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Cross-sectional Study

Knowledge, attitudes and practices towards Evidence-Based-Dentistry regarding dental practitioner: A cross-sectional study

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ABSTRACT

Introduction: Dental practice experienced two important evolutions: the development of the concept of evidence-based dentistry (EBD) and the changes in the relationship between dentists and patients. Thus, the practitioner is invited nowadays to give a treatment that reflects the best available evidence.
The purpose of this study is to explore knowledge, attitudes, and practices of dentists toward the concept of EBD.
Methods: This is a cross sectional study that was conducted among dentists in public and private sector in Morocco. A self-administered questionnaire with 27 questions was delivered to practitioners. The comparison was carried out using the Khi2 test or Fisher's exact test, *t*-test or the Mann-Whitney. Logistic regression was performed to assess factors associated with the application of EBD. Linear regression was also performed to identify factors that impact knowledge, attitude and practice score.
Results: A total of 209 responses was received. 58% of the participants were in the private sector, and 32.7% were academics. The main reported obstacles were the lack of time 44% and lack of training on critical appraisal 60.3%. Knowledge of PICO question formulation and previous EBD training was significantly related to the implementation of EBD in multivariate analysis in logistic regression (OR = 8.163- CI95%: 2.095–31.80 and OR = 12.79- CI95%: 2.868–57 respectively). The total score of surveyed dentists was affected by the knowledge of PICO question formulation and the knowledge of relevant information sources (PubMed/Medline, the Cochrane library) (β = 3.04- CI95%: 0.411–5.66, β = 6.29- CI95%: 2.92–9.66 and β = 8.35- CI95%: 5.89–10.81 respectively).
Conclusion: Based on the findings of this study, application of EBD was associated with knowledge of PICO question formulation and previous EBD training. The lack of time was the most common obstacles identified by the participants applying EBD. Therefore, EBD educational programs should be developed for dental practitioners to enhance their knowledge and skills.

1. Introduction

EBM refers to the use of the best available evidence in clinical decision-making to increase the quality and predictability of treatment [1]. The American Dental Association defines Evidence-Based-Dentistry (EBD) as "an approach to oral healthcare that requires the judicious integration of systematic assessments of clinically relevant scientific evidence, relating to the patient's oral and medical condition and history, with the dentist's clinical expertise and the patient's treatment needs and preferences [2]." This lead, to consider in addition of specific patient information, relevant data from the literature, and then translating these data into clinical decisions [3]. The two main goals of EBD are to find best evidence and to transfer this to everyday practice [4,5]. Dentists who make evidence-based clinical decisions have shown ability to continuously improve their clinical skills and performance [6,7]. They can improve the quality and outcomes of the treatment by making decisions based on the best evidence [6,8,9]. The patients, who are aware that they'll be treated on the basis of EBD may have more confidence in their dentist [1,10,11]. The dental team, the staff confidence, the trust and the personal satisfaction can be increased by the

Abbreviations: KAP, knowledge, attitudes and practices; EBD, evidence-based dentistry; PICO, population, intervention, comparison, outcomes; β, Estimate; OR, odds ratio; CI, confidence interval.

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implementation of EBD. Thus, clinicians can provide interventions that are scientific [12] EBD involves five main steps:1. clinical problem description, specific and clear question; 2. conducting literature research to select relevant and appropriate articles related to the questions being asked; 3. a critical analysis of the validity and relevance of information from the literature; 4. the application of the results according to the patient and the clinical experience of the practitioner; 5. Practitioner self-assessment [2,13–15].

The concept of EBD helps clinical judgment and allows the practitioners to update and improve their knowledge, it is indeed a positive approach. However, its application by practitioners is still insufficient [16,17]. Studies have been carried out previously about EBD [16–20]. But they didn't cover all aspects of EBD in terms of knowledge, attitudes and practices.

The purpose of this study was to explore knowledge, attitudes, and practices of dentists in the private and public sector toward the concept of EBD. Also, to identify the factors associated with this knowledge, attitudes and practices. Finally, to identify obstacles that influence the implementation of EBD on daily practice.

2. Methods

2.1. Type of the study and ethical considerations

This is a cross-sectional study, KAP type (knowledge, attitudes and practices) that was conducted among Moroccan dentists. Approval for conducting the study was obtained from the Research Ethics Committee for Biomedical Research under number C672020. All participants were informed about the purpose of the study. This cross-sectional study, has been reported in line with the STROCSS criteria [21].

2.2. Studied sample

The questionnaires were completed anonymously to ensure the confidentiality of the information provided. All Moroccan dentists working in the public and private sectors, regardless of their age and years of experience, were included in the study.

2.3. Questionnaire and studied variables

The questionnaire was developed and modified from the ones used in previous studies [16–18]. A self-administered questionnaire with 27 questions divided in 3 sections was delivered via emails and groups on social media:

1. first section: demographics data (age, sex, professional status, number of years of experience, place of practice, country and degree-granting institution);
2. second section: concerned the knowledge of Moroccan about the EBD. Eight questions, mostly total questions, focused on the knowledge of the EBD concept, the formulation of the PICO (population, intervention, comparison, outcomes) question, the search for medical evidence, the evaluation of literature data, the knowledge of EBD tools, and information sources;
3. third section: focused on the attitudes and practices of Moroccan dentists in EBD (seven questions), about the frequency of the application (always, frequently, sometimes, rarely and never) of EBD by the Moroccan dentist, the difficulty of its application, whether or not the practitioner intends to integrate it onto daily practice and assessment of EBD limitations in difficult clinical situations. A dentist has been considered to use the concept of EBD when it is always applied, frequently or sometimes EBD.

2.4. Statistical analysis

A pilot study was carried out with a sample of 35 practitioners to adjust the questions and assess the internal consistency of the questionnaire by calculating the Cronbach alpha coefficient. A value of at least 0.70 was considered acceptable. Based on the pilot study, the Cronbach alpha coefficient of the questionnaire was estimated at 0.744.

The self-administered, finalized questionnaire was available online on Google Forms. It was sent to practitioners using email addresses and through social media's groups with large number of dentists. This method was used to reach the maximum number of practitioners. Dentists could only answer the questionnaire once.

The knowledge, attitudes, and practices of dentists were compared to the EBD principles recommended in reference publications [18,21], and were described as "correct" "inadequate" or "incorrect". A maximum score was calculated for each KAP section by adding the scores for each item and a total score by adding the sum of the 3 sections. The maximum score was estimated at 24, 6 and 8 for "Knowledge", "Attitudes" and "Practices" questions respectively. The maximum total score that a practitioner could obtain was 38.

The sample size was calculated based on the frequency of EBD use reported in our pilot study, which was 77.1%. This prevalence was also close to the prevalence of the Al Ansari et al. study (69%) [18]. We used formula $N = Z^2pq/P^2$ to calculate the sample size. Z: 1st species error (1.96), p: theoretical prevalence (0.77), q = 1-p (23%), P: Accuracy (0.05). The sample size was initially estimated to 243.

The data collected were expressed as variables and analyzed using statistical software (jamovi 1.6.15.0). Quantitative variables (scores obtained by each practitioner) were expressed as mean and standard deviation if the distribution was symmetrical, and median and quartiles if the distribution was asymmetrical. Qualitative variables (such as the response to each item in the KAP sections) were expressed in terms of number and percentage. For the different items in the questionnaire, the comparison was carried out using the Khi2 test or Fisher's exact test, *t*-test or the Mann-Whitney. A $p < 0.05$ was considered statistically significant. Logistic regression was performed to assess factors associated with the application of EBD. Linear regression was also performed to identify factors that impact knowledge, attitude and practice score. A $p < 0.2$ has been selected to include the variable from univariate to the multivariate model.

3. Results

3.1. Descriptive statistics

Our study was conducted among 209 Moroccan dentists between January and March 2021. Nine regions of Morocco were represented. 119 (58%) participants were in the private sector, 68 (32.7%) was academics and 112 (53.8%) with <5 years of clinical experience. 152 (72.7%) of the surveyed participants had previously participated in continuous training programs, but only 50 (26.0%) had previous training on EBD (Table 1).

EBD was a familiar concept for 108 (52.2%) of the respondents. 73 (34.9%) of the study population reported using it frequently on a daily practice. 158 (75.6%) consulted databases in a difficult situation. As for the application of EBD, 149 (71.3%) used it (always, frequently, sometimes) and 60 (28.7%) did not (rarely, never) (Fig. 1). (Table 2)

Out of the total respondents, 104 (49.8%) of the surveyed dentists defined EBD such as a series of steps: from identifying the clinical question, finding the answer/evidence, assessing the validity of the evidence and applying it, if it is clinically appropriate (Table 3).

Concerning the use of the PICO question, 66 dentists (31.6%) are aware of how to formulate a PICO question. 60 (28.7%) knew how to find medical and scientific evidence but only 8 (19.5%) had the right technique, conduct good research on relevant information sources and critical assessment of data before the application to patients. Regarding the sources of information, PubMed/Medline and the Cochrane Library were considered the most relevant, according to the surveyed dentists (Table 4).

Table 1
Characteristics of the surveyed dentists.

Characteristics[a]	Values (N = 209)
Sex	
Female	138(66.3%)
Male	70(33.7%)
Age	
<30 years	124(59.9%)
Between 30 and 45 years	62(30.0%)
>45 years	21(10.1%)
Specialty	
Specialist	64(31.1%)
General practitioner	142(68.9%)
Sector	
Public	86(42.0%)
Private	119(58.0%)
Kind of practice	
Individual	81(38.9%)
In a group	59(28.4%)
Academic	68(32.7%)
Years of practice	
< 5 years	112(53.8%)
Between 5 and 15 years	70(33.7%)
>15 years	26(12.5%)
Participation on continuing training	152(72,7%)
Previous EBD training	50(26,0%)

[a] Number and percentage/EBD: Evidence-based dentistry.

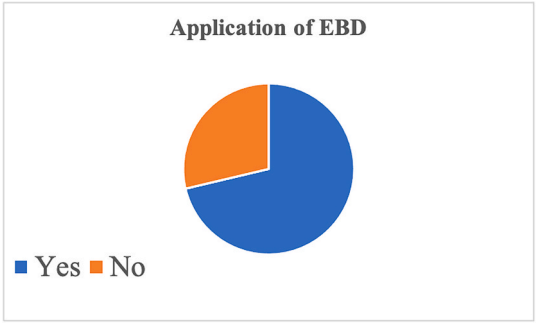

Fig. 1. Application of EBD by surveyed dentists.

Table 2
Knowledge, attitudes and practices towards EBD among dentists.

Characteristics[a]	Values (N = 209)
EBD a beneficial tool	200 (96.7%)
Recipient of EBD according to the surveyed dentists	
Dentists	138(66%)
Patients	126(60.3%)
Dental profession	125(59.8%)
Knowledge of «the difference between Evidence VS Empiricism»	58(27.8%)
Application of EBD	
Yes	149(71.3%)
No	60(28.7%)
Application of EBD	
Always	16(7.7%)
Frequently	73(34.9%)
Sometimes	57(27.3%)
Rarely	22 (10.5%)
Never	33(15.8%)
Practice dealing with difficult situation	
Consult a colleague	164 (78.5%)
Consult a books	102 (48.8%)
Consult a databases	158 (75.6%)
The experience of the practitioner	78 (37.7%)
Patient preferences	18 (8.6%)

[a] Number and percentage/EBD: Evidence-based dentistry.

Table 3
Definition of EBD by surveyed dentists.

Characteristics[a]	Values(N = 209)
EBD	
- Is a decision-making process based on scientifically proven data	135(64.6%)
- A series of steps from the identification of the clinical question to the application of scientific evidence	104(49.8%)
- Any information found in an article	19(9.1%)
- Following consultation of books and colleagues	10(4.8%)
- Improves quality and effectiveness of treatments	121(57.9%)
- Improves knowledge and skills	133(63.6%)

[a] Number and percentage/EBD: Evidence-based dentistry.

Table 4
Dentists' knowledge and practices in relation to the science evidence strategy.

Characteristics[a]	Values (N = 209)
Knowledge of the formulation of the PICO question	66(31.6%)
Use of the PICO question	51(24.4%)
Search for medical evidence	60(28.7%)
Research technique (N = 40)	
Incorrect	6(14.6%)
Insufficient	26(63.4%)
Correct	8(19.5%)
Data evaluation	123(58.9%)
Knowledge of EBD tools	62(29.7%)
Sources of relevant information	
Google/Google Scholar	26 (12.4%)
Wikipedia	11 (5.3%)
PubMed/Medline	175 (83.7%)
Cochrane library	104(49.8%)
Others sources	19(9.09%)

[a] Number and percentage/EBD: Evidence-based dentistry/PICO: population, intervention, comparison, outcomes.

About the distinction between different types of studies, 145 (69.4%) made the difference between a systematic review and a narrative review. 110 (52.6%) were able to distinguish randomized controlled trials from non-randomized trials (Table 5).

Furthermore, among 163 dentists who applied EBD, 103 (63.2%) found it difficult to apply on a daily basis, 181 (86.6%) had the intention to incorporate it into their practice. The study also looked at the barriers to the application of EBD. 92 (44%) of participants claimed lack of time to be the main obstacle. Limited access to information sources was a challenge to implement the EBD on practice for 104 (49.8%) of the surveyed dentists. (Table 6).

The median of the "Knowledge" score obtained by the surveyed dentists was 21(14–27) out of a maximum score of 24. The median of the "Attitude" score obtained by the participants was 3 (2–4) out of a maximum score of 6. The median of "Practice" score of the was 1 (0–2) out of a maximum score of 8. A deviation from the average of the total

Table 5
The knowledge of surveyed dentists about the types of studies.

Characteristics[a]	Values (N = 209)
Distinction between primary literature VS secondary literature	75(35.9%)
Distinction between systematic review VS literature review	145(69.4%)
Distinction between meta-analysis VS individual study	121(57.9%)
Distinction between clinical trial VS cohort study	119(56.9%)
Distinction between randomized controlled trial VS non-randomized controlled trial	110(52.6%)
Distinction between cohort study VS case series	117(56%)
Distinction between qualitative research VS quantitative Research	145(69.4%)
Distinction entre gray literature VS published literature	89(42,6%)

[a] Number and percentage/EBD: Evidence-based dentistry.

Table 6
The application limits of EBD according to the surveyed dentists.

Characteristics[a]	Values (N = 209)
Difficulty in applying EBD by practitioners using EBD (N = 163)	103(63.2%)
Obstacles to EBD	
Lack of time	92(44%)
Limited access to sources	104(49.8%)
No computer/internet	23(11%)
Lack of training on critical reading	126(60.3%)
The intention to integrate EBD	181(86.6%)

[a] Number and percentage/EBD: Evidence-based dentistry.

score was also observed from the estimated total score (17.7 out of 38) (Table 7).

3.2. Comparative statistics

Based on socio-demographic characteristics, the comparison between surveyed practitioners applying EBD and those not, showed the following results. There was no statistically significant difference between those who applied and those who not in age, sex and exercise duration. However, there was a link ($p = 0.005$) with the type of practice. There were more academic practitioners among those who applied EBD (39.9%) VS those who did not apply EBD (15%). 35.3% of dentists who used EBD on daily practice had training on EBD comparatively to dentists who did not apply EBD (3.6%). The difference was statistically significant ($p < 0.001$) (Table 8).

63 (42.3%) of surveyed dentists applying EBD knew how to formulate a PICO question in their scientific research, compared to 3 (5%) of practitioners who didn't apply EBD ($p < 0.001$). 131 (87.9%) of surveyed dentists applying EBD were familiar with the Pubmed/Medline database and 87 (58.4%) were familiar with the Cochrane library comparatively to practitioners who did not apply EBD ($p = 0.020$). The median knowledge score of dentists using EBD was higher than those who didn't ($p < 0.001$). In the mean of the KAP total score between practitioners applying EBD and those not applying EBD, those who used EBD scored higher than those who didn't use it ($p < 0.001$) (Table 9).

There was a link ($p = 0.021$) between the application of EBD and practitioners' perception of EBD difficulties. 73 (49.0%) of practitioners applying EBD considered lack time as the first barrier to its application (Table 10).

3.3. Regression analysis

After adjusting all the factors (Knowledge of PICO question formulation, previous EBD training, knowledge of relevant information and type of practice), knowledge of PICO question formulation and previous EBD training still affect the application of EBD in multivariate analysis (logistic regression) (OR = 8.163- CI95%: 2.095–31.80 and OR = 12.79- CI95%: 2.868–57 respectively) (Table 11).

After adjusting all the factors, knowledge of relevant information (PubMed/Medline, the Cochrane library) and kind of practice (academic) were statistically associated with an increase of knowledge score in multivariate analysis (Linear regression) (β = 4.67- CI95%: 2.0892–7.25, β = 8.66- CI95%: 6.7062–10.62, β = 2.92- CI95%: 0.5343–5.30 respectively) (Table 12).

After adjusting all the factors, knowledge of PICO question formulation, previous EBD training and the knowledge of relevant information sources such as the Cochrane library still affected the practice score (β = 0.9063- CI95%: 0.630–1.183, β = 0.6352- CI95%: 0.392–0.878, β = 0.4403- CI95%: 0.2–0.68 respectively) (Table 13).

In univariate analysis, the factors influencing the attitude score was the knowledge of PICO question formulation, the knowledge of relevant information sources (PubMed/Medline, Cochrane library). (β = 0,257- CI95%: −0,096–0,610, β = 0,487- CI95%: 0,014–0,988, β = 0,3341,32-

Table 7
Scores obtained by surveyed dentists.

Scores	Values (N = 209)
Knowledge score [a]	21 (14–27)
Attitude score[a]	3 (2–4)
Practice score[a]	1 (0–2)
Total Score[b]	17.7 ± 6.60

[a] M (IQ): median and interquartile range.
[b] M ± SD: (mean ± standard deviation).

Table 8
Comparison of socio-demographic characteristics between practitioners.

Variables	Application of EBD n = 149	Non application of EBD n = 60	P
Age			0.316
<30 years	91 (61.9%)	33 (55%)	
Between 30 and 45 years	44 (29.9%)	18 (30%)	
>45 years	12 (8.2%)	9 (15%)	
Sex			0.558
Female	100 (67.6%)	38 (63.3%)	
Male	48 (32.4%)	22 (36.7%)	
Year of practice			0.170
<5 years	79 (53.4%)	33 (55%)	
Between 5 and 15 years	54 (36.5%)	16 (26.7%)	
>15 years	15 (10.1%)	11 (18.3%)	
Kind of practice			**0.002**
Individual	50 (33.8%)	31 (51.7%)	
In a group	39 (26.4%)	20 (33.3%)	
Academic	59 (39.9%)	9 (15%)	
Previous training on the EBD			**<.001**
Yes	48 (35.3%)	2 (3.6%)	
No	88 (64.7%)	54 (96.4%)	

EBD: evidence based dentistry.

Table 9
Comparison of Dentists Applying and Not Applying EBD for EBD Knowledge and KAP total score.

Variables	Application of EBD n = 149	Non application of EBD n = 60	P
Knowledge of PICO question formulation			**<.001**
yes	63 (42.3%)	3(5.0%)	
No	86 (57.7%)	57 (95.0%)	
Knowledge sources of relevant information			
PubMed/Medline	131 (87.9%)	44 (77.3%)	**0.010**
The Cochrane library	87 (58.4%)	17 (28.3%)	**<.001**
Knowledge Score (M(IQ)	23(18; 29)	14(7.5; 20.5)	**<.001**
Total score (M±SD)	27.9 ± 8.29	17.2 ± 10.1	**<.001**

EBD: evidence-based dentistry/PICO: population, intervention, comparison, outcomes.

Table 10
Comparison of obstacles between dentists applying and not applying EBD.

Variables	Application of EBD n = 149	Non application of EBDn = 60	P
Obstacles to EBD			
Lack of time	73 (49.0%)	19(31.7%)	**0.022**
Limited access to sources	78 (52.7%)	26 (43.3%)	0.221
No computer/internet	18 (12.1%)	5 (8.3%)	0.434
Lack of training on critical reading	91 (61.1%)	35(58.3%)	0.714

EBD: evidence-based dentistry.

Table 11
Associated factors to the implementation of EBP using univariate and multivariate analysis.

Characteristics	Category	Application of EBD n = 149	Univariate analysis			Multivariate analysis		
			OR	(95%CI)	P	OR	(95% CI)	P
Previous EBD training	YES	48 (35.3%)	14.73	[3.44–63.04]	**<.001**	12.79	[2.868–57.07]	**<.001**
Knowledge of PICO question formulation	YES	63 (42.3%)	13.92	[4.17–46.47]	**<.001**	8.163	[2.095–31.80]	**0.002**
Knowledge of relevant information sources								
PubMed/Medline	YES	131(87.9%)	2.65	[1.244–5.63]	**0.012**	2.018	[0.766–5.31]	0.155
The Cochrane Library	YES	87(58.4%)	3.55	[1.854–6.79]	**<0.01**	1.880	[0.853–4.14]	0.118
Kind of practice	Individual		1			1		
	In a group	39(26.4%)	1.21	[0.600–2.44]	0.596	0.946	[0.386–2.32]	0.904
	Academic	59(39.9%)	4.06	[1.768–9.34]	**<.001**	1.100	[0.373–3.24]	0.863

EBD: evidence-based dentistry/PICO: population, intervention, comparison, outcomes/OR: odds ratio/CI: confidence interval.

Table 12
Factors impacting the Knowledge score.

Characteristics	Category	Univariate analysis			Multivariate analysis		
		β	(95%CI)	P	β	(95% CI)	P
Previous EBD training	YES	3.77	[0.981–6.55]	**0.008**	1.63	[-0.333–3.60]	0.103
Knowledge of PICO question formulation	YES	8.39	[6.10–10.7]	**<.001**	2.17	[-0.06–4.40]	0.056
Knowledge of relevant information sources							
PubMed/Medline	YES	9.72	[6.72–12.7]	**<.001**	4.67	[2.0892–7.25]	**<.001**
The Cochrane Library	YES	11.6	[9.78–13.3]	**<.001**	8.66	[6.7062–10.62]	**<.001**
Kind of practice	Individual	1			1		
	In a group	3.38	[0.720–6.04]	**0.013**	2.01	[-0.2567–4.28]	0.082
	Academic	9.14	[6.589–11.70]	**<.001**	2.92	[0.5343–5.30]	**0.017**

EBD: evidence-based dentistry/PICO: population, intervention, comparison, outcomes/β: Linear regression coefficient/CI: confidence interval.

Table 13
Factors impacting the practice score.

Characteristics	Category	Univariate analysis			Multivariate analysis		
		β	(95%CI)	P	β	(95% CI)	P
Previous EBD training	YES	0.896	[0.602–1.19]	**<.001**	0.6352	[0.392–0.878]	**<.001**
Knowledge of PICO question formulation	YES	1.308	[1.072–1.54]	**<.001**	0.9063	[0.630–1.183]	**<.001**
Knowledge of relevant information sources							
PubMed/Medline	YES	0.586	[0.221–0.95]	**0.002**	0.1765	[-0.137–0.490]	0.268
The Cochrane Library	YES	0.93	[0.686–1.17]	**<.001**	0.4403	[0.2–0.68]	**<.001**
Kind of practice	Individual	1			1		
	In a group	0.179	[-0.143–0.501]	0.275	0.0266	[-0.254–0.307]	0.852
	Academic	0.788	[0.478–1.097]	**<.001**	−00338	[-0.329–0.62]	0.822

EBD: evidence-based dentistry/PICO: population, intervention, comparison, outcomes/β: Linear regression coefficient/CI: confidence interval.

CI95%: −0,01–0,678 respectively). In Multivariate analysis none of the factors affect the attitude score (Table 14).

After adjusting all the factors, knowledge of PICO question formulation and knowledge of relevant information sources (PubMed/Medline and the Cochrane library) still affected the total score (β = 3.04- CI95%: 0.411–5.66, β = 6.29- CI95%: 2.92–9.66 and β = 8.35- CI95%: 5.89–10.81 respectively) (Table 15).

4. Discussion

In the present study, 71,3% of the surveyed dentist applied EBD on daily practice. Mostly they were academics and having previous EBD training. This rate was higher than the study conducting by Haron et al. [22].

Based on a comparative analysis of the application or not of EBD, we didn't find statistically significant difference between those who apply or not EBD in terms of years of practice, contrary to the study conducted

Table 14
Factors impacting the attitude score.

Characteristics	Category	Univariate analysis			Multivariate analysis		
		β	(95%CI)	P	β	(95% CI)	P
Previous EBD training	YES	−0.0147	[-0.407–0.378]	0.941	−0.0689	[-0.465–0.327]	0.732
Knowledge of PICO question formulation	YES	0.257	[-0.096–0.610]	**0.153**	0.0502	[-0.404–0.505]	0.827
Knowledge of relevant information sources							
PubMed/Medline	YES	0.487	[-0.014–0.988]	**0.057**	0.5057	[-0.077–1.089]	0.089
The Cochrane Library	YES	0.334	[-0.01–0.678]	**0.057**	0.1498	[-02759-0.575]	0.488
Kind of practice	Individual	1			1		
	In a group	0.07	[-0.37–0.511]	0.752	0.1411	[-0.363–0.646]	0.581
	Academic	0.258	[-0.153–0.669]	0.216	0.0648	[-0.43–0.568]	0.799

EBD: evidence-based dentistry/PICO: population, intervention, comparison, outcomes/β: Linear regression coefficient/CI: confidence interval.

Table 15
Factors impacting the total score.

Characteristics	Category	Univariate analysis			Multivariate analysis		
		β	(95%CI)	P	β	(95% CI)	P
Previous EBD training	YES	3.01	[-0.099–6.12]	**0.058**	1.49	[-0.805–3.78]	0.202
Knowledge of PICO question formulation	YES	8.74	[6.17–11.3]	**<.001**	3.04	[0.411–5.66]	**0.024**
Knowledge of relevant information sources							
PubMed/Medline	YES	9.98	[6.12–13.8]	**<.001**	6.29	[2.92–9.66]	**<.001**
The Cochrane Library	YES	11.8	[9.58–14]	**<.001**	8.35	[5.89–10.81]	**<.001**
Kind of practice	Individual	1			1		
	In a group	2.03	[-1.29–5.35]	0.229	1.16	[-1.756–4.08]	0.433
	Academic	8.41	[5.31–11.51]	**<.001**	1.9	[-1.005–4.81]	0.198

EBD: evidence-based dentistry/PICO: population, intervention, comparison, outcomes/β: Linear regression coefficient/CI: confidence interval.

by Rajagopalachari et al. [23]. However, the comparison showed that more academic practitioners used EBD in daily practice. This finding was similar to the results reported by Haron et al. [22] and is in contrast to Yusof et al. [24] and Nader et al. [25]. This finding suggests that dentists involved in academics had easy access to resources.

In the present study, it appears that the formulation of the PICO question was more common among practitioners applying EBD. This can be explained by the fact that the EBD approach involves the formulation of the PICO question. These results were similar to a study conducted by Al Ansari et al. (2014) [18]. Dentists applying EBD were aware about the source of relevant information, the Pubmed/Medline database and the Cochrane library. So more than half of the practitioners involved in the study knew where to look for the information, which is positive and can be considered as the first step of integration on a daily practice.

The lack of time was the most common obstacles identified by the participants applying EBD. These results were similar to a study carried out by Qadhi et al., in which the lack of time and lack of investment were the main perceived barriers to EBM among physicians practicing in general governmental hospitals [26]. The lack of training on critical reading of scientific papers hampered the implementation of the EBD for both studies conducted by Gonçalves et al. (2018) and Yusof et al. (2008) [24,27]. Therefore, the introduction of EBD skills in the initial training is important to be part of the habits of dentists in their practice.

Knowledge of PICO question formulation and previous EBD training was significantly related to the implementation of EBP in bivariate and multivariate analysis (simple logistic regression). In bivariate and multivariate analysis (linear regression), knowledge score was affected by Knowledge of relevant information sources (PubMed/Medline, Cochrane library) and the kind of practice (academic). Practice score was impacted by knowledge of PICO question formulation, previous EBD training and the knowledge of relevant information sources such as the Cochrane library in multivariate analysis in linear regression. In multivariate analysis (linear regression) none of the factors affected the attitude score. Finally, the total score was affected by the knowledge of PICO question formulation and the knowledge of relevant information sources (PubMed/Medline, Cochrane library) in multivariate analysis.

Most participants believed that 'EBD is beneficial'. This finding is inconsistent with previous studies [3,24,28], and is important because it might reflect the high demands from modern-day dentists for best practice and clinical decision making.

Against difficult clinical situation, some practitioners consulted books or databases. However, the majority was looking for the easiest and oldest method of obtaining information that is "a colleague's opinion or experience" instead of evaluating research results. The three most frequent actions chosen by the respondents in the study of Yusof et al. when faced with clinical uncertainties were "ask friends and colleagues," "refer the patient," and "consult textbooks" [24].

Just 24,4% declared to use the PICO question on daily practice, this rate was similar to study of Straub-Morarend et al. [29]. Although, lower percentage of respondents in the present study reported being able to formulate a PICO question and to appraise literature than to search for evidence, these percentages were higher than those in other studies [3, 30].

The interviewed practitioners demonstrated a positive attitude towards the concept of EBD and confirmed that it is a beneficial approach for the clinician, for patients and finally, for the dental profession. Almost all of the interviewed dentists intended to integrate it into their daily practice. This is in accordance with the study done by Ashri et al. [31] and Rajagopalachari et al. [23]. This suggests that they believe the use of EBP is necessary and patient care is better when evidence is used.

In this study, the sample was convenience type and some regions of Morocco were not included. However, this study has took an interest in the concept of EBD entirely. It emphasizes many of knowledges, attitudes and practices in EBD. It was also able to reveal some obstacles that oppose its implementation by Moroccan practitioners.

It differs from other studies by several points, such as the sample size calculation, the inclusion of Moroccan practitioners from different sectors and kind of practice. This provided a large information and allowed comparisons to explain certain clinical attitudes and practices. In the study conducted by Gonçalves et al. [26], the students were included. This choice may not reflect reality because dental students usually refer to the experience of their teachers. In the studies of Rajagopalachari et al. [23] and Yusof et al. [24] specific cities were included in the study, therefore the results were limited. There was also a large gap between the estimated sample size and the number of participants in the study of Rajagopalachari et al. [23].

Furthermore, the present KAP study emphasizes some knowledges, attitudes and practices in EBD. It was also able to reveal some obstacles that oppose its implementation by Moroccan practitioners. It is possible that these data may be a helpful tool for decision-makers, educators and members of organized dentistry who plan to further improvements the implementation of EBD into daily practice.

5. Conclusion

This study has assessed the knowledge, attitudes and practices of EBD, and identified obstacles that dentists had in the implementation of EBD on daily practice. Based on the findings of this study, application of EBD was associated with knowledge of PICO question formulation and previous EBD training. The total score of surveyed dentists was affected by the knowledge of PICO question formulation and the knowledge of relevant information sources (PubMed/Medline and the Cochrane library). The lack of time was the most common obstacles identified by the participants applying EBD.

Ethical approval

Approval for conducting the study was obtained from the Research Ethics Committee for Biomedical Research under number C672020.

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Author contributions

Kadri Ghita: Conceiving and designing the study, data collection, data analysis and interpretation, and drafting the manuscript.

Enejjari Zahra: Conceiving and designing the study, data collection.

Amal Bouziane: Supervised the design and conduct of the study, analyzed and interpreted the data, and critically revised the manuscript.

The manuscript has been read and approved by all authors.

Registration of research studies

Name of the registry:

Unique Identifying number or registration ID:

Hyperlink to your specific registration (must be publicly accessible and will be checked):

Consent

No consent was required as this research project is a KAP study that was conducted among dentists.

Guarantor

Pr Amal Bouziane.

Provenance and peer review

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Declaration of competing interest

No potential conflict of interest relevant to this article was reported.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.amsu.2022.104289.

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