Original Article

Awareness, Knowledge and Attitude of Dental Students of Tehran and ShahidBeheshti Universities of Medical Sciences about Evidence-based Dentistry

MR. Khami [1], A. Jafari [1], Z. Mohtashamrad [2], R. Yazdani [1], A. Moscowchi [2], E. Akhgari [2], M. Elyasi [2]

[1]Assistant Professor, Department of Community Oral Health, School of Dentistry, Tehran University of Medical Sciences. Tehran, Iran
[2]Dentist

Abstract

Background and Aim: Evidence-based dentistry is an approach to oral health that requires a reasonable combination of scientific evidence with the dentists' diagnostic and clinical practice as well as patients' needs and treatment priorities. The aim of this study was evaluation of awareness, attitudes and self- assessed knowledge of dentistry students about EBD in governmental universities in Tehran.

Materials and Methods: Subjects included junior students of dentistry studying in Tehran and Shahid Beheshti Universities of Medical Sciences. Sixty-five subjects were evaluated, among which 85% answered the questionnaire. Questionnaires were distributed to the students before and after their courses to evaluate student's awareness, attitude and self- assessment knowledge. Chi- square and T- test were used to analyze the results.

Results: Totally 80% of students had a fair or poor awareness about EBD. Almost, all the students had a correct attitude about EBD and 80% had a correct attitude about the steps. The mean male student's knowledge was significantly higher than that of female counterparts. Also, there was a significantly positive correlation between student's knowledge score and self- assessed knowledge about EBD.

Conclusion: Despite good attitudes about EBD, there is a deficiency in student's knowledge, so an appropriate plan is suggested to resolve this problem.

Key Words: Dentistry Students - Evidence-Based Dentistry

✎ Corresponding author:
Z. Mohtashamrad, Dentist
Z_sh_64@yahoo.com

Introduction

Evidence-based medicine (EBM) was introduced in 1990s to review scientific evidence in medical sciences [1]. This phenomenon was a systematic approach to summarize the overwhelming volume of scientific literature which was needed by health care workers to be merged by their work experiences. American Dental Association (ADA) extrapolated the principles of EBM to the field of dentistry. According to the previously mentioned basis, evidence-based dentistry (EBD) is an approach for healthy preservation of the oral cavity that requires appropriate compilation of the scientific evidence and clinical diagnoses, relevant to the previous history and oral and medical status of the patient, dentist's clinical dexterity as well as the patient's treatment needs and priorities [2]. Principal steps of applying evidence-based dentistry are as follows:

1-Determining the main question
2-Searching the information resources
3-Identification and interpretation of the evidence

4-Evidence-based performance

The ultimate need for EBD can be summarized in three parts:

-Minimizing personal faults

-Reassuring about the best decision made for the patient

-Making the best clinical decision [3-5]

Increased life expectancy, improvement of the community health and better availability of the health services resulted in preservation of the natural dentition partially or completely [6]. It was stated in a 2008 investigation that 76% of 35-through 44-year-old people in Iran had a functional occlusion (containing at least 20 teeth) [7]. On the other hand, changes in the people's eating habits have resulted in changes in the process of oro-dental diseases. In addition, with improvements in therapeutic measurements, dental treatments are provided more precisely [8]. In Iran dental treatments are expensive and are not covered by insurance services. In a 2009 study, it was stated that almost 60% of the patients pay their treatment expenses themselves. Only 40% of the patients are referred to centers providing free services or have their treatments done in centers with governmental subsides [9]. Obviously, dentists should also provide the most effective treatments and best possible preventive and diagnostic methods. It is necessary for the dentists to keep their knowledge updated for the sake of their patients. Obviously, reading updated articles can improve occupational status of the dentists [10]. Familiarity with the best possible treatment is also of legal importance. It is declared that students and professors in dental faculties do not have enough familiarity with this expertise. This fact necessitates more exclusive attempts in this regard.

The aim of this study was to evaluate awareness, attitude, self-assessed knowledge of the dental students in regarded dental schools concerning EBD.

Methods and Materials

In this descriptive study, dental students studying in the 9th term of the undergraduate dentistry courses in Dental Schools of Tehran and ShahidBeheshti Universities of Medical Sciences were involved. All subjects were included voluntarily in a screening mode. Students were asked to answer a questionnaire concerning EBD [6]. A total of 65 students were included in the study among whom 43 belonged to Tehran and 22 to ShahidBeheshti University of medical sciences. The total response rate was 85%. Validity and reliability of the questionnaire was assessed through a pilot study in a group containing 15 students. The subjects were asked to fill out the questionnaire and give their corrective comments. These students were excluded from the study. After 10 days, the questionnaire was filled out by the same individuals one more time and the corrections were done. SPSS version 11.5 was used for statistical analysis. In order to analyze the results, each answer was given a score of 1 to 5. Sum of the scores in the first part of the questionnaire was considered as the score of awareness (10through 50), the second part as attitude (12 through 60) and the third as self-assessed knowledge (9 through 45). Data were analyzed using chi-square and t-test.

Results

Dental students of TUMS included 8 (18.6%) males and 35(81.4%) females. Dental students of ShahidBeheshti University of Medical Sciences included 8 (36.4%) females and 14 (63.6%) males. There was no significant difference between the number of male and female students in any of the universities. The mean age of the students in TUMS was 22.73 years (SD=1.634 years) and in SBUMS was 23.86 years (SD=2.274 years). The difference between the mean age of the students was not significant. As illustrated in table 1, 80 percent of the students had little if any information about EBD. More than 85 percent of the students had little or very little familiarity with databases used in EBD. The same situation existed about the familiarity with criteria of article reviewing so that only 5 percent of the students expressed higher familiarity levels in this regard. Almost all of the students believed that it is necessary to make sure of a reference quality before citing it. It was also

Table 1: Frequency of the dental students' answers to the first part of the questionnaire concerning EBD (n=65)

Title	Slightly if not at all	Slightly	Moderately	Highly	Too much
1- How much do you rely on your background knowledge in order to provide a suitable and appropriate treatment?	0 (%0)	3 (%4/6)	36 (%55/4)	23 (%35/4)	3 (%4/6)
2- How effective, suitable and applicable do you consider your background knowledge in providing appropriate treatment plans?	0 (%0)	11 (%16/9)	39 (%60/0)	12 (%18/6)	3 (%4/6)
3- How familiar are you with evidence-based dentistry (EBD)?	21 (%32/3)	31 (%47/7)	9 (%13/8)	4 (%6/2)	0 (%0)
4- How familiar are you with the resources through which you can obtain updated technical knowledge?	6 (%9/1)	26 (%40/0)	27 (%42/5)	3 (%4/6)	3 (%4/6)
5- How familiar are you with the databases used in EBD method?	33 (%50/8)	23 (%35/4)	8 (%12/3)	1 (%1/5)	0 (%0)
6- How hopeful are you with finding your answers to the technical questions through searching the scientific literature?	2 (%3/1)	18 (%27/7)	25 (%38/5)	16 (%24/5)	4 (%6/2)
7- How qualified are the articles you find throughout your searches?	1 (%1/5)	10 (%32/3)	35 (%53/8)	17 (%26/2)	2 (%3/1)
8- How familiar are you with the criteria of article reviewing?	22 (%33/8)	27 (%42/5)	13 (%20/1)	3 (%4/6)	0 (%0)
9- How capable are you in reviewing scientific articles?	22 (%33/8)	32 (%49/3)	8 (%12/3)	3 (%4/6)	0 (%0)
10- How familiar are you with the hierarchy of evidence reliability in studies and articles?	27 (%42/5)	23 (%35/4)	12 (%18/5)	2 (%3/1)	1 (%1/5)

declared that the dentists' knowledge should always be updated and they should have a life-long learning strategy (table 2). Almost 80% of the students had a true attitude toward steps of EBD method (question 9). On the other hand, less than half of the students believed that the results of co-hort studies are more reliable than case-control investigations.

As illustrated in table 3, although 60% of the students believed to have a true understanding of the term, bias, more than 80% of them had little knowledge about Cochrane collaboration and almost 2/3

Table 2: Frequency of the dental students' answers to the first part
of the questionnaire concerning EBD (n=65)

Title	I completely disagree	I disagree	I don't know	I agree	I completely agree
1- Experts' and professors' opinions which are experience-based cannot serve as reliable diagnostic and treatment guidelines	5 (%7/7)	15 (%23/0)	5 (%7/7)	34 (%52/3)	6 (%9/2)
2- Dentists can rely on the latest articles in their practices	2 (%3/1)	37 (%56/9)	13 (%20/0)	12 (%18/5)	1 (%1/5)
3- Quality of a reference including a book or an article should be verified before citation and use in dental practice	0 (%0)	0 (%0)	0 (%0)	42 (%64/6)	23 (%35/4)
4- Type of the study is a criterion for its qualitativeappraisal	0 (%0)	2 (%3/1)	23 (%35/4)	36 (%55/4)	4 (%6/1)
5- Studies conducted in cohort design are more reliable than those conducted in case-control design	0 (%0)	13 (%20)	22 (%33/8)	29 (%44/6)	1 (%1/5)
6- Systematic review studies stand at the top of the hierarchy of evidence	0 (%0)	0 (%0)	42 (%64/6)	22 (%33/8)	1 (%1/5)
7- The most important criterion for appraisal of a clinical trial is its randomization in sampling	0 (%0)	6 (%9/2)	15 (%23/1)	40 (%61/5)	4 (%6/1)
8- In case blinding is not taken into consideration in a randomized clinical trial, the study fails to have adequate reliability for citation	0 (%0)	10 (%15/4)	15 (%23/1)	36 (%55/4)	4 (%6/1)
9- In order to define a definite question in clinical practice, the type of the problem, the patient(s), the intervention(s), the alternatives (if any) and the outcomes should be disclosed	0 (%0)	0 (%0)	7 (%10/8)	53 (%81/5)	5 (%7/7)
10- Updated information in scientific websites has adequate reliability for citation	1 (%1/5)	21 (%32/3)	19 (%29/2)	23 (%35/4)	2 (%3/1)
11- It is necessary for the graduated dentists to keep their knowledge updated about the latest relevant information and evidence	0 (%0)	0 (%0)	1 (%1/5)	33 (%50/8)	31 (%47/7)
12- Dentists should have the ability for life-long learning	0 (%0)	0 (%0)	2 (%3/1)	29 (%44/6)	34 (%52/3)

Table 3: Frequency of the dental students' answers to the third part of the questionnaire concerning self –assessed knowledge about EBD (n=65)

Title	Lack of knowledge about the term	Little knowledge about the term.	Understanding the term	Understanding and using the term without defining it	Understanding and defining the term
Evidence-based practice (EBP)	22 (%33/8)	19 (%29/2)	13 (%20)	7 (%10/7)	4 (%6/1)
Clinical effectiveness	10 (%15/4)	13 (%20)	19 (%29/2)	0 (%0)	10 (%15/4)
Systematic review	13 (%20)	15 (%23/1)	12 (%18/4)	8 (%12/3)	17 (%26/1)
Cochrane collaboration	46 (%70/7)	7 (%10/7)	5 (%7/6)	3 (%4/6)	10 (%15/4)
Bias	11 (%16/9)	6 (%9/2)	9 (%13/8)	4 (%6/1)	35 (%53/8)
Odds ratio	15 (%23/1)	23 (%35/3)	9 (%13/8)	2 (%3/1)	16 (%24/6)
P .V	30 (%46/1)	13 (%20)	7 (%10/7)	3 (%4/6)	12 (%18/4)
PubMed	2 (%3/1)	7 (%10/7)	7 (%10/7)	8 (%12/3)	41 (%63/1)
Medical Subject Headings (MeSH)	33 (%50/7)	8 (%12/7)	9 (%13/8)	6 (%9/2)	9 (%13/8)

Table 4: Frequency of the dental students' answers to the third part of the questionnaire concerning self –assessed knowledge about EBD (n=65)

Mean score	Total sample	gender		P	Dental school		P
		male	female		TUMS	SBMU	
Mean score for knowledge	23/2 (4/7)	25/5 (5/5)	22/5 (4/3)	0/02	22/3 (4/2)	24/8 (5/3)	0/04
Mean score for attitude	43/1 (2/6)	43/1 (3/3)	43/1 (2/4)		43/4 (2/7)	42/5 (2/4)	0/99
Mean score for self-assessed knowledge	26/0 (8/1)	27/4 (9/9)	25/7 (7/6)	0/48	24/7 (7/1)	28/8 (9/7)	0/06

of this population had a minimal familiarity with p value and MeSH.

Table 4 represents the mean score for awareness, attitude and self-assessed knowledge of the students about EBD in different genders and dental schools. As depicted, the mean awareness score for male students was significantly more than for female counterparts (p=0.02). This score was higher in students of SBUMS than students in TUMS (p=0.04). There was a significantly positive corre-

lation between theawareness and self-assessed knowledge of the students about EBD. (Pearson's correlation coefficient=0.51, p<0.001)

Discussion

In this study, awareness, attitude and self-assessed knowledge of the dental students about evidence-based dentistry in two dental schools in Tehran was evaluated. Advantages of this study include the high percentage of responses, use of Likert scales for evaluation of results as well as use of the available resources to prepare the questionnaire which made it possible to compare the results of this study with those of other relevant works. On the other hand, use of the questionnaire with its inherent limitations and evaluating only two dental school students are among the limitations of the current study.

According to the results obtained from the first part of the questionnaire, students had little awareness about EBD. The results pertaining to the self-assessed knowledge of the students in this regard approves the previously mentioned weakness. According to the current emphasis on the application of this method in providing health services and defining it as a major capability for the dentists [4,5], these results are considered cautioning. These results are congruent with an English study in which 29% of the subjects could properly define the term, evidence-based dentistry and 18% were able to appropriately define the term, systematic review [11]. On the other hand, Malaysian dentists indicated better results, so that 80% of them were aware of the EBD concept, 80.7% knew the meaning of clinical effectiveness and 71.1% knew the concept of systematic review [12]. They also know the concept of critical appraisal in 61.5%, and clinical governance in 49.6% of cases. Also in this investigation 58.5% of the participants had no idea about Cochrane collaboration. A study in Iran also was conducted onthe academicians in Tabriz University of Medical Sciences about evidence-basedmedicine. It was shown that 45.3% of the participants did not have a true knowledge about evidence-based medicine [13]. This and another

study [14] revealed that this method is infrequently used in clinical practice by the academicians and clinical residents. This investigation revealed that a low percentage of the clinical residents are familiar with the available resources concerning evidence-based medicine which s accordance with our results. Collectively, these results show that integrated attempts should be made for instructing physicians and dentists about evidence-based strategies. In addition, students had a relatively appropriate attitude toward evidence-based dentistry. This is in accordance with the study conducted on Malaysian dentists [12].

It is declared that there is an appropriate background for instructing evidence-based dentistry in dental students. Implementation of evidence-based strategies as an educational topic in dental curriculum can resolve deficiencies in this regard. Awareness discrepancies among different genders as well as the students of different dental schools regarding the similarity of the curriculum is of concern. Iqbal and Glenny evaluated the awareness and knowledge of the English dentists about evidence-based dentistry. A considerable number of participants had a relative knowledge EBD terminology. Nevertheless, they could only define this term appropriately in 29 percent of the cases. Also, 18 percent of the participants could properly define the term "systematic review" [11]. These results are in accordance with those of our investigation.

Conclusion

Conclusively, although there is an appropriate attitude toward evidence-based dentistry in dental students, their awareness and knowledge is still deficient.

References

1- Claridge JA, Fabian TC. History and development of evidence-based medicine. World J Surg. 2005 May; 29(5):547-53.

2-Ismail AI, Bade JD. Evidence-based dentistry in clinical practice. J Am Dent Assoc. 2004 Jan; 135(1):78-83.

3- Chiappelli F, Prolo P, Newman M, Cruz M, Sunga E, Concepcion E, Edgerton M. Evidence-based practice in dentistry: Benefit or hindrance. J Dent Res. 2003 Jan; 82(1):6-7.

4- Plasschaert AJM, Holbrook WP, Delap E, Martinez C, Walmsley AD. Profile and competences for the European dentist. Eur J Dent Edu. 2005 Aug; 9(3):98-107.

5- Boyd MA, Gerrow JD, Chambers DW, Henderson BJ. Competencies for dental licensure in Canada. J Dent Edu. 1996 Oct; 60(1):842-46.

6- Burke FJ. A synopsis of the adult dental health survey: oral health in the United Kingdom 1998. Dent Update. 2000 May; 27(4):184-6.

7- Hessari H, Vehkalahti MM, Eghbal MJ, Murtomaa H. Tooth loss and prosthodontic rehabilitation among 35- to 44-year-old Iranians. J Oral Rehabil. 2008 Apr; 35(4):245-51.

8- Drugan CS, Downer MC. Dental health in the United Kingdom and influencing variables. Bundesgesundheitsblatt - Gesundheitsforschung - Gesundheitsschutz2011 Sep;54(9):1027-34.

9- Bayat F, Vehkalahti MM, Murtomaa H, Tala H. Why do adults entitled to free or highly subsidized dental services select fully out-of-pocket-paid care? Com Dent Oral Epidemiol. 2010 Feb; 38(1):88-95.

10- Allan K. Hackshaw, Elizabeth A. Paul, Elizabeth S. Davenport 8, 24 (2007) Evidence-based dentistry: An introduction. Oxford: Blackwell Munksgaard; 2006, 2-5.

11- Sjöström O, Holst D. Validity of a questionnaire survey: Response patterns in different subgroups and the effect of social desirability. Acta Odontol Scand. 2002 Jun; 60(3):136-40.

12-Iqbal A, Glenny AM. General dental practitioners' Knowledge of and attitudes toward evidence-based practice. Br Dent J. 2002 Nov; 193 (10):587-91.

13- Yusof ZYM, Han LJ, San PP, Ramli AS. Evidence-based practice among a group of malaysian dental practitioners. J Dent Edu. 2008 Nov; 72(11):1333-42.

14- Amini M, Sagheb MM, Moghadami M, Shayegh S. [The rate of knowledge and practice of medical residents of Shiraz medical school in regard to evidence-based medicine]. (Persian) Strides in development of medical education, J Med Edu Dev Cent of Kerman Univ of Med Sci. 2007 Spring-Summer;4(1):30-35.