

Reasons for and Barriers to Attending Continuing Education Activities and Priorities for Different Dental Specialties

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Abstract

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BACKGROUND: Continuing education (CE) activities help dentists update their knowledge and skills to ensure high standards of patient care.

AIM: This study aimed to evaluate the reasons for and barriers to attending CE activities including the priorities for different dental specialties.

METHODS: The study involves a cross-sectional research design. After statistical consultation, a questionnaire was distributed among 323 dental practitioners in the Eastern province of Saudi Arabia. The questionnaire was checked for face and content validity, and it was pilot-tested before its administration.

RESULTS: The response rate was 79.5% as 257 of 323 dentists returned the questionnaire. Most dentists reported that they attended CE activities because of personal learning needs (67.3%) and career development (66.9%). Lack of clinical experience to effectively manage patients and the practice was the least common (15.2%) reason for attending CE activities. Esthetic dentistry (77.4%), restorative dentistry (70.8%), and endodontics (70%) were the three most preferred dental specialties for CE activities. Lack of time was the most common (69.3%) barrier to attending CE activities followed by the cost (62.6%) and the distance (57.2%). More male (n = 104) than female (n = 69) dentists believed personal learning needs a reason for attending CE activities (P = 0.01). Similarly, more male (n = 104) than female dentists (n = 68) considered lack of time a barrier (P = 0.046).

CONCLUSION: Most dentists attended CE activities to fulfil their personal learning needs, and aesthetic dentistry was the most preferred dental speciality for CE activities. Lack of time and cost were important barriers to attending CE activities.

Introduction

In Dentistry, there are complex and wide-ranging oral conditions and issues, rapid flow of new scientific knowledge, development of latest technologies, advances in new drugs, ever-changing oral health care needs, and diverse demographics of the patients and their increased expectations of oral care services [1] [2] [3]. These challenges can be effectively addressed by updating the knowledge and skills of dentists and ensuring high-quality oral care throughout their career by attending continuing

education (CE) activities [3]. Therefore, the understanding of dentists' opinions about their attendance of CE activities can help better plan and conduct future CE courses to improve dental practice and standards of patient care.

The distance from the place of CE activities, attendance-related expenses, type of CE courses, and instructional methods are important elements when planning CE activities [4]. The cost of continuing professional courses, the distance or the location of a course, the loss of work, and courses not relevant were the barriers to attending educational courses for general dentists [5]. It was found that increased

engagement and commitment in dental practice and the cost of the courses restricted dentists from participating in continuing professional development in Scotland [6]. The literature also pointed out the lack of motivation and interest of participants and the negative role of the employer as barriers to the participation in CE activities [7]. Evidence shows that female and rural dental practitioners had difficulty accessing CE activities in Australia [8]. Dentists working in hospitals were found to spend more time in continuing dental education [9]. Nevertheless, a mandatory statutory requirement by the professional or regulatory bodies is one of the leading reasons for the higher participation of dentists in CE meetings [10].

Al-Fouzan reported the perceived needs of general dentists for CE courses on different clinical topics in Saudi Arabia [11]. The respondents thought that they had the greatest learning needs in areas such as screening of oral carcinoma, management of medically compromised patients, and oral manifestations of systemic diseases. Chan et al. found that the dentists highly preferred cosmetic dentistry and implant dentistry courses for their continuing education [12]. Bailey et al. reported an agreement on three core components of CE activities which included medical emergencies, infection control and treatment of medically compromised patients [13]. Recently, Nayak et al. indicated that the majority of dentists preferred CE courses in esthetic dentistry and endodontics [14].

In Saudi Arabia, dentists are required to attend CE activities to maintain their licensures to practice dentistry, and they are offered different CE programs throughout the year and across the country. However, the literature lacks data about the reasons for attending and barriers to participating in CE courses in the country. Also, information about dentists' preferences for CE activities about different dental specialties can help decision-makers better plan a CE program in the Eastern province of Saudi Arabia.

Therefore, the objective of the study is to report the reasons, the level of priorities for dental specialties, and barriers to CE activities among dentists.

Methods

This cross-sectional study was conducted on dental practitioners working in different cities of the Eastern province of Saudi Arabia. The major cities included Dammam, Al-Khobar, Dhahran, Al-Hasa while small cities/towns included Qatif, Sihat and Boqig. A sample of 323 dentists was calculated based on the confidence limit, the dentist population in the

province, and the % frequency of the outcome in the population.

The instrument was developed by dental public health faculty members at the College of Dentistry Imam Abdulrahman Bin Faisal University. The content and face validity of the questionnaire were checked by faculty members during multiple meetings. The questionnaire specially designed for the present study was developed and reviewed by the faculty members. In subsequent meetings, modifications were made in the questionnaire by adding and deleting some items and improving the construction of some questions.

Demographic information included age and gender of the participants, whether they worked in the private or public sector, and whether they are general dentists, specialists or consultants. There were six items about the reasons for attending CE activities during the last one year. The questions about the level of priority for CE activities in different dental specialist used 4-point Likert response options.

The respondents were given a list of options of different dental specialties to choose from. Lack of time, the distance from participant's clinic to the place of CE activities, gender, the cost of CE activities (i.e., fee), travelling and accommodation expenses, the loss of earnings/income due to absence from the clinic, the lack of motivation and interest in CE activities and reduced availability of CE activities, and working in private and public dental hospital/clinic were the options given for barriers to attending CE activities. The respondents were asked to check all the options that apply to them. The questionnaire was pilot-tested on 30 dentists who did not participate later in the actual study.

Following the approval of the study by the Research Unit at the College of Dentistry, Imam Abdulrahman Bin Faisal University (ethics committee), the survey was distributed to the dentists working in government and private dental clinics. The self-administered questionnaire was administered by approaching the dentists in person in their clinics. The respondents who were willing to participate in the study received the hard copies of the questionnaire. The dentists who could not complete the questionnaire in the first visit were reminded in second and third visits. The second visit was performed about two-three weeks after the first visit to collect the completed questionnaires or to give a reminder.

Similarly, the dentists were revisited for the third time after two-three weeks for the collection of the questionnaire. These measures were taken to acquire satisfactory response rate and present valid results of the study. Ethical considerations were maintained during data collection as the dentists were provided with details and risks and benefits of the study. The respect for the person was ensured by asking respondents to provide verbal consent before filling out the questionnaires. The anonymous survey

maintained the confidentiality of respondents in the study.

All data were analysed using SPSS software (IBM SPSS Statistics for Windows, Version 22. Armonk, NY: IBM Corp). Descriptive analysis included calculating means and standard deviations of continuous data and percentages of categorical variables of the study. Gender differences in reasons for and barriers to attending CE activities were calculated by using Pearson's chi-square test. Statistical significance was determined using p-value < 0.05.

Results

Of 323 dentists, 257 returned completed questionnaires with a response rate of 79.5%. Mean age of study participants was 31.18 ± 12.4 years. There were 54.9% of male and 45.1% of female dentists in the study. More participants had jobs in private (65.4%) than the public sector (45.1%). The majority of participants were general dentists (65.8%), followed by specialists (31.1%) and then consultants (3.1%), Table 1.

Table 1: Demographic characteristics of study participants

Variables	N (%)
Gender:	
Male	141 (54.9)
Female	116 (45.1)
Type of job:	
Private	168 (65.4)
Public	89 (34.6)
Job Title:	
General dentist	169 (65.8)
Specialist	80 (31.1)
Consultant	8 (3.1)
Age	Mean ± SD 31.18 ± 12.4

The personal learning need was the most commonly reported (67.3%) reason for attending CE activities. Similarly, a large majority of dentists (66.9%) reported that they attended CE activities because it was required for their career development. Almost half (48.6%) of the respondents believed that regulatory requirement by the licensing/regulatory body was the reason for their attendance. It was encouraging to see that a very small percentage of dentists (15.2%) felt the need to attend CE activities because they lacked the clinical experience to manage patients and the practice effectively.

Table 2: Reasons for attending CE activities

Variables	N (%)
Lack of clinical experience to effectively manage patients and the practice	39 (15.2)
Lack of a postgraduate degree or specialist training	62 (24.1)
Regulatory requirements by the licensing/regulatory body	125 (48.6)
Required for career development	172 (66.9)
Required for networking with dental professionals	110 (42.8)
Personal learning needs	173 (67.3)

Of the respondents, 77.4% agreed that they had a high/very high priority for CE activities about esthetic dentistry. Other highly/very highly rated dental specialities included restorative dentistry (70.8%), endodontics (70%) and prosthodontics (60.7%). Almost half the respondents gave high/very high priority for CE activities about preventive dentistry (56%), evidence-based dentistry (48.6%), periodontics (47.9%), and implant dentistry (44.7%). Among all the given specialities, 45.1% of the respondents gave low priority for CE activities about orthodontics. Thus, CE activities in orthodontics received the least importance in the study (Table 3).

Table 3: Level of priority for Continuing Education activities in different dental specialities

Specialities	Low N (%)	Medium N (%)	High N (%)	Very high N (%)
Oral Surgery	74 (28.8)	81 (31.5)	56 (21.8)	46 (17.9)
Orthodontics	116 (45.1)	74 (28.8)	35 (13.6)	32 (12.5)
Periodontics	58 (22.6)	76 (29.6)	70 (27.2)	53 (20.6)
Endodontics	37 (14.4)	40 (15.6)	87 (33.9)	93 (36.2)
Prosthodontics	47 (18.3)	54 (21.0)	76 (29.6)	80 (31.1)
Preventive Dentistry	60 (23.3)	53 (20.6)	79 (30.7)	65 (25.3)
Implants Dentistry	74 (28.8)	68 (26.5)	52 (20.2)	63 (24.5)
Restorative Dentistry	36 (14.0)	39 (15.2)	85 (33.1)	97 (37.7)
Esthetic Dentistry	33 (12.8)	25 (9.7)	78 (30.4)	121(47.1)
Evidence-based Dentistry	48 (18.7)	84 (32.7)	66 (25.7)	59 (23.0)

Lack of time, cost, and the distance to CE activities were the most commonly reported barriers to CE activities. In the study, 69.3% considered lack of time a barrier to attending CE activities. Similarly, a majority of respondents (62.6%) believed that they faced difficulties in attending CE activities due to their costs. Further, more than half (57.2%) thought that distance to the place of CE activities was an obstacle for their attendance. On the other hand, working in the public hospital/clinic was the least reported barrier (16.7%) to CE activities (Table 4).

Table 4: Barriers to Continuing Education activities

Variables	N (%)
Lack of time	178 (69.3)
Distance	147 (57.2)
Gender	15 (5.8)
Cost of attending CE activities	162 (62.6)
Travelling and accommodation expenses	135 (51.8)
Loss of earnings/income due to absence from the clinic	73 (28.0)
Lack of motivation and interest	47 (18.3)
Reduced availability of CE activities	97 (37.7)
Working in a private hospital/clinic	77 (30.0)
Working in a public hospital/clinic	43 (16.7)

Data were compared between male and female participants regarding reasons for and barriers to attending CE activities. It can be seen that more male dentists (59%) than female counterparts (41%) considered lack of time a barrier (P 0.046).

More male (n = 104) than female (n = 69) dentists thought personal learning needs a reason for attending CE activities (P = 0.01). Similarly, CE activities required for career development was recognized by more male (n = 104) than female (n = 68) dentists (P = 0.01). No other reasons and barriers significantly differed between male and female respondents (Table 5).

Table 5: Gender differences in reasons for and barriers to attending CE activities

Variables	Male N (%)	Female N (%)	p-value
Reasons for attending CE activities			
Lack of clinical experience to effectively manage patients and the practice	18 (46.2)	21 (53.8)	0.23
Lack of a postgraduate degree or specialist training	31 (50)	31 (50)	0.38
Regulatory requirements by the licensing/regulatory body	68 (54.4)	57 (45.6)	0.88
Required for career development	104 (60.5)	68 (39.5)	0.01*
Required for networking with dental professionals	60 (54.5)	50 (45.5)	0.93
Personal learning needs	104 (60.1)	69 (39.9)	0.01*
Barriers to attending CE activities			
Lack of time	105 (59.0)	73 (41.0)	0.04*
Distance	76 (51.7)	71 (48.3)	0.24
Gender	7 (46.7)	8 (53.3)	0.51
Cost of attending CE activities	85 (52.5)	77 (47.5)	0.31
Travelling and accommodation expenses	68 (50.4)	67 (49.6)	0.13
Loss of earnings/income due to absence from the clinic	45 (61.6)	28 (38.4)	0.17
Lack of motivation and interest	27 (57.4)	20 (42.6)	0.69
Reduced availability of CE activities	55 (56.7)	42 (43.3)	0.64
Working in private hospital/clinic	43 (55.8)	34 (44.2)	0.84
Working in public hospital/clinic	25 (58.1)	18 (41.9)	0.64

* Statistically significant.

The respondents were asked to provide their opinions about their preferred method of delivery of CE activities. The mixed method (a combination of didactic and interactive methods) was the most preferred method (81%) of providing information in CE courses (Figure 1).

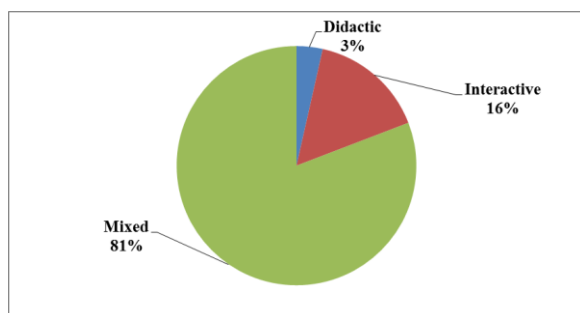


Figure 1: Preferred methods of delivery CE activities

Discussion

Our study demonstrated that the majority of the participants preferred attending CE activities to satisfy their personal learning needs. The esthetic dentistry received the highest priority for CE activities in the study. However, most of them reported lack of time as the most important barrier to the attendance of CE activities. The decision makers in dental academia should understand the current trends in dental practice and align dental curricula with ongoing demands and learning needs of dental practitioners.

There are claims about the importance of CE activities in lifelong learning and personal development [15]. It is also known that the effective organisation of CE activities can satisfy the learning

needs of professionals [16]. In the present study, personal learning need was the most common reason of attending CE activities and significantly higher percentage of male than female dentists thought personal learning need a reason of their attendance ($P = 0.01$). A previous study indicated that improvement in knowledge was the most common reason for CE activities [17]. Our study provides evidence that CE activities can contribute to the lifelong learning and personal development of dental professionals. The role of lifelong learning is understood because of its importance in ensuring professional competency, providing optimal patient care and advancing the career [18]. It is possible that the satisfaction of personal learning needs of the participants reflects their motivation for lifelong learning.

Another explanation for high personal learning needs in our study is that most of the participants might not be knowledgeable and skilled in certain areas and felt the need to improve their knowledge and skills by attending CE activities. Whether dentists attended CE activities as lifelong learners or they were less skilled and needed to acquire new skills, in both cases the findings of this study lend credibility to the importance of CE activities in enhancing the learning process for practising dentists. Continuous emergence of new knowledge, skills and technologies in addition to the influences of political and economic forces on dental practice require a dental professional to attend CE activities to keep pace with current and future trends and demands of the dental professionals. Moreover, our findings suggest the role of CE activities in promoting career development among dentists.

In the present study, a large majority of dentists (77.4%) had a preference for CE courses in esthetic dentistry. Similar findings were reported in a previous study where most dental practitioners preferred esthetic dentistry [14]. Likewise, it was also found that 60.1% of dentists considered cosmetic dentistry as a preferred course for CE activities [12]. Implant dentistry was not the most popular preference (44.7%) of dental practitioners in the present study which is contrary to the findings of a previous study where dentists chose oral implantology as the most common preference for CE activities [12].

A high preference for CE activities related to esthetic dentistry is expected as there is public demand for dental procedures such as porcelain laminates, composite restorations, bleaching techniques etc. These dental treatments are aimed at esthetic improvement commonly requested by the patients. Therefore, dentists need to upgrade their skills to meet the aesthetic needs of their patients. In addition to esthetic dentistry, restorative dentistry and endodontics were second and third most commonly preferred dental specialities for CE activities in the present study. A previous study also reported that restorative dentistry and endodontics were the most

common subjects for CE activities [10]. In our study, high preference of participants in these disciplines reflects increased demand for learning the skills in these specialities which could be because of lack of training, and or introduction of new materials and techniques in these areas.

Significantly higher number of male than female respondents declared that lack of time was one of their barriers to CE activities in our study. These findings are conceivable as more male would choose to work fulltime than the female who opt working part-time due to family responsibilities and commitments [19]. Therefore, male dentists being more involved in dental practice are less likely to afford the time to attend CE activities.

A greater percentage of dentists (30%) judged working in private clinics as a barrier than working in public hospitals (16.7%). One plausible explanation for this phenomenon is that dentists make their earnings by providing treatment to patients and more patients they treat more money they earn in a private dental clinic. On the other hand, the dentists earn monthly salaries in the public sector. Therefore, the loss of income in private dental set up may explain why working in a private dental clinic is considered a barrier to CE activities. Also, the negative role of an employer in dental practice can account for reduced CE activities [7]. Somewhat similar findings were reported by Poyzois et al., who indicated that dental practitioners from hospital spent more time on CE activities [9]. Again, a dentist working in a big organisation like a hospital than a dental clinic may afford to spare time for CE activities due to the policies and regulations of the organisation that may encourage professional development. Opposite may be true in small private dental clinics. In line with previous studies, the cost was a common barrier to attending CE activities [6] [14] [17]. Lack of time was the most common barrier to attending CE activities and more male than female dentists found it difficult to attend CE activities due limited time in our study. These findings are in agreement with the results of a previous study [14].

There is a wide variety of CE programs in the dental profession which involves different types of instructional methods and different modes of dissemination of scientific information [20]. Interactive educational methods which include team-based learning and case-based learning have been found more effective than didactic methods in significantly improving short-term knowledge. Consequently, it resulted in high acceptance and great satisfaction among the participants and improved the indicators of their professional behaviours [21]. Khan and Coomarasamy reported that didactic teaching only increased knowledge whereas interactive educational workshops improved skills, attitudes and behaviours in clinical practice [22]. Davis et al. found that didactic CE sessions did not positively influence the clinical performance of caregivers [23]. O'Brien et al. also

observed that interactive CE workshops resulted in a large change in the clinical practice whereas didactic sessions did not bring a considerable change in clinical practice [24]. In our study, a vast majority of dentists believed that mixed method which is a combination of didactic and interactive style is the most preferred methods of delivery of CE courses.

Although, the study was conducted using a calculated sample of dentists with satisfactory response rate from different cities of the Eastern province of Saudi Arabia, however, the results should be generalised to other regions of the country with caution. Also, one of the potential limitations of the self-administered questionnaire is socially desirable responses. But, the attempts were made to minimise this problem by assuring privacy and confidentiality of the participants' responses by giving them an anonymous questionnaire.

In conclusion, this study found different reasons for attending CE activities with personal learning needs and career development being the most common. CE activities related to esthetic dentistry, conservative dentistry and endodontics were highly demanded by the study participants. A majority of dentists thought that the lack of time, cost and distance were important barriers to attending CE activities. Significantly higher percentage of male than female dentists considered lack of time a barrier to CE activities.

The quantitative data analysis in the study can help the organisers of CE activities better understand different aspects of CE activities to plan and organise such programs and overcome their barriers effectively. The decision makers in dental institutions including dental faculty can utilise the findings of this study to focus on the topics of certain dental specialities where responding dentists felt the need for greater learning. This will provide an evidence base to continuously improve dental curricula to match the current market demands of the dental profession and learning needs of practising dentists with the knowledge and skills provided to dental students.

References

1. Barnes E, Bullock AD, Bailey S, Cowpe J, Karaharju-Suvanto T. A review of continuing professional development for dentists in Europe. *Eur J Dent Educ*. 2013;17:5-17. <https://doi.org/10.1111/eje.12045> PMID:23581734
2. Tseveenjav B, Vehkalahti MM, Murtomaa H. Attendance at and self-perceived need for continuing education among Mongolian dentists. *Eur J Dent Educ*. 2003;7:130-5. <https://doi.org/10.1034/j.1600-0579.2003.00279.x> PMID:12846822
3. Ireland RS, Palmer NO, Bickley SR. A survey of general dental practitioners' postgraduate education activity and demand for extended modular postgraduate programmes. *Br Dent J*. 1999;187:502-6. <https://doi.org/10.1038/sj.bdj.4800315>

4. Kuthy RA, Mitchell GL. Continuing education credit hours taken by general practice dentists. *J Contin Educ Health Prof.* 1999;19:97-104. <https://doi.org/10.1002/chp.1340190205>
5. Hopcraft M, Marks G, Manton D. Participation in continuing professional development by Victorian dental practitioners in 2004. *Aust Dent J.* 2008;53:133-39. <https://doi.org/10.1111/j.1834-7819.2008.00022.x> PMID:18494968
6. Leggate M, Russell E. Attitudes and trends of primary care dentists to continuing professional development: a report from the Scottish dental practitioners survey 2000. *Br Dent J.* 2002;193:465-69. <https://doi.org/10.1038/sj.bdj.4801598> PMID:12516672
7. Eaton KBJ, Patel R, Batchelor P, Merali F, Narain M. The impact of continuing professional development in dentistry: a literature review. London: General Dental Council, 2011.
8. Hopcraft M, Manton D, Chong P, et al. Participation in continuing professional development by dental practitioners in Victoria, Australia in 2007. *Eur J Dent Educ.* 2010;14:227-34. <https://doi.org/10.1111/j.1600-0579.2010.00615.x> PMID:20946251
9. Polyzois I, Claffey N, Attstrom R, Kelly A, Mattheos N. The role of the curriculum and other factors in determining the medium- to long-term attitude of the practicing dentist towards life-long learning. *Eur J Dent Educ.* 2010;14:84-91. <https://doi.org/10.1111/j.1600-0579.2009.00595.x> PMID:20522107
10. Abbott P, Burgess K, Wang E, Kim K. Analysis of dentists' participation in continuing professional development courses from 2001-2006. *Open Dent J.* 2010;4:179-84. <https://doi.org/10.2174/1874210601004010179> PMID:21339896 PMCid:PMC3040996
11. Al Fouzan KS. Continuing education needs as reported by dentists in Saudi Arabia. *Saudi Dent J.* 2001;75-81.
12. Chan WC, Ng CH, Yiu BK, et al. A survey on the preference for continuing professional dental education amongst general dental practitioners who attended the 26th Asia Pacific Dental Congress. *Eur J Dent Educ.* 2006;10:210-6. <https://doi.org/10.1111/j.1600-0579.2006.00419.x> PMID:17038013
13. Bailey S, Bullock A, Cowpe J, et al. Core continuing professional development (CPD) topics for the European dentist. *Eur J Dent Educ.* 2013;17:e82-7. <https://doi.org/10.1111/eje.12010> PMID:23279419
14. Nayak PP, Prasad KV, Jyothi C, Roopa G, Sanga R. Preferences and barriers for continuing professional development among dental practitioners in the twin cities of Hubli-Dharwad, India. *J Indian Assoc Public Health Dent.* 2015; 13:429-33. <https://doi.org/10.4103/2319-5932.171190>
15. Friedman A, Phillips M. Continuing professional development: Developing a vision. *Journal of education and work.* 2004; 17:361-76. <https://doi.org/10.1080/1363908042000267432>
16. Duță N, Rafailă E. Importance of the Lifelong Learning for Professional Development of University Teachers—Needs and Practical Implications. *Procedia Soc Behav Sci.* 2014; 127:801-06. <https://doi.org/10.1016/j.sbspro.2014.03.358>
17. Hopcraft MS, Marks G, Manton DJ. Participation in continuing professional development by Victorian dental practitioners in 2004. *Aust Dent J.* 2008; 53:133-9. <https://doi.org/10.1111/j.1834-7819.2008.00022.x> PMID:18494968
18. Price S, Reichert C. The Importance of Continuing Professional Development to Career Satisfaction and Patient Care: Meeting the Needs of Novice to Mid-to Late-Career Nurses throughout Their Career Span. *Adm Sci.* 2017; 7:17. <https://doi.org/10.3390/admsci7020017>
19. Gallagher JE, Patel R, Wilson NH. The emerging dental workforce: long-term career expectations and influences. A quantitative study of final year dental students' views on their long-term career from one London Dental School. *BMC Oral Health.* 2009; 9:35. <https://doi.org/10.1186/1472-6831-9-35> PMID:20030814 PMCid:PMC2814807
20. Best HA, Messer LB. Effectiveness of interventions to promote continuing professional development for dentists. *Eur J Dent Educ.* 2003; 7:147-53. <https://doi.org/10.1034/j.1600-0579.2003.00293.x>
21. Kuhne-Eversmann L, Fischer MR. Improving knowledge and changing behavior towards guideline based decisions in diabetes care: a controlled intervention study of a team-based learning approach for continuous professional development of physicians. *BMC Res Notes.* 2013; 6:14. <https://doi.org/10.1186/1756-0500-6-14> PMID:23320976 PMCid:PMC3574038
22. Khan KS, Coomarasamy A. A hierarchy of effective teaching and learning to acquire competence in evidenced-based medicine. *BMC Med Educ.* 2006; 6:59. <https://doi.org/10.1186/1472-6920-6-59> PMID:17173690 PMCid:PMC1770917
23. Davis D, O'Brien MA, Freemantle N, et al. Impact of formal continuing medical education: do conferences, workshops, rounds, and other traditional continuing education activities change physician behavior or health care outcomes? *JAMA.* 1999; 282:867-74. <https://doi.org/10.1001/jama.282.9.867> PMID:10478694
24. Thomson O'Brien MA, Freemantle N, Oxman AD, et al. Continuing education meetings and workshops: effects on professional practice and health care outcomes. *Cochrane Database Syst Rev.* 2001:CD003030. PMID:11406063