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RESEARCH ARTICLE

AWARENESS, ATTITUDE AND BARRIERS TOWARD EVIDENCE BASED DENTAL PRACTICE AMONG DENTAL PRACTITIONERS IN MANSOURA CITY, EGYPT

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ABSTRACT

Background: Evidence Based Dentistry (EBD) is a patient-centered approach to treatment decisions, which provides personalized dental care based on the most current scientific knowledge. Many dental professionals in Egypt did not study critical evaluation of research material in Dental Schools.
Objectives: The purpose of this study was to determine knowledge, attitude and barriers of dental practitioners towards EBD.
Materials and Methods: This is a questionnaire based cross-sectional study which was conducted at The School of Dentistry, Mansoura University. The questionnaire was divided into four parts; the first part included demographic data, the second one included questions about participants' EBD knowledge, the third part included questions about participants' attitude, and the forth one included questions about participants' barriers toward utilization of EBD.
Results: there was no significant difference between males and females concerning their familiarity with EBD (p=0.987), also increasing age of participants did not affect their familiarity (p=0.083). The most familiar category was those with doctoral degrees (20.8%), and practitioners with 6 to 10 years experience were more familiar than others (20.5%). The most familiar evidence terms were case series and case reports; however the least one was hierarchy of evidence. There was no significance difference between participants who depended on clinical experience and those who depended on EBD (0.806). About 31 % of the participants depended on electronic databases to get their information. Greater than 50% of the participants had positive attitude toward EBD. Time was the greater barrier against EBD.
Conclusion: it is highly recommended to include EBD into undergraduate curriculum of all Dental Schools in Egypt.

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INTRODUCTION

Evidence-based medicine (EBM) is a recognized activity in the medical field worldwide (Olatunbosun, 1998 and Werb, 2004). EBM requires the application of the best results of clinical research studies to improve the quality of decision-making during the patient's treatment to attaining the best treatment modalities (Rabb, 2010). Although evidence-based practice was first announced in the medical field, it quickly involved other fields dependent on Medical Sciences as well as Dentistry (Straub, 2010 and Kishore, 2014). Making decisions in dentistry should be based on the best evidence available. 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" (http:// ebd.ada.org/en/about). EBD is considered an obligation in the routine treatment of patients and has gained great acceptance (Werb, 2004 and Azarpazhooh, 2008). It is appreciated and beneficial in many ways. It has been confirmed that dentists who make their clinical decisions based on evidence, rather than personal ideas and judgments, improve their clinical skills and expertise (Olatunbosun, 1998; Werb, 1998; Rabb, 2009 and Azarpazhooh, 2008). Dentists can improve the quality of dental care in addition to the results of treatment by using EBD in harmony with clinical results. Evidence based dental practice (EBDP) provides the chance to apply relevant evidences from scientific research to the care of patients (Hannes, 2008). Furthermore, EBDP help dentists to judge the advantages and disadvantages of potential treatment modalities after evaluating the validity of the available evidence. In addition, the awareness that treatments received are based on the best evidence available may improve dentist

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patient relationship by increasing patient trust in dental services (Abdellatif, 2011). If our knowledge is not updated consistent with the changing trends of current dental practice, a knowledge gap may be (Yusof, 2008). Moreover, traditional decision making is mainly based on the past clinical experiences and often neglecting current scientific knowledge and patient choice. Therefore, Evidence-based dentistry is considered as an essential tool that is used for improving the quality of the provided care and filling the exist gap between what we recognize, what is possible, and what we do (Abdellatif, 2011). Application of EBD has three main components: the best recent research evidence; the clinician's expertise; the patient's values and preferences (Sackett, 1996). For providing quality dental care; the three components should be given equal importance for making decisions based on strong evidence (Hannes, 2008). Evidences can be acquired from a variety of sources; some evidence is more reliable than other evidence. It is both necessary and desirable to prioritize and rank certain types of evidence. For each type of clinical question, there is a hierarchy of evidence that is based on degree of trustworthiness. If no randomized clinical trials, cohort and case-control studies, or case series/case reports are available. An opinion of respected expert may become a valuable source if other sources of evidence are unavailable (Guyatt, 2008).

Clinical expertise is the key to determine how the evidence can be applied to a specific patient's case. The success mainly depends on the ability of a clinician to use the intervention in an appropriate clinical setting with the consideration of patient's values and preferences (Guyatt, 2008). Yusuf *et al*. (Yusof, 2008), investigated the knowledge of 193 dentists in Malaysia regarding evidence-based dentistry and its use in the clinical environment. Their results showed that Malaysian dentists have adequate knowledge and positive attitudes concerning evidence-based dentistry and a high percentage of dentists in the country believe that the use of evidence-based dentistry has increased their clinical knowledge and skills. The dentists in that study mentioned three main barriers of the use of evidence-based dentistry as the lack of time, economic limitations, and low knowledge. Haron *et al*. (Khami, 2012), investigated the knowledge, awareness, and function of dentists in Kuwait towards evidence-based dentistry. The results showed that dentists in Kuwait do not have sufficient knowledge and awareness towards evidence-based dentistry. Kuwaiti dentists favor to act based on their clinical judgment instead of using scientific resources and documents. Khami *et al*. (Haron, 2012), assessed the knowledge, awareness, and attitude of dental students towards evidence-based dentistry. The results stated that, despite the positive attitudes of dentistry students toward evidence-based dentistry, their knowledge and awareness in this regard are poor and deficient.

In another recent study, Arezoo *et al*. (Arezoo, 2016), conducted a study in Iran aimed to determine the knowledge, awareness, and attitude of dentistry students towards EBD. Their results concluded that, the knowledge and awareness of dental students as regards evidence-based dentistry were average and have a neutral attitude. Thus, providing the required training will promote the knowledge, awareness, and thus improving attitudes of dental students. In order to provide dentists with correct and principled training in EBD, knowing their knowledge, attitude and barriers towards evidence-based dentistry is essential for properly planning their training. Since such information is very limited especially in Egypt, the present study was designed and implemented to evaluate the Awareness, Attitude and Barriers toward Evidence Based Dental Practice among Dental Practitioners in Mansoura City, Egypt.

MATERIALS AND METHODS

Locality and Duration

This cross sectional study was conducted in Mansoura city which is the capital city of Dakahlia governorate between June and August (2017).

Sample Selection

This is a convenient consecutive sampling technique included all dental practitioners of both sexes who were working during the study at The school of Dentistry, Mansoura University and agreed to participate in the study.

Inclusion and exclusion criteria

Dentists with ages ranged from 25 to 60 years and had at least one year of clinical practice were included in the study. However, dentists who are only involved in academic field were excluded from the study.

Ethical approval

The study was approved by the Institutional Ethics Committee of College of Dental Sciences, Mansoura University, Egypt.

Data collection

Data was collected using self-administered close ended questionnaires (Gupta, 2015); the questionnaires were used in English language. 300 questionnaires were distributed personally to the participants, they asked to fill them anonymously and return them to the researcher at the same day. They were accompanied by an introductory letter stating the purpose of the study and promising confidentiality. Only completely filled questionnaires were considered for the study. Each questionnaire was divided into four parts: A) The first part included demographic data: 1. Gender, 2. Age which was subdivided into four categories (a. 25-30 years, b. 31-35 years, c. 36-40 years, and d. more than 40 years), 3. Qualifications subdivided into (a. general practitioners, b. diplomas, c. master degree, and d. doctoral degree), 4. Years of experiences were subdivided into (a. 1-5 years, b. 6-10 years, c. 11-15 years, and more than 15 years). B) The second part included 7 multiple choice questions which were designed to measure participant's knowledge about EBDP. C) The third part was designed to measure participant's attitude toward EBDP and included 4 questions in which a 5 point Likert scale was used including options " strongly agree, agree, uncertain, disagree, strongly disagree. D) The fourth part included only one question about perceived barriers towards EBDP.

Statistical Analysis

Data was analyzed using Statistical Package for Social Services version 16 (SPSS, IBM, Armonk, NY, USA). The p-value<0.05 was taken as a cutoff point for statistical significance. Independent-Sample T Test and One-Way ANOVA used to estimate the mean knowledge scores;

multiple comparisons were done using the least significant difference test (LSD). However, descriptive statistics were used to measure frequencies and distributions of demographic data among participants. Non-Parametric Chi-square test was used to compare frequencies of participants regarding their awareness, attitudes, and barriers to EBDP.

RESULTS

Out of 300 questionnaires were distributed to the participants, only 264 of them completely filled-in their questionnaires and returned them back to the researcher, with responding rate 88%.

Distribution of demographic characters among participants

Out of 264 participants 57.6% were females and 42.4% were males. More than one third of them aged 25 to 30 years. For the participant's qualifications, 31.1% of them were general practitioners. Concerning years of experience, 34.1%, 30.3%, 15.9%, and 19.7% of the participants were 1-5 years, 6-10 years, 11-15 years and more than 15 years respectively (Table, 1).

Table 1. Distribution of Demographic Characteristics among Participants

Demographic characteristics		Distribution N (%) total subjects (264)
Gender	Female	152 (57.6)
	Male	112 (42.4)
Age	25-30	104 (39.4)
	31-35	66 (25)
	36-40	70 (26.5)
	More than 40	24 (9.1)
Qualifications	General practitioner	82 (31.1)
	Diploma	44 (16.7)
	Master degree	65 (24.6)
	Doctoral degree	73 (27.7)
Years of experience	1-5 years	90 (34.1)
	6-10 years	80 (30.3)
	11-15 years	42 (15.9)
	More than 15 years	52 (19.7)

Table 2. Participant Familiarity with EBDP According to Their Demographic Characters

		Familiarity with EBD (264-participants)			
Demographic characteristics		Familiar N (%)	Not familiar N (%)	χ^2	P-value
Gender	Female	106 (40.2)	46 (18.7)	0.000	0.987
	Male	78 (29.5)	34 (12.9)		
Age	25-30	72 (27.3)	32 (12.1)	6.685	0.083
	31-35	42 (15.9)	24 (9.1)		
	36-40	48 (18.2)	22 (8.3)		
	More than 40	22 (8.3)	2 (1)		
Qualifications	General practitioner	36 (13.6)	46 (17.4)	45.760	0.000*
	Diploma	10 (3.8)	34 (12.9)		
	Master degree	49 (18.6)	16 (6.1)		
	Doctoral degree	55 (20.8)	18 (6.8)		
Years of experience	1-5 years	50 (18.9)	30 (11.4)	19.124	0.000*
	6-10 years	54 (20.5)	26 (9.8)		
	11-15 years	32 (12.1)	20 (7.6)		
	More than 15 years	48 (18.2)	4 (1.5)		

*: statistical significant difference among participants using (chi square test)

Participants' familiarity with EBDP terms

When the participants asked about terms which were used with EBDP; greater than half of them (59.1%) were familiar with all these terms in comparison to 35.6% who did not know about these terms. The most familiar terms were case series & case reports (3%), followed by randomized control trials (1.5%) and systematic reviews & meta-analysis (0.8%). Also 35.6% of the participants need additional information about these terms in comparison to 6.1% who did not require additional information about them. (Table, 3)

Distribution of participants who heard about EBDP according to their demographic characters

When the participants were asked whether they heard about EBDP, it was found that; females and males were (40.2% in comparison to 29.5%), without statistical significant difference between them (0.987). Concerning age relationship; the majority of participants who heard about it, their ages ranged from 25 to 30 years and represented 27.3% of all participants, without statistical significant difference between all ages (0.083). However for qualifications, statistical significant difference was found between participants (0.000) and the highest percentage of them was those with doctoral degree (20.8%), and the lowest percentage was 3.8% for those with diploma degree. Regarding number of experience years, 6 to 10 years of experiences was the highest group, as they are represented by 20.5% of all participants, with statistical significant difference between them (0.000) (Table, 2).

Participants who were depending on their clinical experience and those who were using EBDP in their dental practice

More than half of all participants were depending on EBD in their clinical practice (50.8%), while 49.2% of them were depending on their past clinical experience, without statistical significant difference between them (0.806) (Table, 4).

Table 3. Distribution of Participants who are Familiar with EBDP Terms and Those who Need Additional Information about these Terms

Common terms used in evidence base	Participants familiarity with EBDP terms	Participants who need additional information about these terms
Systematic reviews & meta-analysis	2 (0.8%)	26 (9.8%)
Randomized control trials	4 (1.5%)	8 (3%)
Case series & case reports	8 (3%)	14 (5.3%)
Expert opinion	0	4 (1.5%)
Hierarchy of evidence	0	102 (38.6%)
All of them	156 (59.1%)	94 (35.6%)
No of them	94 (35.6%)	16 (6.1%)
$\chi 2$	3.658	2.782
p- vlue	0.000*	0.000**

*: statistical significant difference among participants who are familiar with EBDP terms (chi square test)
**: statistical significant difference among participants who are not familiar with EBDP terms (chi square test)

Table 4. Comparison between respondents who depend on their past clinical experience and those who use EBD in their clinical decision

PCE/EBD	Frequency N (%)	χ^2 (Chi-square)	p- value
Past clinical experience	130 (49.2)		
Evidence based dentistry	134 (50.8)		
Total	264 (100%)	0.061[a]	0.806

Participants' information sources: The most important source of information was the electronic database (31.1%), followed by printed journals (23.5%), however the percentage of the participants who were using all these sources were (20.5%), while 10.6% were using text books as a primary source of information, also 9.8% were depending on dental practice expert opinions, however 3.8% were depending on their continuing education programs and 0.8% of them didn't use any of these souces (Figure, 1).

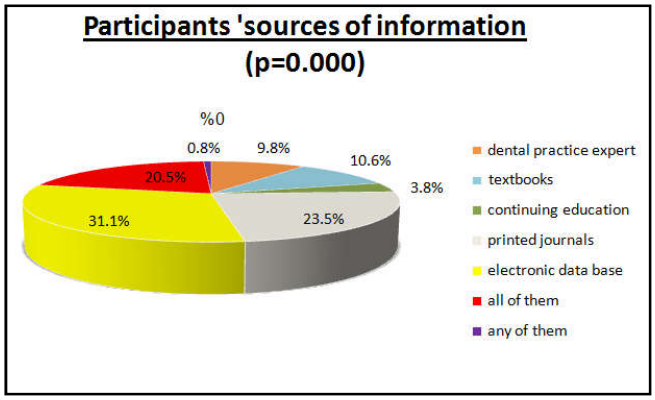
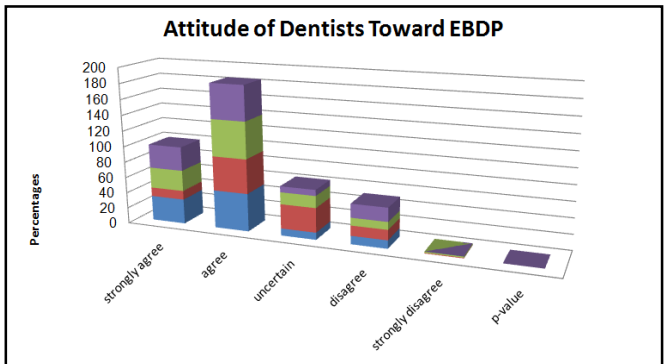


Figure 1. Participants 'sources of information

Attitude of participants toward EBDP

The majority of the participants agree that EBDP will help in clinical decision making (44.7% agreed and 30.3% strongly agreed). Also most of them accepted the idea that EBDP will improve quality of patient care (26.5% strongly agreed and 47% agreed). Regarding the concept that EBDP will reduce cost of health care, it was found that; 11.4%, and 43.9% of the participants were strongly agreed and agreed respectively. When the participants asked about EBDP as a part of undergraduate dental curriculum, the majority of them accepted that idea as 31.8%, and 48.5%, of them strongly agreed and agreed (Figure, 2).



	strongly agree	agree	uncertain	disagree	strongly disagree	p-value
EBDP will help in clinical decision making	30.3	44.7	7.6	17.4	0	0.0001
EBDP will improve quality of patient care	26.5	47	15.2	9.8	1.5	0.0001
EBDP will reduce health care costs	11.4	43.9	31.1	12.9	0.8	0.0001
EBDP is a part of undergraduate dental curriculum	31.8	48.5	9.1	10.6	0	0.0001

Figure 2. Attitude of Dentists toward Evidence Based Dentistry

Barriers toward EBDP

It was found that 29.5% of the participants had no time for EBDP search, while 20.5% of them were lacking the skill to appraise scientific journals, however 19.7% were lacking access to internet, also 8.3% were lacking interest in EBDP,

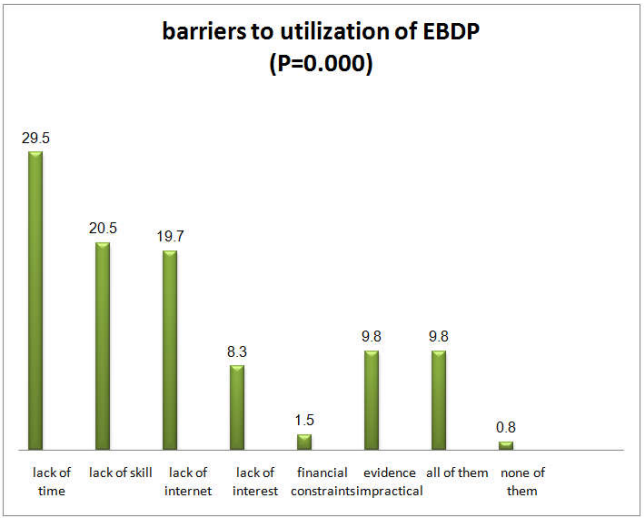


Figure 3. Barriers toward Utilization of Evidence Based Dental Practice

and 1.5% only were having financial problems, but 9.8% were considering EBDP impractical, and 9.8% considered all the problems, finally 0.8% of the participants did not see any of them as a barrier (Figure, 3).

DISCUSSION

The traditional dental practice based mainly on past experiences of clinician. It often neglects recent scientific knowledge and patient preferences, needs or values. An inverse relationship was found between the number of years of dental practice and the quality of provided care (Choudry, 2005). So, for providing dental care of high quality; an equal importance should be given to clinical expertise, most valid research evidence and patient's needs/preferences. EPDP provides safe, sound, efficient and cost effective treatment to the patient; also it improves the dentist patient relationship (Gupta, 2015). Because of the importance of this new concept, we conducted this study to assess awareness, attitude and barriers of a group of dental practitioners of different nationality in the School of Dentistry, Mansoura University. The response rate of our study was 88% which is quietly similar to that of Prabhu *et al* (86.7%) (Prabhu, 2012), and Eslamipour *et al* (83.6%) (Eslamipour, 2016). 0ur rate was higher than Haron *et al* and Gupta *et al* who found (80%) (Haron, 2012 and Gupta, 2015), response rate, while in Bahammam *et al* study it was (74%) (Bahammam, 2014), and in Yusof *et al* study the rate was (50.3%) (Yusof, 2008). In spite of that our response rate was lower than that of Navabi *et al* (100%) (Navabi, 2014).

The higher response rate could be attributed to the same day retrieval of questionnaires from participants. Our results revealed that females (40.2%) were more familiar with EBDP than males (29.5%); this finding was matched with Eslamipour *et al* (Eslamipour, 2016), and Khami *et al* (Khami, 2012), who reported that women had higher knowledge score than men. Also participants with doctoral degree were found to be more familiar with EBDP than others, and this was agreed with Gupta *et al*. (Gupta, 2015), who reported that, dentists with higher qualifications scored were better in terms of their mean knowledge scores, and explained that finding by their involvement in research activities during post-graduation. Concerning years of experiences, practitioners with 6 to 10 years were more familiar with EBDP than others and this finding was matched with that of Gupta *et al*. (Gupta, 2015), who declared that, by increasing age clinicians would have busy practice schedule which subsequently might deter their search for valid evidence and depend on their clinical experiences. Our results revealed that, more than 50% of the participants were familiar with EBDP terms, while 35.6% of them needed additional information about them. Case series and case reports were the most famous terms in comparison to hierarchy of evidence. These finding were matched with Prabhu *et al*. (2012), Iqbal *et al*. (2002), McColl *et al*. (1998), and Navabi *et al*. (2014), as their respondents reported more than 50% familiarity with EBDP terms. Also Yusof *et al*. (2008), reported that 80% familiarity with EBDP terms with special emphasis on systematic review (71%). On the other hand, Pratap *et al*. (2014), Gupta *et al*. (2015), and Haron *et al*. (2012) were not in agreement with our finding as most of their respondents need additional information about Systematic review & meta-analysis. This discrepancy in results can be interpreted as EBDP terms are unfamiliar for most of dental practitioners except for those who are in daily contact with research and database searching. Also, many of the respondents may know about these terms but at the same time they lacked the perceived understanding of their meaning. Regarding the difference between participants who depend on their clinical experience for clinical decision making and those who depend on EBDP; there was no statistical significant difference between them. These findings were matched with Gupta *et al*. (2015) as they reported that, 50% of their participants favor past clinical experience in their decision making. However Haron *et al*. (2012), found that, clinical decisions were mostly based on clinician's own judgment (73.3%) in comparison to (28.3%) evidence based users. While, Arezoo *et al*. (2016) reported that, 5% of their participants were using evidence based dentistry in their clinical practice.

These findings emphasized that clinical decision making depending on EPDP is still unfamiliar practice in many countries (Haron, 2012 and Arezoo, 2016). Concerning to the participant's main source of information, our results concluded that 31.1% of the respondent were using electronic data base in comparison to 10.6% were using text book while only 3.8% of them depended on continuing education programs. Our result highlighted that electronic data base is an easy and applicable source of information and this is the first step toward EPDP. On the other side, Rathod *et al*. (Rathod, 2016), found that 56% of their respondent considered textbooks and asking colleagues were the best and quick methods to get evidence. Also Gupta *et al*. (Gupta, 2015), concluded that 60.2% of the respondents did not use the electronic databases such as PubMed and considered textbooks as the most frequently used sources. Gupta *et al*. (2015) stated that the electronic data base may be not as accessible as colleagues and it does not cover all topics, so it is reasonable to expect these sources not to be greatly used. The shortcoming of using textbooks as a source of evidence is that, the information may be more than a decade out of date at the time of publishing (Wewers, 1990). In addition to them; Iqbal *et al* (2002), mentioned that; many general practitioners ask friends and colleagues for assistance and guidance. Experts and colleagues are a quick, cheap and easy source of information and also, provide guidance, support, affirmation, and other psychological benefits that computerized sources cannot offer (Weatherall, 2013). However, it was found that guidelines based on expert opinion are sometimes liable to bias and conflict of interest (Iqbal, 2002).

Our respondents revealed positive attitude toward EBDP as greater than 50% of them were strongly agreed and agreed that EBDP will help in decision making, improve quality of patient care, and reduce service cost. The positive attitude of our participants could be attributed to the inclusion of EBDP into the curricula of undergraduate students in the School of Dentistry, Mansoura University. Our finding was supported by several studies (Yusof, 2008; Haron, 2012; Khami, 2012; Arezoo, 2016; Gupta, 2015; Eslamipour, 2016; Sabounchi, 2013; Ashri; 2014 and Coleman, 2001) as the majority of their respondents agreed that EBDP will help in decision making and improve quality of care. Also, large portion of them wanted to have EBDP as a part of their curriculum. In spite of that, these finding were not matched with Rathod *et al* (Slawson, 1997), as they recorded significantly lower positive attitudes toward EBD among post graduate students who thought that EBD is of limited value in general practice and places an extra demand over loaded practitioners. Also Navabi

et al. (Bahammam, 2014), mentioned that, dentists in Iran paid little attention to EBDP. Time was considered the major barrier to EBDP, followed by lacking of skill to appraise scientific journals, lacking access to internet, and interest in EBDP. Lack of time to search the best evidence can be attributed to busy work schedule of dentist and can be resolved by practicing proper search time (Gupta, 2015), however, the problem of deficient skill to appraise scientific journal can be resolved by training workshops and courses on critical appraising of scientific articles. These findings were in agreement with Iqbal *et al*. (Iqbal, 2002), Navabi *et al*. (2014) Eslamipour *et al*. (2016), Yusof *et al*. 2008 Coleman *et al*. (2001) and Bader (2009). However, Prabhu *et al*. (Prabhu, 2012), found that lacking skill to appraise scientific journals, financial constraints, and difficulties to apply EBDP were the commonest felt barriers. Also, Rathod *et al*. (Rathod, 2016), reported that lack of training was the significant barrier to their participants. All these constraints should be minimized and resolved for enhancement of evidence based dental practices.

Conclusion and Recommendations

In conclusion, this study supports the inclusion of EBDP into the educational curricula of undergraduate and postgraduate students, hoping that, this study will be a guide that helps health care professions and decision makers in Egypt to introduce, implement, and evaluate EBDP in educational institutions. Further studies are needed to make progressive evaluation of the knowledge and skills among dental practitioners regarding EBDP.

Study limitations

Dentists of a single city cannot actually represent the large country like Egypt, so generalization of the results of this study is one of its drawbacks. Not all technical terms used in EBDP were included in the study to assess dentist's knowledge; this might overestimates the knowledge scores found in the study. So, it is recommended to perform other studies on large scale to cover more technical terms related to EBDP and all educational institutions in Egypt.

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Conflict of interest: None

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