehrabi and Rotstein(12) who reported 94% and 97% retention rates, respectively(5,12). 71.1% of Arab dentists expressed that, all endodontic treatment was a predictable procedure with long-term tooth retention rate. This is well supported by evidence documented in the literature (10, 12, 19).

V. Tables

Table 1 : Distribution Of The Participants According To Gender And Specialty.

Distribution Of The Participants According To Gender		
	N	%
Male	638	67.4
Female	309	32.6
Distribution Of The Participants According To Specialty		
	N	%
General Dentist	638	67.4
Specialist	309	32.6

Table 2 : Age of The Participants.

Age	N	%
Less Than 35 Years	607	64.1
35-44 Years	237	25
45-55 Years	84	8.9
56-66 Years	19	2

Table 3 : Years Of Experience

Years Of Experience	N	%
0-5 Years	461	48.7
6-10 Years	193	20.4
11-15 Years	121	12.7
16-20 Years	88	9.3
More Than 20 Years	84	8.9

Table 4 : Practiced Hours Per Week.

Practiced Hours Per Week.	N	%
Less Than 10 Hours	178	18.8
10-20 Hours	139	14.7
21-30 Hour	168	17.7
31-40 Years	188	19.9
More Than 40 Hours	274	28.9

Table 5 : Expected Retention Rate:

Expected Retention Rate	N	%
Less Than 60%	165	17.4
60-70%	201	21.2
71-80%	200	21.1
81-90%	198	20.9
More Than 90%	183	19.3

Table 6 : Need For Additional Treatment:

Need For Additional Treatment	N	%
Within The First 3 Years After Endodontic Treatment	595	62.8
4 - 6 Years After Endodontic Treatment	203	21.4
More Than 6 Years After Endodontic Treatment	149	15.7

Table 7 : Coronal Coverage :

Coronal Coverage	N	%
Not Important For Long-Term Tooth Retention	58	6.1
Somewhat Important For Long-Term Tooth Retention	272	28.7
Very Important For Long-Term Tooth Retention	617	65.2

Table 8 : Endodontics As A Predictable Treatment:

Endodontics As A Predictable Treatment	N	%
Yes	676	71.4
No	110	11.6
I Don't Have An Opinion	161	17

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