



## A systematic review on barriers, facilities, knowledge and attitude toward evidence-based medicine in Iran

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### Abstract

**Introduction:** Evidence-based medicine (EBM) is the ability and skill in using and integration of the best up-to-date evidences. The aim of this study was a systematic review of barriers, facilities, knowledge and attitude of EBM in Iran.

**Methods:** In this study, database and manual search was used with keywords such as, “evidence-based, EBM, evidence-based nursing, evidence-based practice, evidence-based care, evidence-based activities, evidence-based education” and their combination with the keywords of the barrier, facilitator, attitude, awareness, prospective, knowledge, practice and Iran. The databases of SID (Scientific information database), Magiran, MEDLIB, PubMed, Google scholar, IranMedex and CINAHL (Cumulative index to nursing and allied health literature) were used for data collection.

**Results:** Finally, 28 papers were included in this study. The lack of facilities, time and skill in research methodology were the most important barriers to EBM. The most and least important factors were orderly creating ample opportunity and detecting needs and problems. The degree of familiarity with the terminology of evidence-based performance was low (44.2%). The textbooks have been considered as the most significant source of obtaining information. The level of awareness, knowledge, and evidence-based performance was less than 50.0%.

**Conclusion:** There are many various barriers in use of EBM and healthcare providers despite the positive attitude toward EBM had a low level knowledge in EBM setting. Consideration of the importance of EBM proper planning and effective intervention are necessary to removing the barriers and increase the knowledge of healthcare providers.

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### Introduction

In recent years, due to increasing elderly people, the emergence of new technologies and knowledge, expectations increase of service recipients and the community and the change in attitudes and expectations of professionals providing health services has increased.<sup>1</sup> Hence, health service providers

tend a lot to evidence-based medicine (EBM).<sup>2</sup> EBM is the ability and skill in using and integration of the best up-to-date evidences, resulted from valid and reliable clinical researches, according to patient's conditions and preferences.<sup>3,4</sup> Therefore, along with presenting EBM in different fields of studies, lots of studies have been done in

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the field of knowledge, attitude and practice,<sup>5,6</sup> obstacles and facilitators of EBM,<sup>7-12</sup> an understanding of the concept of EBM<sup>13,14</sup> and its other aspects around the world. In Iran, EBM has attracted attention in many fields of medical sciences during the past years, as well.<sup>15-17</sup> Studies performed in Iran showed that the amount of knowledge, attitude, and performance of different groups of the service provider were at a low level.<sup>18,19</sup>

Lack of facilities, time shortage, not having skill in English language and having no authority in making changes were the main obstacles that were mentioned in the studies done in Iran.<sup>20,21</sup> Despite several studies in the field of EBM in Iran, still there is not a clear vision and exact information about EBM in medical sciences. Therefore, classification systematic presentation of practical results from various studies might have a significant role in this field. The aim of this study was to perform a systematic review on barriers and facilitators, awareness, knowledge, performance of EBM in Iran.

### Methods

This study was a systematic review that was conducted during 2013-2014 using the approach of systematic review adopted from the book named "A Systematic Review to Support EBM".<sup>22</sup> The required information was collected by searching, the following keywords: "evidence-based, evidence-based practice, evidence-based care, Evidence-based medica\*, EBM, evidence-based nurse, evidence-based education, Evidence-based learning," in combination with the keywords of knowledge, attitude, barrier, facilitator, prospective, practice and Iran were used to collect data from these databases: SID (Scientific information database), MEDLIB, Magiran, IranMedex, CINAHL (Cumulative index to nursing and allied health literature), Google scholar and PubMed.

The articles chosen were belonged to the period from 1990-2014. In order to identify and cover more published papers, after searching databases, a number of valid journals were searched manually. After

excluding articles that were hardly related to the objectives of the current study and choosing the main articles, again to enhance reliability of identification and evaluation, the papers listed in the references of selected articles under study were also searched.

Inclusion criteria for the current study involved: articles published between 1990 and 2014, articles on evidence-based and articles in Persian or English. As well as, exclusion criteria was: articles that were presented at seminars or conferences, and educational articles. Two reviewers evaluated the articles according to the checklist from strengthening the reporting of observational studies in epidemiology, and their disagreements were delivered to a third party.

Finally, after excluding articles that were hardly related to the objectives, out of 1043 papers 28 papers that were thoroughly related to the study were included and entirely been studied and reviewed (Figure 1).

After careful study and extraction of the required data, the obtained results were, first, summarized in the extraction table, and then they were analyzed manually. Excel software (version 2007) was used to draw graphs. The reference management software EndNote X5 was used to organize, read titles and abstracts and also to identify duplicates.

### Results

The characteristics of the selected papers are presented in table 1.

Most of the studies were on barriers of EBM. Therefore, in this research the most important barriers cited in the articles are shown in figure 2.

Among the most frequent barriers extracted from articles, lack of suitable facilities was the most important barrier and nor reporting results on was the least important barrier. Other main barriers mentioned in the literature were low motivation, negative attitudes toward EBM, lack of confidence in research results, failure in providing proper training in EBM, resistance to change and a few benefits in EBM for service providers.

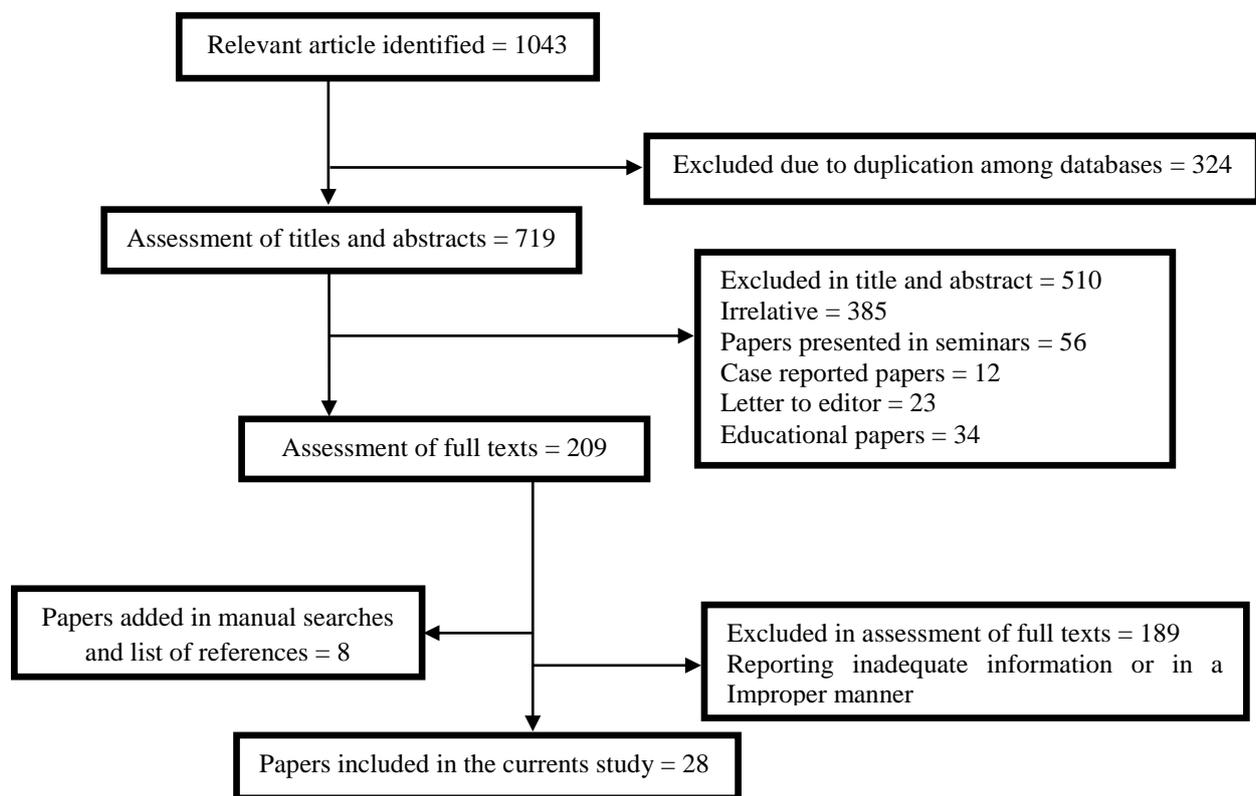


Figure 1. Papers selection process

Table 1. Characteristics of published papers by Iranian researchers on evidence-based practice between 1990 and 2014

Authors	Target group (sample size)	Study location	Study results
Olfati et al. <sup>16</sup>	General practitioners	Tabriz	The facilities are inadequate for implementation, research reports/articles are not readily available, she/he has not enough authority to change patient care procedures, contradiction between the patient and evidence negative
Amini et al. <sup>23</sup>	Nurses (170)	Zanjan	Three main barriers in applying results including: insufficient facilities, lack of time for reading research results, and insufficient time for implementing research results
Rezai et al. <sup>24</sup>	Rehabilitation practitioners (485)	Tehran	Two main barriers included inadequate facilities for implementation of evidences and insufficient authority to change patient rehabilitation procedures
Hajebrahimi et al. <sup>15</sup>	Iranian urologists (111)	Tabriz	Respondents attitude mean score was 30.4 (SD: 5.7, range 16-40). Ninety-six present of participants believed EBM will improve patient care. The main barriers to EBM from participants viewpoint were lack of time, lack of facilities and lack of training
Kermanshahi et al. <sup>21</sup>	Nurses (70)	Babol	Barriers were divided into two groups: managerial (lack of manpower and low knowledge of nurse managers) and individual (lack of time) barriers
Latifi et al. <sup>25</sup>	Clinical nurses (313)	Birjand	Three main barriers were lack of time, un publishing research result on time and no cooperation from physicians
Mozafarpour et al. <sup>26</sup>	Physician (181)	Isfahan	Although all physicians had a positive attitude toward EBM the awareness and usage of this practice were at a low level among them. About 83.3% of participants thought that EBM can improve patient car.
Sadeghi et al. <sup>27</sup>	Clinical medical residency	Kerman	Due to low knowledge of assistants, implementing effective interventions is essential
Rohani et al. <sup>28</sup>	Specialist and family physicians	Yasooj	The results showed a low level of awareness and usage of evidence-based practice by Specialist and family physicians
Aghahoseini <sup>29</sup>	Nurses (400)	Kashan	An average knowledge and awareness were existed about evidence-based nursing but there was no specific attitude in this field. About 49.0% of participants have median score of knowledge and 49.0% have weak score of knowledge. 41.3% have positive attitude about EBM

**Table 1. Characteristics of published papers by Iranian researchers on evidence-based practice between 1990 and 2014 (continue)**

Authors	Target group (sample size)	Study location	Study results
Amini et al. <sup>30</sup>	Specialty residency (71)	Shiraz	Although having a positive attitude and access to internet, residents don't use properly EBM. 93.0% of participants state EBM can improve their decision-making ability
Khami et al. <sup>31</sup>	Dental students (65)	Tehran	Although having a positive attitude, students had a low awareness and knowledge. About 80.0% of participants report low level of awareness about EBD
Mehrdad et al. <sup>32</sup>	Nurses (375)	Tehran	Lack of skill and access to research results leads to inadequate preparation.
Salemi et al. <sup>33</sup>	Nurses (1500)	Iran (entirely)	Barriers were divided into 4 categories included: organizational barriers, research quality barriers, knowledge and skill barriers and access to researches results barriers
Vasse and Vernooij-Dassen <sup>8</sup>	Nurses (304)	Tabriz	The major barriers included insufficient facilities, No cooperation from physicians and lack of time. Education was reported as the main facilitators
Shayestehfard et al. <sup>34</sup>	Nurses (100)	Abadan and Khorramshahr, Iran	The main barriers involved insufficient facilities, Not suitable cooperation between universities and hospitals and lack of time
Momenzadeh et al. <sup>35</sup>	Librarians and physicians of faculty (386)	Tabriz	The awareness of Librarians and physicians was almost high and lack of time was indicated as the main obstacle
Tahmasebi Fard et al. <sup>19</sup>	Speech and language pathologists (40)	Isfahan	About 41.3% of participants had positive attitude about EBM. More need for EBP and providing proper solutions in order to increase its application
Ahmadi-Abhari et al. <sup>18</sup>	Physicians (130)	Tabriz	Majority of physicians had a positive attitude but low awareness about EBM
Mehrdad et al. <sup>32</sup>	Nurses (70)	Tehran	Participants had positive attitude, and an average level of knowledge.60.0% of participants stated that they were only aware of the concept of EBM
Sabounchi et al. <sup>36</sup>	Dental faculty members (377)	Iran (entirely)	The perceived knowledge mean score was $15.32 \pm 4.69$ (range of 6-36), actual knowledge mean score was $7.98 \pm 2.0$ (range of 0-11). Majority of participants had a positive attitude about EBD
Rashidbeygi and Sayehmiri <sup>37</sup>	Physicians (94)	Ilam	Knowledge of participants was $24\% \pm 23\%$ and attitude scores were $72\% \pm 10\%$ . Young physicians had more Knowledge and positive attitude score in compare to old physicians
Ahmadi-Abhari et al. <sup>18</sup>	Trainee physicians (104)	Tehran	Mean knowledge score of participants was $3 \pm 1.3$ (range of 0-6). Most of participants had a positive attitude but low knowledge about EBM
Taghavi et al. <sup>38</sup>	Postgraduate Dental Students (99)	Mashhad	Totally, 96 of the participants believed that using EBD improve quality of care. Despite participants positive attitude about EBD they have low-level knowledge about special evidence-based websites and source
Heydari et al. <sup>39</sup>	Clinical nurses and midwives (240)	Mashhad	Majority of participants reported low-level knowledge and practice of EBM. It is necessary to improve clinical nurses and midwives knowledge and practice
Navabi et al. <sup>40</sup>	Dentists (310)	Iran (entirely)	Knowledge score of participants was $3.66 \pm 1.19$ (range of 0-5). The most of the participants had low (56.1%) or no (20.7%) knowledge toward EBD. lack of time was the main barrier to the use of EBD from prospective of participants
Rangraz Jeddy et al. <sup>41</sup>	general practitioners (245)	Iran (entirely)	Participants had average knowledge of EBM, they don't use EBM for answering their questions in clinical setting
Ghojazadeh et al. <sup>4</sup>	Medical students (40)	Tabriz and Tehran	Barriers of EBM use have been divided into three categories. Facilities and equipment (lack of access to articles and journals, Not having suitable equipment), human-individual (negative attitude in EBM, low skills), organizational barriers (bureaucratic system, improper support of EBM)

EBD: Evidence-based dental; EBM: Evidence-based medicine; SD: Standard deviation

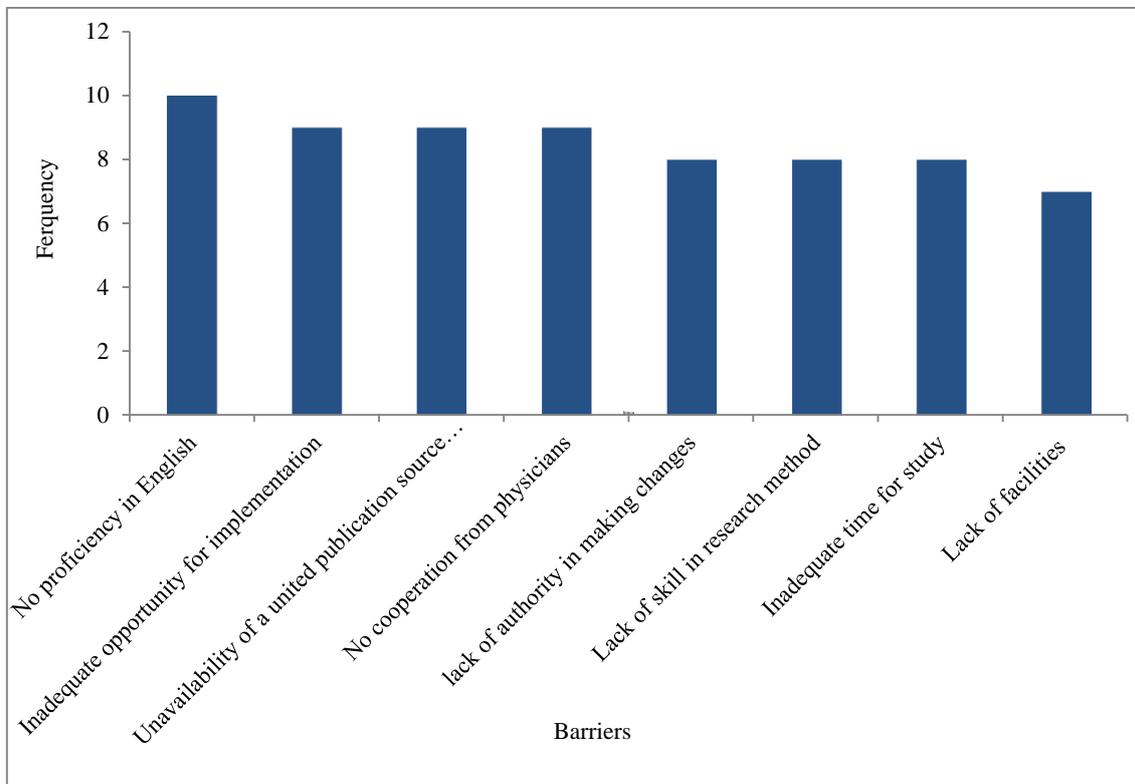
In some papers, in addition to barriers assessment of EBM, facilitators of EBM were also assessed and in the current study, 10 facilitators with the most frequency and priority

like barriers were extracted, and are presented in figure 3. As shown in figure 3, among 10 facilitators of EBM, the most and least important factors were orderly creating ample opportunity

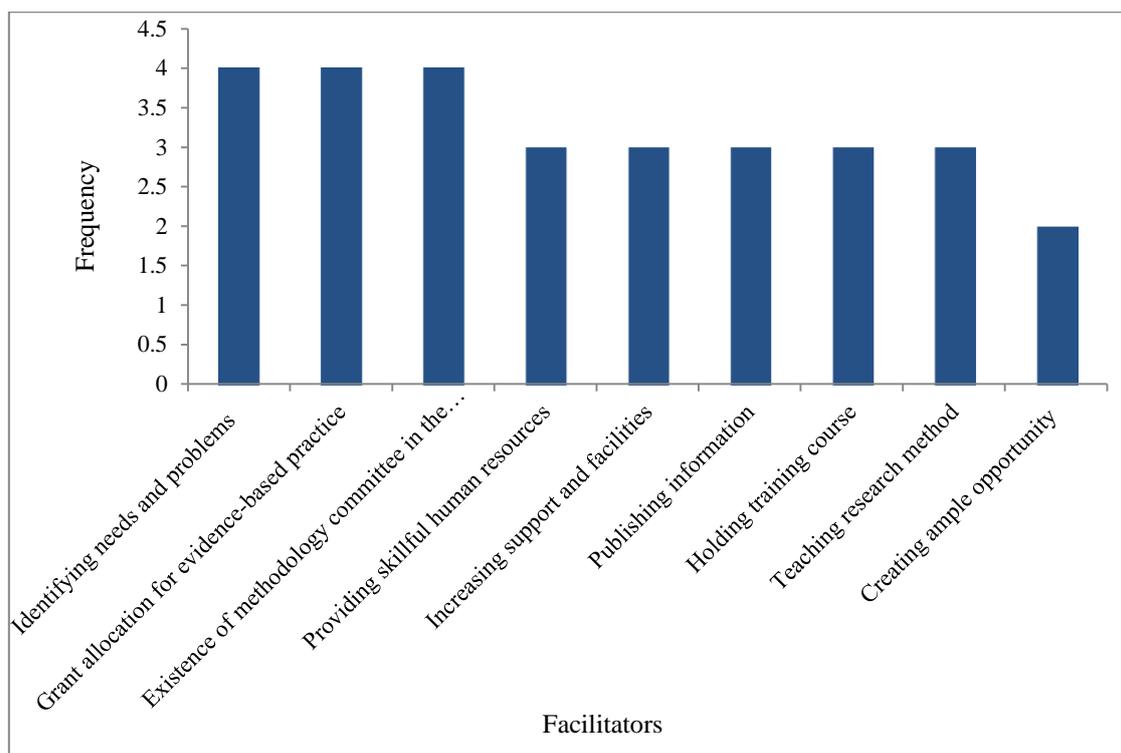
and detecting needs and problems.

In some reviewed articles, researchers had measured the participants' levels of knowledge and understanding of specific

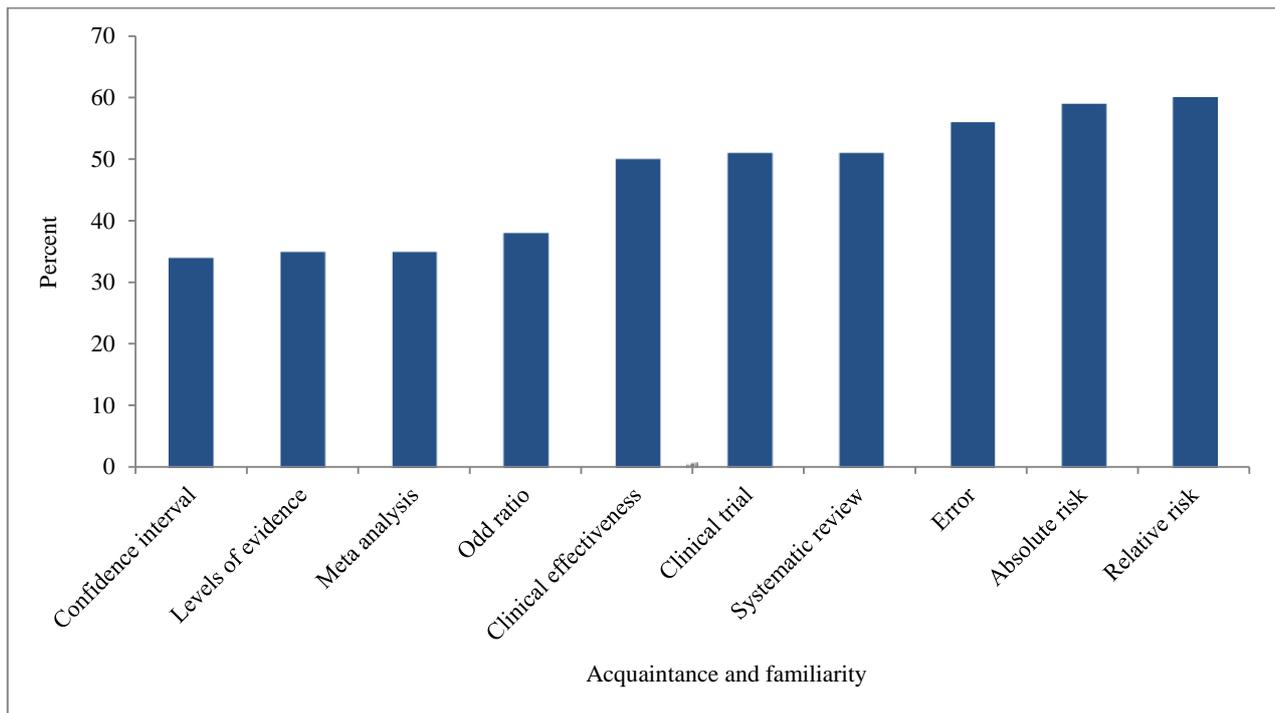
terms used in EBM. In this study, the mean level of participants' knowledge and understanding were calculated and are presented in figure 4.



**Figure 2. Main barriers to evidence-based medicine stated in the published papers**



**Figure 3. Main facilitators of evidence-based medicine stated in the published papers**



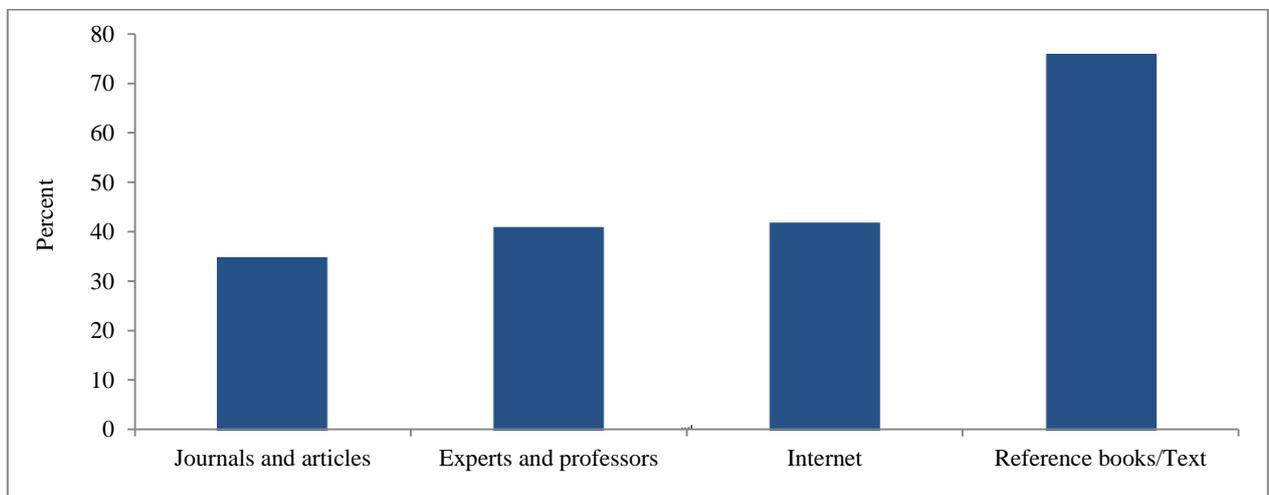
**Figure 4. Mean of acquaintance and familiarity with specific terms of evidence-based practice in the published papers**

As it can be seen the most acquaintance and understanding were about the terms of relative risk and absolute risk and the least level of acquaintance and understanding about the terms of confidence interval (CI) and level of evidence. The acquaintance and general knowledge was 44.2%.

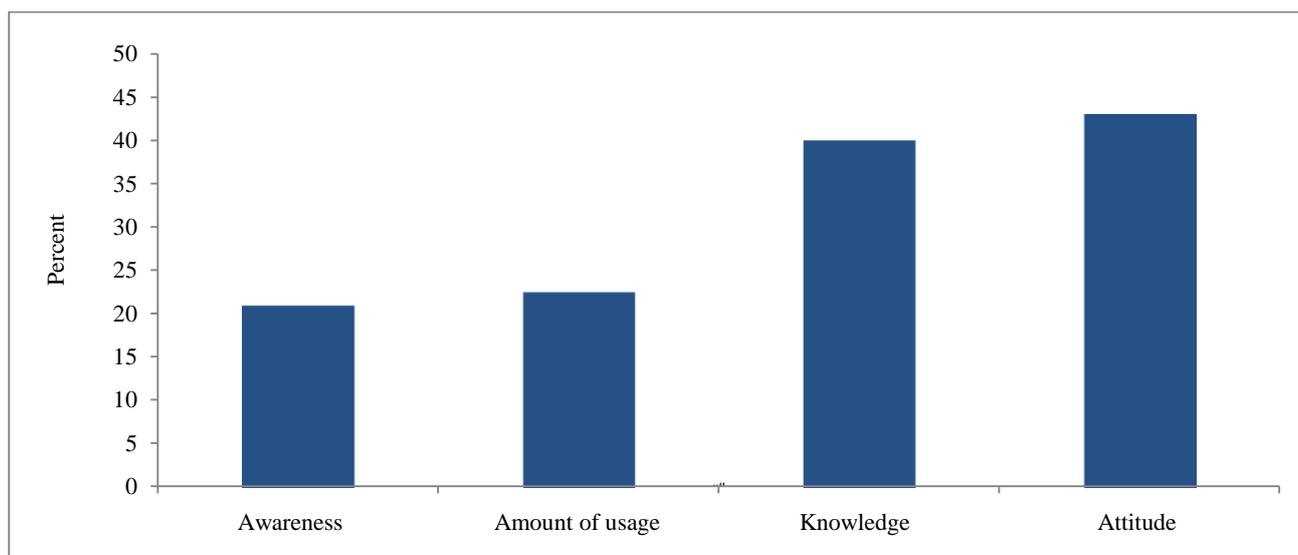
In several studies, the sources of information and EBM were reviewed whose results are summarized in figure 5. As seen in figure 5, the main source of information for evidence-based were reference books. However, magazines

and journals had the least usage. The other sources cited in the papers include congresses, seminars, journal clubs, teachers and colleagues' pamphlets and notes.

As seen in table 1 in the section of the reviewed papers characteristics, most studies had examined attitudes, awareness, knowledge and practice in the field of EBM. In this study, the scores of above variables have derived and summed them up, then the average of each is individually calculated and is shown in figure 6.



**Figure 5. The used resources in evidence-based practice according to results of published papers**



**Figure 6. Mean scores of attitude, knowledge, usage and awareness of evidence-based practice in the published papers**

As it could be observed in figure 6, the mean scores for all four variables were < 50. The literature review showed that only about 22.0% of participants in the reviewed papers had an EBM.

### Discussion

The results of analyzing the studies conducted in Iran showed that lack of adequate facilities, time, unfamiliarity with research methods and lack of authority to make change were the most important barriers to EBM. Creating ample opportunity, teaching research method and holding training periods based on EBM were mentioned as the key facilitators of EBM. Wholly the different groups of health service providers in Iran were less informed about terms of EBM and reference books were the main source of information for EBM. The study of awareness, knowledge, and practice and utilization rate represented the weakness of the performance and a lower level of these cases.

Studying and focusing on the most significant barriers to EBM mentioned in the reviewed researches showed that these results are matched with those of the studies carried out in other countries.<sup>41-50</sup> In this study, the main barrier was found to be lack of facilities. Whereas, in the study done by Pagoto et al.,<sup>51</sup> negative attitude, and lack of education were the most important barriers.

In the study of Bayley et al.<sup>52</sup> in Canada, the lack of time was mentioned as the main obstacle to EBM.

Creating ample opportunity to study, teaching research method and application of their results, holding training courses on EBM and summarizing and publishing systematic, transparent and understandable information in the organizations could be the main facilitators of EBM. This fits with previous studies in other countries.<sup>53-57</sup> Thus, the results of the present study and similar results obtained from other studies showed that the following cases were inevitable: providing appropriate facilities for implementation of EBM, providing enough time to study, performance based on evidences through workload reduction, increasing human resources, training time management and so on, teaching research method and planning, conducting and using research results, and also training the principles and standards of EBM and establishing legal, political and administrative infrastructures to provide the possibility of making changes and applying research results by health service providers, albeit, with professional, ethical and legal supervision and incentives to increase physicians' cooperation in the field of EBM, and holding courses in order to enhance health providers' ability and English

language skills to develop successful EBM.

The results indicated Iranian health providers have relatively low awareness of specific terms of EBM (44.2%). The lowest familiarity and understanding were of CI, level of evidence, meta-analysis and OR respectively that matches greatly with results of previous researches.<sup>58-60</sup> In this study, the knowledge on relative risk and absolute risk was more than the terms such as clinical trial and systematic review that can be caused by outward meaning of these terms, because they appear to be simple, but in terms of statistics and methodology these concepts are complex and need further research. In general, the results of knowledge and perception of specific terms of EBM depict that the level of the presenters' awareness of the statistical and methodological terms is lower than practical terms at work. Hence, training statistical and methodological issues in order to improve the application and implementation of EBM among health care providers is increasingly needed.

Studying the sources of information and knowledge in the field of EBM revealed that reference books and internet were widely the most applied sources that is consistent with Oliveri et al.<sup>61</sup> in Denmark. In the present study, papers and magazines had the least usage of the four common sources. Due to the limited and out of date information on reference books,<sup>62</sup> use of papers and magazines is recommended. Considering the limited use of papers due to lack of reading skills because of English proficiency shortage, lack of understanding the results due to being inexperienced in research and methodology or loss of access to research papers, studying and resolving the obstacles and other potential barriers to EBM seems essential. The results of studies carried out in Iran showed that the level of health care providers' awareness, knowledge, and performance and their use of evidences were low. These results are in line with those of other countries.<sup>63-66</sup>

However, in some studies, the level of

awareness, knowledge, performance and utilization of EBM was higher than the results of the current study.<sup>67-69</sup> Therefore, increasing awareness, knowledge, attitudes and use of evidences in health care through the provision of appropriate training, financial and non-financial incentives, and suitable culture-making and other appropriate actions in this regard are essential and authorities and policy makers should pay more attention to it.

One of the limitations of this study was not reviewing the abstract of the articles published in conferences and congresses and organizational reports and also failure to perform statistical analyzes such as meta-analysis of reviewed studies due to inappropriate report of results and use of deferent tools, data collection methods and analysis. However, the results of this study can be applicable since it almost completely examined various aspects of EBM that were examined separately and from one dimension in the previous studies.

### **Conclusion**

In the current study, published papers on the EBM were studied from its all dimensions. Given the importance of EBM on one hand and the recent attention of authorities to this care in recent years on another hand, conducting a comprehensive study in this area to clarify the present status, identify the strengths and weaknesses and points needed for promotion seems necessary, Taking this need to account, the researchers planned and conducted this study. Health care providers, administrators and policy makers of the country can use the results of the current study in planning and policy-making in this area.

### **Conflict of Interests**

Authors have no conflict of interest.

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