

EVALUATION OF KNOWLEDGE AMONG DENTAL PATIENTS REGARDING ROOT CANAL SYMPTOMS AND TREATMENT

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ABSTRACT

To evaluate the awareness of dental patients of an ideal root canal treatment. This is a cross-sectional study conducted among dental patients using an online survey. 573 patients visiting the clinics of REU Muneseya campus were requested to fill the survey.

From these 573, nearly 188 were male respondents and 385 were female respondents. In further sectioning up the participants, most of them had belonged to the age group of 18 – 30 years which comprised of 45% in total, next was 21 – 45 years which was 36%, then we had 46 – 60 years which added up to 17%. The least contribution was from participants aging from 60+ years which made up 2% of the total respondents. A Chi-square test was done to compare the findings based on subgroups. Females showed a higher level of knowledge regarding the symptoms and appropriate management of root canal problems. Age was not associated with the knowledge of patients regarding root canal related issues and its treatment.

Key words: Root canal treatment, Symptoms, Knowledge, Dental patients, Evaluation

Introduction

One of the foreseeable managements to save an extensively decayed tooth is an endodontic treatment [1-4]. This involves the management of extensive carious lesions with removal followed by filling of root canal space. Since the discovery of the latest expertise and instruments in the dental field, it has made it more promising to take care of teeth that were of poor prognosis formerly such as root dilacerations or calcified canals [5, 6].

In Saudi Arabia, according to the Ministry of Health, the percentage of caries experience among the population is above 90%. This signifies that its population is highly vulnerable to go through endodontic treatment for the sake of saving a tooth. Many patients having root canal related issues are not aware of the symptoms associated with it, which results in the lack of treatment provided to these patients. Therefore, it is important to educate the public about signs and symptoms of root canal related problem to provide appropriate treatment to avoid unnecessary dental extraction [7, 8].

Although dental patients are more informed and seeking updates concerning their treatment, they are easily influenced by ambiguous information. This ambiguous information is consequential of fake advertisements and rumors, under-educated doctors, or non-specialized influencers. This information, with time, is considered as a standard that is sought by many patients [9, 10].

A low level of knowledge among the public was reported when conducted studies in several countries including India, Syria, and Saudi Arabia. This prevalence of low knowledge is associated with the non-treatment of deep caries leading to endodontics related problems. Several patients end up having dental extractions of teeth which could have been saved if there was the timely treatment provided [11-13].

Study hypotheses

Dental patients show a low level of knowledge regarding the symptoms related to root canal treatment.

Aims of the study

- To evaluate the awareness of dental patients of an ideal root canal treatment.
- To compare the findings based on age, gender, dental visits, and educational level.

Materials and Methods

Study Design

This is a cross-sectional study conducted among dental patients using an online survey.

Study Sample

573 patients visiting the clinics of a university dental hospital in Riyadh. were requested to fill the survey.

Study Instrument

An online questionnaire was designed using Google Forms with questions related to personal and demographic information followed by root canal symptoms and treatment-related questions.

Instrument Validity and Reliability

A pilot study was conducted by sending the survey to 20 participants and the data were inserted in SPSS version 22 to determine the reliability by using Chronbach’s coefficient alpha. The validity of the questionnaire was tested by sending it to experienced researchers in REU and no changes were made.

Statistical Analysis

Collected data were analyzed using SPSS version 22, where descriptive as well as inferential statistics were conducted. Comparisons between groups were made using the Chi-square test with the value of significance kept under 0.05.

Results and Discussion

In the following survey, there were nearly 573 respondents who were a part of this and had answered the questions asked. Of these 573, nearly 188 were male respondents and 385 were female respondents. In further sectioning up the participants, most of them had belonged fro, the age group of 18 – 30 years which comprised of 45% in total, next was 21 – 45 years which was 36%, then we had 46 – 60 years which added up to 17% and the least contribution was that from participants aging from 60+ of years which made up 2% of the total respondents (**Table 1**).

Following up was the educational segmenting, where the highest was 74% which belonged to the university, 22% were from high school, and the remaining 4% were from secondary and primary schools. Another major partitioning, which was vital to understand was that how many visits did these respondents had to the doctor to be able to answer the questions which were being asked. 57% of the people had

nearly more than 7 visits, the rest of them had visited a lesser number of times comparatively (**Table 1**).

Comparisons were done on the basis of gender, age, educational levels and number of previous dental visits with their value of significance mentioned using Chi square test (**Tables 2-5**). The comparisons showed that their was statistically significant difference in the knowledge and perception of participants on the basis of gender, where majority of the p-values were less than 0.05. However, remaining comparisons including educational levels, age and number of dental visits did not revealed too many statistically significant differences as the p-values were greater than 0.05.

Chronbach’s Alpha value: 0.578

Table 1. Demographics of the study participants

Gender:	
Male	188 (33%)
Female	385(67%)
Age:	
18-30 Years	258(45%)
31-45 Years	207(36%)
46-60 Years	95 (17%)
60+ years	14 (2%)
Education:	
Primary	7 (1%)
Secondary	18 (3%)
High School	123 (22%)
University	422 (74%)
Dental Visits:	
1-3 Visits	133 (23%)
4-6 Visits	112 (20%)
7+ Visits	325 (57%)

Table 2. Comparison of the basis of Gender

Item	Male	Female	P-Value
Have you ever undergone root canal treatment?	Yes 58%	Yes 71%	0.003
Which kind of a pain in your point of view needs root canal treatment?	Constant pain from cold drink which needs painkillers 39%	Constant pain from cold drink which needs painkillers 38%	0.010
	Pain from a cold drink that doesn’t stay for a long time 22%	Pain from a cold drink that doesn’t stay for a long time 13%	
	Pain from sugary foods and drinks 39%	Pain from sugary foods and drinks 49%	
What would be your response to any symptom?	Use Home Remedies 24% Visit a dentist 76%	Use Home Remedies 18% Visit a dentist 82%	0.099
Can antibiotics alone resolve endodontic	Yes 11% No	Yes 5% No	0.000

infections without visiting a dentist?	71% Don't know 19%	86% Don't know 9%	
What is your level of knowledge regarding root canal treatment?	Know a lot 15% Average knowledge 51% Don't know anything 34%	Know a lot 9% Average knowledge 63% Don't know anything 28%	0.007
From your point of view, what is the correct treatment?	A 10% B 40% C 6% Don't know 44%	A 10% B 38% C 1% Don't know 51%	0.015
When you have finished your root canal treatment, have the doctor asked you to take a radiograph?	Yes 42%	Yes 35%	0.105

Table 3. Comparison based on Age Groups

Item	18-30 Years	31-45 Years	46-60 Years	60+ Years	P-Value
Have you ever undergone root canal treatment?	Yes 48%	Yes 81%	Yes 84%	Yes 79%	0.000
Which kind of a pain in your point of view needs root canal treatment?	Constant pain from cold drink which needs painkillers 41% Pain from a cold drink that doesn't stay for a long time 15% Pain from sugary foods and drinks 44%	Constant pain from cold drink which needs painkillers 37% Pain from a cold drink that doesn't stay for a long time 16% Pain from sugary foods and drinks 47%	Constant pain from cold drink which needs painkillers 33% Pain from a cold drink that doesn't stay for a long time 19% Pain from sugary foods and drinks 48%	Constant pain from cold drink which needs painkillers 50% Pain from a cold drink that doesn't stay for a long time 7% Pain from sugary foods and drinks 43%	0.718
What would be your response to any symptom?	Use Home Remedies 21% Visit a dentist 79%	Use Home Remedies 14% Visit a dentist 86%	Use Home Remedies 26% Visit a dentist 74%	Use Home Remedies 29% Visit a dentist 71%	0.064
Can antibiotics alone resolve endodontic infections without visiting a dentist?	Yes 5% No 80% Don't know 15%	Yes 6% No 83% Don't know 11%	Yes 12% No 79% Don't know 9%	Yes 0% No 86% Don't know 14%	0.201
What is your level of knowledge regarding root canal treatment?	Know a lot 14% Average knowledge 54% Don't know anything 32%	Know a lot 9% Average knowledge 64% Don't know anything 27%	Know a lot 7% Average knowledge 65% Don't know anything 27%	Know a lot 7% Average knowledge 57% Don't know anything 36%	0.297
From your point of view, what is the correct treatment?	A 14% B 40% C	A 9% B 39% C	A 1% B 37% C	A 7% B 29% C	0.002

	5%	1%	1%	0%	
	Don't know	Don't know	Don't know	Don't know	
	41%	51%	61%	64%	
When you have finished your root canal treatment, have the doctor asked you to take a radiograph?	Yes 30%	Yes 44%	Yes 40%	Yes 29%	0.012

Table 4. Comparison based on Education Levels

Item	Primary	Secondary	High School	University	P-Value
Have you ever undergone root canal treatment?	Yes 86%	Yes 50%	Yes 61%	Yes 68%	0.133
Which kind of a pain in your point of view needs root canal treatment?	Constant pain from cold drink which needs painkillers 43%	Constant pain from cold drink which needs painkillers 39%	Constant pain from cold drink which needs painkillers 32%	Constant pain from cold drink which needs painkillers 40%	0.350
	Pain from a cold drink that doesn't stay for a long time 29%	Pain from a cold drink that doesn't stay for a long time 11%	Pain from a cold drink that doesn't stay for a long time 13%	Pain from a cold drink that doesn't stay for a long time 16%	
	Pain from sugary foods and drinks 29%	Pain from sugary foods and drinks 50%	Pain from sugary foods and drinks 55%	Pain from sugary foods and drinks 44%	
What would be your response to any symptom?	Use Home Remedies 29%	Use Home Remedies 12%	Use Home Remedies 26%	Use Home Remedies 17%	0.132
	Visit a dentist 71%	Visit a dentist 88%	Visit a dentist 74%	Visit a dentist 83%	
Can antibiotics alone resolve endodontic infections without visiting a dentist?	Yes 0%	Yes 17%	Yes 7%	Yes 6%	0.367
	No 86%	No 72%	No 76%	No 83%	
	Don't know 14%	Don't know 11%	Don't know 16%	Don't know 11%	
What is your level of knowledge regarding root canal treatment?	Know a lot 43%	Know a lot 11%	Know a lot 7%	Know a lot 11%	0.085
	Average knowledge 43%	Average knowledge 50%	Average knowledge 64%	Average knowledge 59%	
	Don't know anything 14%	Don't know anything 39%	Don't know anything 29%	Don't know anything 29%	
From your point of view, what is the correct treatment?	A 0%	A 22%	A 15%	A 8%	0.120
	B 43%	B 28%	B 34%	B 41%	
	C 0%	C 0%	C 1%	C 4%	
	Don't know 57%	Don't know 50%	Don't know 50%	Don't know 47%	
When you have finished your root canal treatment, have the doctor asked you to take a radiograph?	Yes 57%	Yes 44%	Yes 34%	Yes 37%	0.573

Table 5. Comparison of the basis of Dental Visits

Item	1-3 Visits	4-6 Visits	7+ Visits	P- Value
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Have you ever undergone root canal treatment?	Yes 48%	Yes 63%	Yes 76%	0.000
Which kind of a pain in your point of view needs root canal treatment?	Constant pain from cold drink which needs painkillers 42%	Constant pain from cold drink which needs painkillers 37%	Constant pain from cold drink which needs painkillers 37%	0.832
	Pain from a cold drink that doesn't stay for a long time 16%	Pain from a cold drink that doesn't stay for a long time 17%	Pain from a cold drink that doesn't stay for a long time 16%	
	Pain from sugary foods and drinks 42%	Pain from sugary foods and drinks 46%	Pain from sugary foods and drinks 47%	
What would be your response to any symptom?	Use Home Remedies 22%	Use Home Remedies 29%	Use Home Remedies 15%	0.008
	Visit a dentist 78%	Visit a dentist 71%	Visit a dentist 85%	
Can antibiotics alone resolve endodontic infections without visiting a dentist?	Yes 11%	Yes 8%	Yes 4%	0.002
	No 74%	No 74%	No 87%	
	Don't know 16%	Don't know 18%	Don't know 9%	
What is your level of knowledge regarding root canal treatment?	Know a lot 14%	Know a lot 8%	Know a lot 11%	0.209
	Average knowledge 53%	Average knowledge 59%	Average knowledge 63%	
	Don't know anything 34%	Don't know anything 33%	Don't know anything 26%	
From your point of view, what is the correct treatment?	A 16%	A 9%	A 8%	0.177
	B 32%	B 37%	B 42%	
	C 2%	C 4%	C 3%	
	Don't know 50%	Don't know 50%	Don't know 47%	
When you have finished your root canal treatment, have the doctor asked you to take a radiograph?	Yes 36%	Yes 39%	Yes 37%	0.915

According to the research, oral health status can be indicated by basic cultural principles and executions impact the status of mouth and teeth, over care seeking attitude, use of home therapies, diet or behavior towards and determination of practice of health services. Therefore this is a survey where the overall results obtained in our study are in line with the research carried out by Albahiti et al whose objects to evaluate the attitude, awareness, and behavior of patients in a group of Saudi residents concerning root canals [14].

Another survey concluded that 41% of the participants had moderate information irrespective of curiosity for details and 27% of the participants knew a great deal regarding root canal management. Our results were quite unlike to the results presented by Alrahabi et al. [15]. The most common symptom that leads to the endodontic treatment in the majority of the patients was a toothache. A similar pattern was appreciated in previous researches. It is comprehended

that skill and experience both go sideways and are immensely important for carrying out root canal treatment. The survey asked what factor was the priority of the patient while deciding what dental clinic they should go to; 68% chose the consultant, 1 percent chose doctor without specialty, and 4% dental students.

Different factors affect the dental anxiety of the patient which can be their age, education, gender, and socio-economic status but anxiety can be present independent of these factors. Dental fright leads to delayed dental visits or even skipping dental appointments. The study conducted by Doumani et al established that nearly 47% of patients affiliated root canal with severe pain caused by some stimulus such as sweets [16]. As compared to our study, the highest percentage that stood for the pain which was affiliated with sugary food was 44%.

Usually, the treatment time is long which bothers certain participants included in the study and the previous ones; other factors were discomfort and boredom that lead patients to ignore the treatments offered. Referred patients many at times ignore dental visits because of the high cost of dental procedures. In comparison to our study, which turned out to show that age had nothing to do with the kind of knowledge patients had, a research carried out by Emery et al also stated similar results where their percentage was that of 76% agreeable to the fact that age did not matter when speaking of symptoms related to root canal treatment [17].

The knowledge of patient plays an important role in what quality of oral health care is being offered to them. Therefore, patients should be taught about the importance of teeth related problems that decide their future oral health. According to the report by Hargreaves et al, the oral hygiene of a person is directly proportional to the attitude adopted by other household members [18]. This survey concluded that 73% of the females in the survey assumed better knowledge regarding root canals. These results are similar to the ones presented by our study which also concluded that usually females have had better knowledge regarding the root canal treatment.

The most preferred management plan offered by the general dentists up to 40% of the participants disagreed that antibiotics alone cannot resolve endodontic infections without visiting a dentist [19]. Whereas, in our results nearly 80% of the participants disagreed that antibiotics could not solve the serious issue of conducting a root canal and that it was something which had to be treated by the right procedure.

Another study conducted by Ahamed et al inquired about the knowledge and perception of the public towards the need and symptoms related to root canal treatment. They observed that 18.8% of people reported that they thought of needing root canal treatment when felt pain while eating [20]. Whereas, our study revealed that between 39% and 49% of participants felt the need for root canal treatment when experienced pain while eating.

Our results suggested that there is a low level of knowledge regarding root canal treatment as only 7% to 14% of the sample reported to 'know a lot'. However, a study conducted in Kashmir reported otherwise, with 39% of the participants revealing that they know a lot about root canal treatment [21].

Conclusion

- Females showed a higher level of knowledge regarding the symptoms and appropriate management of root canal problems.
- Age was not associated with the knowledge of patients regarding root canal related issues and its treatment.

- Education was also not associated with the patients' knowledge.
- Patients with a history of more number of dental visits had better knowledge and awareness of the symptoms related to root canal treatment as compared to less number of visits.
- There is a need for dentists to educate their patients about timely visits to the dentist to diagnose and treat extensive carious lesions.

Acknowledgment: Authors of this study would like to acknowledge the support and cooperation of the research center of Riyadh Elm University.

Conflict of interest: None

Financial support: None

Ethics statement: This study fulfilled all the ethical requirements including data collection and confidentiality of study participants.

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