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Barriers to Evidence-Based Practice in Health System: A Systematic Review

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Abstract

Background: Evidence-Based Practice (EBP) means combining the best available evidence with clinical experiences, as well as patients' values and expectations. The findings of our previous systematic review, published in 2014, indicated that EBP faces numerous barriers.

Aim: The present study aimed to update the findings of the previous research by reviewing studies published after 2014.

Method: The data were collected by searching the relevant keywords in PubMed, Cochrane, Scopus, and Google Scholar between 2014 and 2021. The articles were screened based on their titles, abstracts, and full texts, respectively. The data were extracted using a data extraction form consisting of the author, year, country, type of study, area of study, list of barriers, and their number in each study. Finally, the data was analyzed, summarized, and reported using content analysis by descriptive statistics, such as percentage and frequency.

Results: Finally, 77 articles were included in the study. Only 13% of the studies were conducted in low and middle-income countries. The extracted barriers were categorized into five areas of specialized/hospital care, primary health care, rehabilitation care, medical education, and healthcare management and decision making. Based on the content-analysis results, barriers were divided into six main themes: system-level barriers, barriers related to the evidence, individual-related, communicational, resource, patient-related, and external barriers. Lack of time, support, and skills had the highest repetition, respectively.

Implications for Practice: The results of our previous study were updated, and further barriers were identified and reported. Policymakers and managers can use the results as a practical guide to expand and improve EBP and remove barriers.

Keywords: Barriers, Evidence-based medicine, Evidence-based practice, Systematic review

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Introduction

Evidence-based practice (EBP) integrates clinical skills with the best available evidence to bridge the gap between growing medical literature and patient care while considering patient preferences and values in clinical decision-making (1, 2). The best available clinical evidence is knowledge derived from research and based on valid and accurate methods. The preference of one form of treatment over another should be based on evidence, randomized controlled trials, or a systematic review of trials that have been conducted on that topic (3).

The use of the term "evidence-based medicine" dates back to the 1990s by McMaster University (4). The state of being "evidence-based" is having the knowledge, skills, and necessary abilities to carry out its steps. The steps of this process include defining a centralized clinical problem, effective and systematic search through the scientific literature, critical appraisal of evidence, use of evidence in the clinic, and effectiveness evaluation of the process (5, 6).

The origin of EBP, which is a clinical decision-making approach, refers to medicine; nonetheless, nowadays, it encompasses all aspects of healthcare services (7, 8). It also refers to a process in which clinical exposure requires more relevant information about the diagnosis, prognosis, treatment, and other health-related issues, making the service provider critically appraise and search for the relevant evidence (9).

The EBP has been used in various levels and areas of the healthcare system, including primary health care, specialized care, rehabilitation care, medical education, healthcare management, and other areas (10). Each of the aforementioned areas has specific barriers, and numerous studies have been conducted to explore them (11, 12). Therefore, the sporadic information in each field needs to be consolidated in one study so that policymakers, decision-makers, and practitioners have immediate access to them in one place.

The main reason for this variety in performances in the field of health care is the gap between knowledge translation and its application (13, 14). The obstacles posed to the practical use of the research findings are one of the recurring topics in the scientific literature, and this challenge is sometimes referred to as "bench to bedside" lag (15). In recent years, an evidence-based approach has been considered to cover this gap (13, 14). Evidence-based practice quickly became a reasonable system committed to making clinical practice more scientific and converting it into experience-based practice, and as a result, it has led to safer, more consistent, and more cost-effective health care (16).

Today, the provision of the best possible evidence-based care, which is also cost-effective, is an international strategy for health care institutions (17, 18). Evidence-based practice also improves patient care and shares decision-making among physicians; moreover, it increases patients' satisfaction and trust in treating physicians (19, 20). One of the EBP achievements has been the creation of the Cochrane Database to collect and summarize clinical evidence from clinical trials (21). Today, it is essential to use the best and most reliable evidence due to the rapid growth of medical information and complex treatment methods.

Nevertheless, a review of studies demonstrated that numerous barriers are presented to the achievement of this goal (22-24). Barriers to EBP also vary from country to country and from lack of time as the main problem to patient demands for treatment despite insufficient evidence of efficacy (25, 26). A thorough understanding of the barriers to EBP results in the development of educational and practical tools to overcome these obstacles (27). Multiple studies have been performed on the barriers posed to the evidence-based performance of diverse groups of physicians and health professionals in different universities and health care centers.

Furthermore, new evidence is being disseminated on this subject every day at a high rate. In addition, these studies have been conducted sporadically and at high costs. Therefore, there is a demand for a systematic review of these studies at the international level on the grounds of the aforementioned reasons, along with the changing nature of barriers. In the same context, in the study by Ghojazadeh et al. (2012), lack of adequate facilities, lack of time, unfamiliarity with the research method, and lack of authority to make changes were recognized as the most important barriers to EBP (28). In light of the aforementioned issues, the present study aimed to update the results of the previous systematic review study (10) and review articles and sources published after 2014.

Methods

The current systematic review consists of five stages, including the identification of the research

question, identification of relevant studies, study selection, data charting, data analysis, and reporting the results. This study was conducted using the approach described in "A Systematic Review to Support Evidence-Based Medicine (29) and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (30) (Figure 1).

Step 1: Identification of the research question

The main research question of the present study was what the main barriers to EBP in the health system are. The sub-questions of the present study include the following:

What are the scientometric characteristics (i.e., time pattern, place, type of studies, and areas of study) of studies on the main barriers to EBP in the health system? What are the most critical (repetition-based prioritization) barriers to EBP in the health system? In what areas are the most critical barriers to EBP in the health system? Articles on barriers to EBP or related issues in the field of healthcare published between January 2014 and January 2021 in English were included in this study. The papers presented in conferences, seminars, and educational papers were excluded.

Step 2: Identification of relevant studies

The search strategy of the present study was developed and implemented by a highly knowledgeable librarian in this field using Medical Subject Headings (MESH) keywords. The required information was collected searching a combination of the following keywords: "Evidence-Based", "Evidence-Based Medicine", "Evidence-Based Practice", "EBM", "EBP", "Evidence-Based Care", "Evidence-Based Education", "Guideline", "Evidence-Based Nursing", "Evidence-Based Management", "Research Utilization", barrier, obstacle, problem, challenge, and hinder with proper Boolean operators from PubMed, Cochrane, Scopus, and Google Scholar . The selected period for the search was from the beginning of January 2014 until January 2021. After searching the databases, several high-quality journals in this field were manually searched for identifying and covering more published articles after searching databases. Citation checks and reference checks were also performed for selected articles through Google Scholar. For searching the Gray literature, the databases of the European Association for Gray Literature Exploitation (EAGLE) and the Health Care Management Information Consortium (HMIC), the

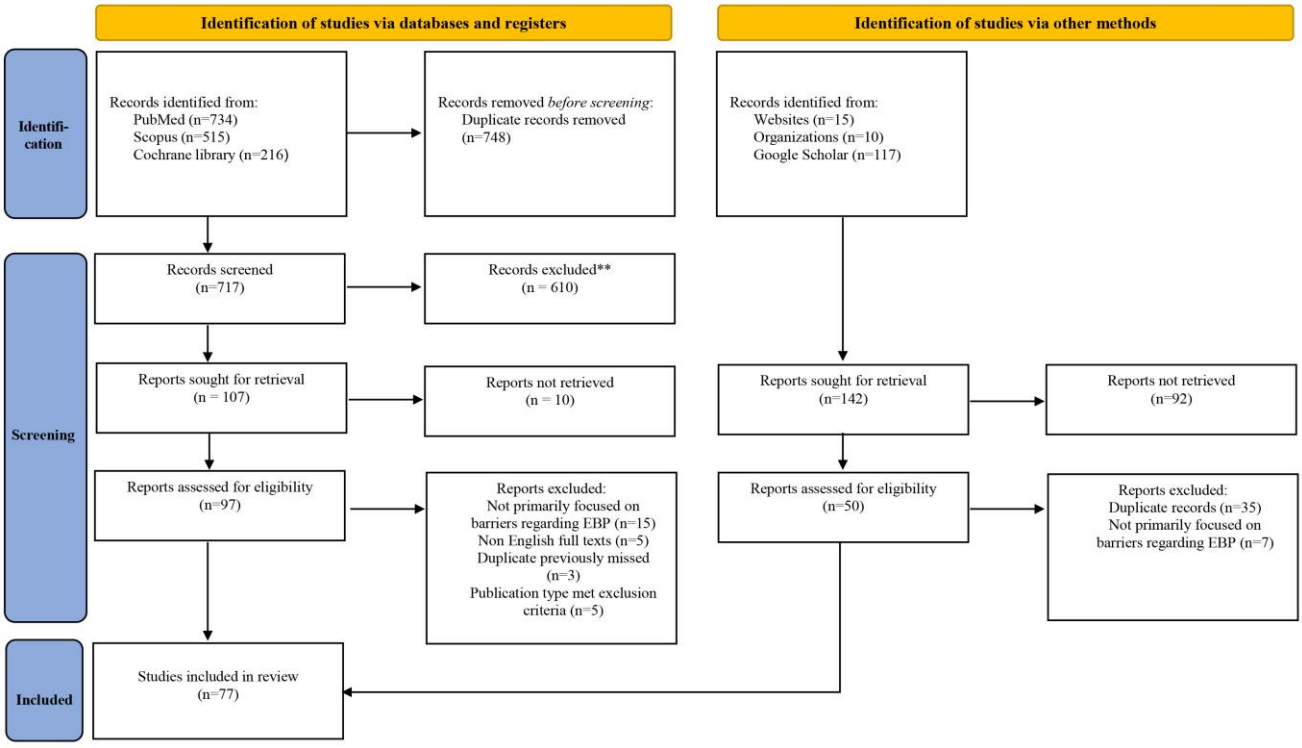

Figure 1. Screening process and selection of articles on main barriers to evidence-based practice in the health system

System for information on Gray Literature in Europe (SIGLE), The Centre for Evidence-Based Medicine (CEBM) website, and the Joanna Briggs Institute (JBI) website were searched.

Step 3: Study selection

All stages of selection and screening of articles were performed independently by two members (D.N. and S.M.) of the research team. In the case of a disagreement, the case was resolved through discussion in the first stage. For two articles, the dispute was referred to a third person (S.A.A.) who had more information and experience. Firstly, the titles of articles were reviewed, and those that were not consistent with the study objectives were excluded from the study. Thereafter, in the following steps, the abstracts and full texts of the articles were reviewed to identify and exclude the studies that did not meet the inclusion criteria and had a weak relationship with the study objectives. Endnote X5 reference management software was used to organize references, as well as review titles and abstracts, and identify duplicates. The PRISMA 2020 flowchart (30) was used to report the selection and screening process (Figure 1).

Step 4: Data charting

In order to extract data, firstly, a data extraction form was designed in Word 2016. Following that, the data from five articles were extracted to pilot the form, and the shortcomings and defects of the initial form were removed. Finally, the information was extracted independently by two people from the selected articles, and the ambiguities were resolved in consultation with the research team members. The information extracted in the form included: Author, year, country, type of study, area of study, list of barriers, and their number in each study

Step 5: Content-analysis and reporting the results

After charting the information, the extracted information was analyzed, summarized, and reported using the Content Analysis method. Content analysis is a method for identifying, analyzing, and reporting available patterns and themes within the text and has many qualitative data analysis applications (31-34). The data coding was carried out independently by two researchers (D.N. and S.M.). The steps of the analysis and coding of the data included familiarity with the text of articles (immersion in the results of articles), identification and extraction of primary areas (identification and extraction of more related articles to primary areas), placement of articles in specified areas, reviewing and completing the results of each area by using the results of articles areas, and ensuring the reliability of areas and the extracted results in each area (reaching an agreement between the two coders through discussion and resolution of disputes). In addition, some descriptive data were reported using descriptive statistics, such as percentage and frequency. Excel software (version 2016) was used to draw the charts.

Results

In the current study, out of 1,617 articles retrieved from databases and other sources, 900 articles were excluded due to duplication. In addition, 620 articles were excluded on account of the title and abstract screening, and 20 articles were ruled out in the full-text review process. Finally, 77 articles that were utterly related to the study, were included (Figure 1), and after a careful and systematic review, the required information was entered into the extraction form.

The published studies have been carried out in 91 countries. Nine studies were conducted in more than one country (so the number of countries was more than 77). The highest number of studies were conducted in the United States (n=15), followed by Australia (n=11) and Saudi Arabia (n=8). According to the latest World Bank Group classification in 2019-2020 [35], most of the studies (87%) were conducted in high-income countries (n=58) and upper-middle-income countries (n=21). Cross-sectional studies had the highest frequency (n=30), followed by qualitative studies (n=25 studies; Table1). The total number of EBP barriers mentioned in the articles was obtained at 925. Specialist/hospital care and medical education had the highest (n=616; 66.5%) and lowest (n=44; 5%) frequencies (Figure 2).

In this study, 925 identified barriers of articles, regardless of their scope, were ranked in 39 categories based on their frequency of repetition in studies. Lack of time, lack of support, and limited skills in the concept of EBP had the most repetition (Figure 3). Based on the content analysis results

Table 1. Characteristics of the included studies

Variables	N (%)	Variables	N (%)
Study Type		Country Classification	
Cross-sectional studies	30 (39)	Low-Income Economies	5 (5.4)
Qualitative studies	25 (32)	Lower-Middle Income Economies	7 (7.6)
Reviews	10 (13)	Upper-Middle-Income Economies	21 (23.3)
Multi-method studies	5 (6)	High-Income Economies	58 (63.7)
Other studies	7 (9)	Countries	
Field Classification		United States	15 (16.5)
Specialized/hospital care	50 (65)	Australia	11 (12)
Primary health care	5 (6.5)	Saudi Arabia	8 (9)
Rehabilitation care	11 (14)	Iran	8 (9)
Medical education	5 (6.5)	United Kingdom	6 (6.5)
Healthcare management and decision making	6 (8)	Other Countries	43 (47)
Total	77 (100)	Total	91 (100)

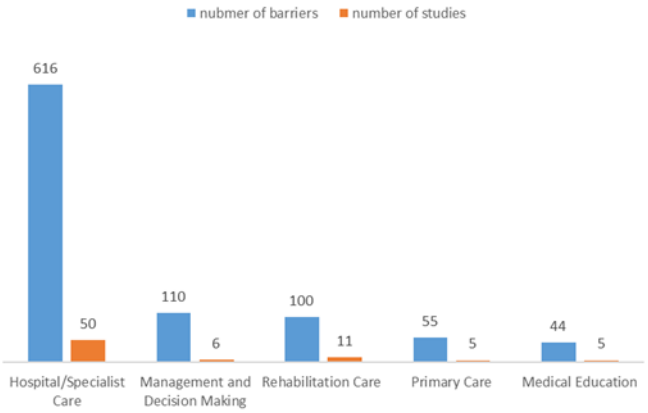

Figure 2. Frequency of studies and evidence-based practice barriers based on areas of the health system

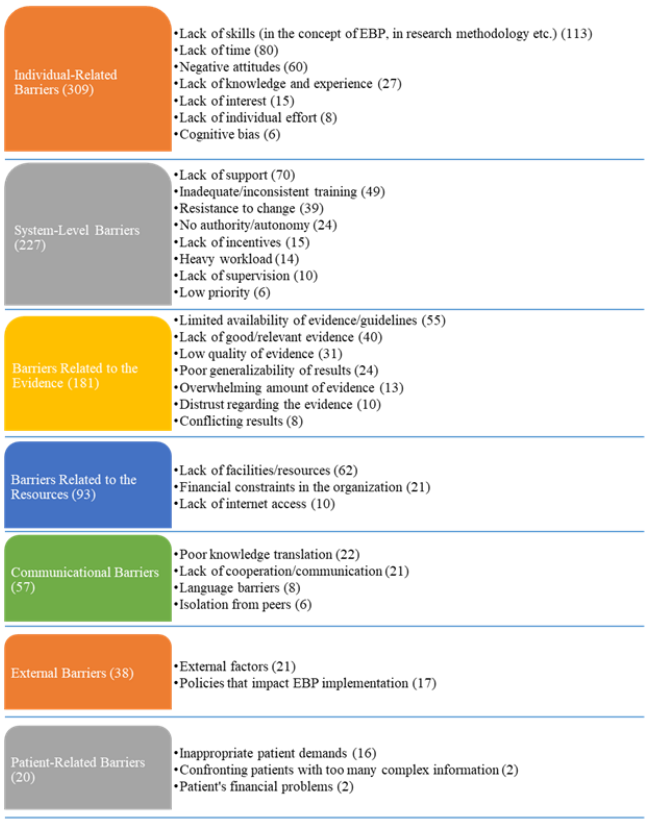

Figure 3. Content-analysis of evidence-based practice barriers in the health system

of the barriers extracted from the articles, the barriers were divided into six main themes and 34 sub-themes (Figure 3). The themes consisted of system-level, evidence, individual-related, communicational, resource, patient-related, and external barriers. While categorizing the barriers, skill insufficiencies in various fields were counted independently. However, in content analysis, these barriers fell in one single sub-theme titled "lack of skills". Among the themes, individual-related and patient-related barriers were the most (n=309) and least (n=20) repeated ones.

Discussion

A total of 77 articles were carefully reviewed and summarized. In total, only 12(13%) studies were conducted in Low And Middle-Income Countries (LMICs). Based on the content analysis of extracted barriers from the articles, they were divided into 6 main themes and 34 sub-themes. The majority of the reviewed studies were carried out in high-income countries (HICs) which are economically strong, and a long time has passed since the introduction and implementation of EBP in various parts of their health sector. This may be regarded as one reason for a more significant number of studies aimed at examining the barriers to EBP in these countries.

Based on the positive results and achievements of EBP (16, 19, 20), it is recommended to consider developing and expanding the EBP in LMICs, which requires identifying EBP challenges and barriers and planning to overcome them. Finally, it is suggested to plan and conduct further studies (mainly qualitative and multidisciplinary studies) to identify EBP barriers and plan to address them in these countries. Considering that social, administrative, economic, and health systems in HICs are very different from LMICs, it is not possible to directly apply the results of studies conducted in HICs to LMICs. Therefore, it is essential to design and implement more indigenous studies.

The majority of the studies looked into the scope of EBP barriers in hospitals and specialist care. It can be justified on the ground that most procedures and interventions are performed in hospitals and clinical guidelines and EBP are mostly focused on hospital care. Nevertheless, in other areas, including primary health care, rehabilitation care, medical education, healthcare management, and decision-making, few studies have been conducted despite their importance, extent, and profound impact. These areas are a supporter of the hospital and specialized care. Therefore, the existence of barriers to EBP in these areas will present daunting challenges to hospital and specialist care. Therefore, planning to identify barriers and improve EBP is vital in these sectors .

In the present research, barriers to EBP were divided into six groups. In previously conducted studies (36-38), EBP barriers had been divided into numerous categories. However, in these studies, EBP barriers in specific areas were examined and divided. On the contrary, in the present study, all aspects of EBP, including medicine, nursing, rehabilitation, and management, have been reviewed and categorized, and an attempt has been made to provide a comprehensive division. Shayan et al., in their review study (2019), have divided EBP barriers among nurses in LMICs into three groups of organizational barriers, interdepartmental barriers, and nurse-related barriers (38).

Along the same lines, in the study by Lee et al. (2019), barriers to EBP among social nurses have been studied in three main themes of evidence, environment, and the nurses (37). In a similar vein, in the study by Hasanpoor et al. (2018), the barriers to evidence-based management among health managers were assigned to five main groups, including decision-makers' characteristics, decision-making environment, training and research systems, organizational barriers, and team barriers (36). A more comprehensive and principled classification will improve the utility and usability of the results. In addition, the provision of such a comprehensive classification can serve as a guide and framework to be used by managers, planners, practitioners, and researchers to identify and address barriers in their workplace and organizational environment.

One of the most critical barriers identified in this study was lack of time which can act as an obstacle in various areas of EBP, including the lack of time to search and find relevant resources, study the evidence, implement EBP, and train EBP. These results are consistent with the findings of previous review studies in which lack of time was identified as the main barrier to EBP (37, 39, 40). The allocation of separate time away from patient care to concentrate on EBP can be an effective way to overcome time constraints. Other solutions to the time-related barriers are reducing workload, increasing the workforce, training time management, and holding journal clubs

Another major repetitive barrier to EBP was the lack of support which can come from colleagues,

supervisors, managers, and at higher levels, from policymakers. In the review study by Williams et al. (2015), this case has been mentioned as one of the most frequent organizational barriers posed to EBP (41). In order to remove this obstacle, policies and guidelines can be developed so that people are obligated to implement EBP. Another way to reduce the impact of this barrier is to put an emphasis on the importance of EBP and its positive effects, promoting a culture of EBP support. The provision of financial and moral incentives to increase collaboration in EBP can be also effective in this regard. Considering EBP when evaluating employees can also raise their motivation, spirit of support, and cooperation .

The third most common obstacle is limited skills in the concept of EBP which is in accordance with the results of previous review studies (28, 40, 42). Lack of skills includes lack of skills in conducting searches, critically appraising the quality of studies, implementing EBP, and statistical skills weakness. It is better to consider more effective educational planning and the inclusion of relevant topics in the educational curriculum of relevant disciplines in the form of compulsory courses. In addition, holding workshops can help compensate for this shortage. The use of methodologists and EBP specialists in organizations, along with other employees as a guide for them, can also be an effective way to compensate for the weak skills of clinical staff in the field of research and EBP, leading to a reduction in the deep gap between these two closely related areas.

The main aim of this study was to update the results of the previous study (10) in which barriers to evidence-based medicine were divided into 18 areas, with study, change, and participation barriers, respectively, being the most frequent in the studies. However, in the present review, the divisions were different, and lack of time, lack of support, and limited skills had the most repetition in the literature. In agreement with the previous study results, a very small percentage of studies were performed in LMICs in the current study; therefore, it is an important issue and needs attention. Given that the conditions of healthcare organizations and providers change significantly over time, the barriers can also change over time. Therefore, updating and analyzing barriers in this field can provide up-to-date and helpful information and evidence for managers and decision-makers.

Study Limitations

In the current study, researchers made an attempt to provide comprehensive and practical information in various areas of the health system for managers, decision-makers, health care providers, and other researchers by updating the previous review study, summarizing, as well as conducting a comprehensive and practical analysis of the barriers to EBP. Nonetheless, there were certain limitations to the current research. One of the most important limitations was the search being limited to English sources. Furthermore, we also did not have access to a limited number of reports despite several follow-ups**.**

Implications for Practice

The EBP is an essential and indispensable approach to all aspects of the health system. Nevertheless, after several years of introducing the concept of EBP, there is a dearth of results and achievements in this field. Based on the results of the current study, multiple barriers exist in this field and. In addition, the results of the previous review study were updated, and the latest barriers were identified, categorized, prioritized, and analyzed; therefore, it can be used by policymakers and managers as a practical guide to extend and improve EBP and remove barriers.

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Conflicts of Interest

The authors declare that they have no conflict of interest regarding the present study.

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