

# A Survey on the Knowledge and Attitude of Iranian Endodontists towards Evidence-Based Dentistry in 2017

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**Objectives** Dentists make clinical decisions about dental cares on a daily basis. Thus, the best scientific evidence should be used to maximize the probability of successful patient care outcomes. The aim of this study was to evaluate the knowledge and attitude of endodontists towards evidence-based dentistry in Iran in 2017.

**Methods** First a questionnaire was designed by the researchers. To evaluate the quality of the questionnaire, it was sent to six experts and they were asked to comment on each question. After collecting the questionnaires via e-mail, for each question, the statistics were determined by the expert and the reliability of the questionnaire was determined using the Cronbach's alpha coefficient. The target population of this cross-sectional study was the Iranian endodontists. Data were analyzed by SPSS software, and the frequency and descriptive indexes were used to evaluate the study variables ( $\alpha=0.05$ ).

**Results** The mean score of knowledge of endodontists about evidence-based dentistry was  $63.43\pm 13.7$  (out of 100) and the mean score of their attitude towards evidence-based dentistry was  $62.22\pm 18.5$ .

**Conclusion** The results of this study revealed low level of knowledge and attitude of endodontists towards evidence-based dentistry, which is consistent with the results of studies conducted in other countries.

**Keywords** Evidence-Based Dentistry; Root Canal Therapy; Evidence-Based Medicine; Knowledge; Attitude

## Introduction

Over the past decade, dentistry has witnessed voluminous changes in terms of technology and products. In recent years, however, another aspect of dentistry, called evidence-based decision-making, has triggered fundamental changes.<sup>1</sup> Dental practitioners make daily decisions about clinical care, in which the best available scientific evidence should be used to maximize the probability of successful patient care outcomes. The ability to find, differentiate, evaluate and use information is the most important skill that needs to be learned by specialists.<sup>2</sup> In the 1990s, a new process called evidence-based medicine (EBM) was introduced to review scientific evidence in the field of medical sciences. This phenomenon was a systematic approach to summarize the huge volume of texts and articles that health professionals needed to integrate their experiences accordingly.<sup>3</sup> Evidence-based practice is regarded as the best approach to achieve scientific, safe, sufficient, and cost-effective interventions.<sup>4, 5</sup> This arises from improvements in skills and attitudes of physicians and dentists as well as from patient-therapist interactions about the logic of clinical decision making.<sup>4,6-8</sup> Based on such principles in medical sciences, the American Dental Association also generalized and extended these principles

to dentistry. Accordingly, evidence-based dentistry (EBD) is an approach to preserve oral health by appropriate integration of scientific evidence and clinical diagnoses, clinical skill, and therapeutic needs and priorities of patients.<sup>9</sup> American Dental Association defines EBD as "an approach in the oral health care that requires consensus-oriented and systematic assessments of scientific evidence regarding patient's oral and medical history and evidence, dentist's clinical experience, and therapeutic needs and wishes of the patient"<sup>10</sup>

EBD has become a part of medical care standards over the past two decades.<sup>11</sup> EBD is a tool for shifting from conventional methods, in which decisions are based solely on knowledge and personal experiences, towards approaches in which decisions are based on the best evidence available in the scientific literature.<sup>12</sup> The philosophy of which dates back to the mid-19<sup>th</sup> century.<sup>13</sup> By using EBD, dentists can determine the advantages and disadvantages of existing therapies. Selection of the best treatment according to the available scientific literature is also helpful in responding to judicial authorities.<sup>14</sup> In addition, the patient's knowledge of treatments taken on the basis of the best documentations will increase the patient's confidence in dental services.<sup>14</sup>

It seems that EBD is a necessity in everyday treatment of

patients, as it has gained a considerable popularity hitherto.<sup>15, 16</sup> In fact, EBD fills the gap between research and clinical setting, and provides dentists with a robust tool for interpretation and application of research findings.<sup>17, 18</sup>

On the other hand, a review of various studies indicates that despite positive attitudes towards EBM and EBD, physicians and dentists still have poor knowledge about the use of evidence-based information sources, suggesting that there are barriers against the use of EBM and its associated literature for detection and diagnosis by physicians, dental clinicians, and healthcare professionals, which impede evidence-based practice by them.<sup>1, 19</sup>

Therefore, the outcomes of this study can provide more information about the status of EBD in Iran. More effort should be made on this topic if dental students and endodontists are not sufficiently knowledgeable about this skill. This study aimed to evaluate the knowledge and attitude of endodontists towards Iranian EBD in 2017.

## Materials and Methods

In this cross sectional study which was conducted in Isfahan University of Medical Sciences, the target population was the Iranian endodontists. This study was approved by the ethical committee of Isfahan University of Medical Sciences (IR.MUI.RESEARCH.REC.1397.125). A minimum sample size of 116 participants was required for the study based on statistical analysis ( $\alpha=0.05$ ,  $\beta=20\%$ , power=80%).

A questionnaire was designed by the researchers for data collection. To assess the validity of the questionnaire, it was sent to six experts, and they were asked to comment on each proposed question in the form of appropriate, inappropriate, absolutely appropriate, or absolutely inappropriate. The validity of the questionnaire was found to be 0.816, which was considered acceptable.

The results for each question were collected and validated by a statistician. The reliability of the questionnaire was evaluated using the Cronbach's alpha coefficient. It should be noted that the Cronbach's alpha coefficient for questions related to knowledge and attitude was 0.827 and 0.789, respectively, which was acceptable.

The questionnaire consisted of three parts of research introduction and appreciation of the specialists' cooperation, questions about the demographic characteristics (age, gender, work experience, etc.) of participants, and questions about the role of EBD in routine treatment of patients, level of adherence to EBD in clinical everyday practice, searching in search engines, familiarity with EBD, knowledge and skills in criticism of articles, priority of resources used for patient treatment, interest in learning EBD, access to the Internet and familiarity with some concepts (e.g. risk, confidence interval, odds ratio), and familiarity with data bases such as Cochrane, PubMed and Scopus. The questionnaires were sent to the participants via e-mail. To observe ethics, the participants were requested to fill out the questionnaire anonymously. Data

were analyzed by SPSS version 22 via T-test and Pearson and Spearman's correlation coefficients. *P* value <0.05 was considered significant.

## Results

This study was conducted to evaluate the knowledge and attitude of Iranian endodontists towards EBD in 2017. The mean age of participants was 39.4±7.5 years (range 28 to 67 years). The mean experience of dentists as endodontists was 9.2±7.1 years.

The participants consisted of 51 (43.2%) female and 67 (56.8%) male endodontists, and 73 of them (61.9%) were faculty members. Moreover, most of them (79.7%) had already published 1-10 articles (Table 1).

**Table 1-** Frequency distribution of gender, faculty members, and number of articles published by experts

Variable	Number	Percentage	
Gender	Female	51	43.2
	Male	67	56.8
Faculty member	Yes	73	61.9
	No	45	38.1
	0	6	5.1
No. of published articles	1-10	94	79.7
	11-20	15	12.7
	21-40	3	2.5

The mean knowledge and attitude scores of endodontists about EBD were 63.43±13.7 and 62.2±18.5 (out of 100), respectively (Table 2).

**Table 2-** Measures of central dispersion of the knowledge and attitude scores (out of 100) of endodontists towards EBD

Score	Mean	Standard deviation	Minimum	Maximum
Knowledge	63.4	13.7	27.8	97.2
Attitude	62.2	18.5	3.1	96.9

There were no significant differences between the mean knowledge ( $P>0.05$ , independent t-test) and attitude ( $P>0.05$ , independent t-test) scores and gender of endodontists (Table 3).

**Table 3-** Mean knowledge and attitude scores of endodontists towards EBD by gender

Score	Female		Male		P-value
	Mean	Standard deviation	Mean	Standard deviation	
Knowledge	63.7	14.3	63.2	63.7	0.87
Attitude	62.1	17.7	62.2	62.1	0.99

The mean knowledge score about EBD was significantly higher in endodontists who were faculty members than non-faculty members ( $P<0.05$ , independent t-test). However, the mean attitude scores of endodontists toward EBD were not significantly correlated with their faculty membership ( $P=0.41$ , independent t-test; Table 4)

**Table 4-** Mean knowledge and attitude scores of endodontists towards EBD based on faculty membership

Score	Membership		Non Membership		P-value
	Mean	Standard deviation	Mean	Standard deviation	
Knowledge	67	12.9	57.7	13.2	<0.0001
Attitude	63.3	17.7	60.3	19.9	0.41

The knowledge scores of endodontists about EBD were not significantly correlated with their age ( $P=0.66$ ) or work

experience ( $r=-0.04$ ,  $P=0.89$ , Pearson's correlation coefficient). However, their attitude scores toward EBD were inversely correlated with their age ( $r=-0.2$ ,  $P<0.05$ , Pearson's correlation coefficient) and work experience ( $r=-0.2$ ,  $P<0.05$ , Pearson's correlation coefficient). There was a direct relationship between the number of articles published by the endodontists and their knowledge scores ( $P<0.05$ , Spearman's correlation coefficient), but it was not significantly correlated with their attitude scores ( $P=0.45$ , Spearman's correlation coefficient; Table 5).

**Table 5-** Correlation of knowledge and attitude scores of endodontists towards EBD with age, experience in root canal therapy, and number of published articles

Variable	Knowledge score		Attitude score	
	r	P value	r	P value
Age	-0.041	0.66	-	0.66
Experience in root canal therapy	0.013	0.89	0.01	0.89
No. of published articles	0.177	0.045	0.17	0.045

## Discussion

The gap between science production and its application has been known as the main reason for differences in the practice of healthcare providers' indifferent geographical areas. In order to fill this gap, evidence-based practice (EBP) has been considered in various medical disciplines, including dentistry, in the recent years.

In this regard, accurate knowledge of status-based practice seems to be necessary in any country. Analysis of studies conducted in Iran indicates that the lack of sufficient facilities, shortage of time, unfamiliarity with research methods, and no authority in making changes are among the most important barriers against EBP. In addition, provision of sufficient opportunity, teaching research methods, and EBP training courses are denoted as the most important facilitators of EBP. In general, health service providers in Iran have poor knowledge about EBP.

A brief evaluation of our results regarding the knowledge and attitude of Iranian endodontists towards EBD in 2017 demonstrated that they have generally moderate to high level of knowledge and attitude towards this issue.

Based on the results of this study, the mean knowledge and attitude scores of endodontists about EBD were  $63.4\pm 13.7$  and  $62.2\pm 18.5$  out of 100, respectively. Based on various

related studies conducted in the recent years<sup>17,18,20,21,22-25</sup>, dentists and dental students had a poor knowledge about EBD. Navabi et al. (2014) reported that circa three quarters of Iranian dentists had no or poor knowledge about EBD.<sup>18</sup> According to Almalki et al. (2019), 91.8% of Saudi dentists were familiar with EBD, which is higher than the familiarity rate in our study and highlights the need of further education in this respect.<sup>20</sup> In another study performed by Gupta et al, 70.8 of Indian dentists were aware of EBD, which is similar to our study and still highlights the importance of education regarding EBD.<sup>21</sup> The results of Iranian studies suggest low levels of awareness, knowledge, practice and application of EBD among healthcare providers, which is consistent with the reported results from other countries.<sup>22-25</sup>

A study conducted in England showed that only 29% of British dentists were familiar with the concept of EBD.<sup>26</sup> Malaysian dentists, on the other hand, demonstrated better results, with 80% familiarity with the concept of EBD.<sup>17</sup> Different studies conducted in Iran reported the knowledge and attitude of dental students and residents about EBD. Dehghani et al. (2016)<sup>27</sup> reported that students had a relatively good attitude towards EBD but did not achieve adequately high knowledge and attitude scores. They concluded that EBD training needs more attention and the educational curricula may need to be revised.

## Conclusion

Due to the rapid growth of available resources and increased occupational activities of practitioners that does not allow them to examine all these resources for adopting the best clinical strategy, training and application of EBD are important in modern dentistry. Therefore, efforts need to be made to educate the dentists in this respect to ensure adequate care provision for patients.

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## Conflict of Interest

None Declared ■

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