Barriers Associated With Evidence-Based Practice Among Nurses in Low- and Middle-Income Countries: A Systematic Review

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ABSTRACT

Key words

barriers, evidence-based practice, low- and middle-income countries, nurses

Background: Evidence-based practice (EBP) is both a goal and an approach that requires a combination of clinical experience with the most credible recent research evidence when making decisions in healthcare practice. The approach has been widely embraced; however, an evidence-to-practice gap still exists.

Aim: To assess barriers to EBP among nurses in low- and middle-income countries.

Methods: This review conforms to the PRISMA statement. Databases PubMed, Scopus, EMBASE, and Web of Science/Knowledge were searched using a combination of keywords that included "barriers," "evidence-based practice," and "nurses." The references of the selected articles were also hand-searched to obtain additional relevant articles. Studies published in peer-reviewed journals in English between 2000 and 2018 were included in the review.

Results: Sixteen articles were included in the analysis, with a total number of 8,409 participants. Both qualitative and quantitative studies were included in the review. Three main themes emerged from eight categories found. The three main themes were institutional-related barriers, interdisciplinary barriers, and nurse-related barriers. The theme of institutional-related barriers emerged from four categories, which included scant resources, limited access to information, inadequate staffing, and lack of institutional support. The theme of interdisciplinary barriers emerged from subcategories that included lack of communication between academic and clinical practice environments, inconsistency between education and practice in the nursing discipline, lack of teamwork, and the public's negative image about the nursing profession. Finally, the theme of nurse-related barriers emerged from categories including perceived limitations in the scope of nurses' practice, time, knowledge of EBP, and individual-related barriers.

Linking Evidence to Action: These findings may guide the design of future interventions aimed at fostering EBP. Implementing EBP in practice should be systematic and requires institutional will and interdisciplinary and individual commitment. It should be a collective goal and a win-win situation for nurses, clinicians, and healthcare organizations.

BACKGROUND AND SIGNIFICANCE

Evidence-based practice (EBP) is both a goal and an approach that requires that decisions about health care should be based on the available, current, valid, and relevant evidence. It has been defined as a combination of personal clinical experience with the most credible recent research evidence (Sackett, Rosenberg, Gray, Haynes, & Richardson, 1996). This evidence can be obtained from systematic reviews, meta-analyses, or well-designed clinical trials (Sedlar, Bruns, Walker, Kerns, & Negrete, 2017; Sin & Bliquez, 2017). The main features of EBP are reliance on and judicious use of current best evidence, clinical expertise, and individual patients' needs and preferences (Sin & Bliquez, 2017). The concept of EBP embraces and builds on clinical expertise and knowledge of disease mechanisms and pathophysiology (Zhou, Hao, Guo, & Liu, 2016). It recognizes that health care is individualized, dynamic, and involves uncertainties and probabilities (Sin & Bliquez, 2017; Zhou et al., 2016).

Evidence-based practice has received attention worldwide (Sedlar et al., 2017; Sin & Bliquez, 2017; Zhou et al., 2016). Indeed, the National Academy of Medicine's Roundtable on Evidence-Based Medicine has set forth a goal of 90% of all clinical decisions being based on evidence by 2020 (Bazyka, 2017). In fact, to foster EBP, various online databases and journals have been established to serve as sources of evidence for clinicians. These include the

Cochrane Library, National Institute of Clinical Excellence (NICE) website, UpToDate, the Trip Database, and many others (Greenhalgh, Howick, & Maskrey, 2014; Zhou et al., 2016).

In low- and middle-income countries (LMICs), the concept of EBP has also been embraced but with various barriers to its achievement. Various studies have reported on EBP and the extent of utilization of medical information in healthcare systems in LMICs. However, information-seeking and retrieval skills of healthcare workers have been reported to be poor, and deficits in the use of updated information resources have been noted (Farokhzadian, Khajouei, & Ahmadian, 2015; Sadeghi-Bazargani, Tabrizi, & Azami-Aghdash, 2014; Shafiei, Baratimarnani, Goharinezhad, Kalhor, & Azmal, 2014).

In sub-Saharan Africa, there have been efforts to foster EBP. For instance, institutions such as the Africa Center for Systematic Reviews and Knowledge Translation have been established to build capacity for knowledge translation for health policy in Uganda and East Africa (Kinengyere, Ssenono, & Obuku, 2015).

Although various studies have reported that EBP has had many benefits, it has also had some negative unintended consequences and barriers to its implementation. Evidence on barriers to EBP offers a preliminary agenda for the movement's renaissance, refocusing on providing usable evidence that can be combined with context and professional expertise so that individual patients get optimal treatment (Greenhalgh et al., 2014).

Previous reviews have focused on assessing the extent of use of the Barriers scale, knowledge derived from its use (Kajermo et al., 2010), measuring nursing attitude to research use (Patelarou et al., 2013), instruments for measuring nurses' knowledge (Leung, Trevena, & Waters, 2014), and educational interventions (Häggman-Laitila, Mattila, & Melender, 2016; Hickman et al., 2018). The aim of this review was to assess the barriers to EBP among nurses in LMICs. In fact, Baatiema et al. (2017) review highlighted the need for studies from LMICs to understand barriers and enablers in these settings. Identification of the barriers could facilitate interventions and health policy directions aimed at optimizing best practice. In addition, evidence on these barriers is seminal in attempt to close the prevailing knowledge-to-practice gap (Baatiema et al., 2017). Stavor, Zedreck-Gonzalez, and Hoffmann (2017) further opined that knowledge of barriers to EBP could increase compliance with EBP initiatives. This formed the basis of this study. We sought to determine barriers to achieving EBP among nurses working in LMICs.

Insights into barriers in LMICs are the first step to designing effective interventions for successful implementation of EBP. This systematic review will contribute to the breadth of literature on EBP, which is seminal to implementation science specifically, by highlighting the barriers of achieving EBP among nurses in LMICs.

Table 1. Inclusion Criteria Applied to Selected Articles

Inclusion criteria
The study reported on barriers associated with EBP
The study was conducted from 2000 to 2018
The study population was nurses
The study was published in the English language
The study was conducted in low- and middle-income countries
The study was an empirical study published in a peer-reviewed journal

METHODS

Initially, to ensure that there was not any similar review to ours, we conducted a scoping search in Prospero, Cochrane Library, Google Scholar, and TRIP Database. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA; Moher, Liberati, Tetzlaff, & Altman, 2009) was employed in this review.

Data Sources

Studies were searched in PubMed, Scopus, Cochrane Library, EMBASE, and Web of Science.

Characteristics of Included Studies

We included studies that reported on barriers associated with EBP among nurses conducted from 2000 to 2018 in LMICs and published in peer-reviewed journals in English (Table 1).

Search Strategy

To have a systematic comprehensive search, the following databases were used: Scopus, EMBASE, PubMed, and Web of Science. The most effective search terms were derived from relevant articles, free text, and subject headings. EMBASE and Web of Science were searched on May 12, 2018, by combining free text terms, "barriers," "evidence-based practice*," "nurses," and "low- and middle-income countries*." Limits were added on language and years of publication. Search limits included studies published in English and years of publication from 2000 to 2018 (Table 2). The search strategy was discussed among the three authors and verified by comparing it with already published reviews. The list of references of the selected articles was hand-searched to obtain additional relevant articles.

Table 2.   Description of the Database Search

Database	Search term syntax	Number of matches	Match inclusion criteria
Scopus	(title-abs-key (barriers) and title-abs-key (evidence and based and practice) and title-abs-key (nurses) and title-abs-key (low and middle and income and countries)) and doctype (a) and pubyear> 2000 and pubyear< 2018	92	8
EMBASE	"evidence based practice":ti,ab,kw and "nursing":ti,ab,kw and "barriers":ti,ab,kw and "english":la and [2000–2018]/py	279	5
PubMed	("evidence-based practice"[mesh] and "nurses"[mesh]) and ("loattrfree full text"[sb] and "2008/05/15"[pdat] : "2018/05/12"[pdat])	99	1
Web of Science	topic: (barriers) *and* topic: (evidence based practices) *and* topic: (nurses) *and* topic: (low- and middle-income countries) timespan: 2000-2018. indexes: sci-expanded, ssci, cpci-s, cpci-ssh, esci	46	7

Article Selection and Quality Assessment

After the database search, the total number of articles identified was 516. Ten studies were further identified by hand-searching in reference lists of identified studies. These studies were then screened against the inclusion criteria presented in Table 1 for titles and abstracts and where applicable full texts. All authors were responsible for excluding duplicates and studies based on publication and language limitation. Where there was doubt about the inclusion of a certain study, the authors discussed the study and reached consensus.

Critical appraisal of individual studies was completed by assessing whether the article fulfilled the criteria for inclusion, language limitation, was an empirical study, and was published in a peer-reviewed journal. The most common reasons for rejection were studies that had a focus on aspects of EBP other than barriers and studies that did not include nurses. Methodological rigor was appraised in collaborative discussions among the authors to ensure inclusion criteria consistency. Critical evaluation of methodological rigor in individual studies was done by assessing whether the study methodology, data collection, and data analysis were explicitly performed.

Data Extraction and Analysis

All three authors collectively extracted sentences or paragraphs related to each other in context and content (Polit & Beck, 2017) describing barriers related to EBP. For included studies, we assessed the main outcome of the study findings as barriers to EBP. For articles that met the inclusion criteria, the following summary measures were extracted and recorded in a piloted data set in an Excel spreadsheet. The following data were extracted from the articles in the review: author, year published, setting, main findings, and study design. Synthesis of findings from primary data was completed inductively. The abstracts and full texts of articles were thoroughly read by the authors to gain an initial sense of the findings. Sentences from primary data containing aspects describing barriers related to EBP were extracted from the main findings in Table S1 and assembled into a new document. The three authors then collectively assigned the codes to meaningful units and subsequently discussed and subcategorized them based on similarities and differences found. Already existing literature from empirical studies was reviewed to reflect on already existing categorization and foster appropriateness of thematic categorization.

RESULTS

Study Characteristics

Sixteen articles were included in the analysis after excluding duplicates and articles that did not meet inclusion criteria (Table 1). Two studies were qualitative in nature (Adib-Hajbaghery, 2007; DeBruyn, Ochoa-Marín, & Semenic, 2014), while 14 studies used quantitative approaches.

Eight studies were conducted in Iran; one study each was from Colombia, South Africa, Malaysia, Jordan, Nepal, and the Bahamas; and two studies were conducted in Turkey. The total number of participants was 8,409, and Mehrdad and colleagues' study contributed the majority of the participants with more than half (n = 4,210) of the participants in the studies included in this review (Table S1).

The majority of the 16 studies (n = 15) focused entirely on EBP, specifically perceptions, knowledge, and barriers (Amini, Taghiloo, Bagheri, Fallah, & Ramazani Badr, 2011; Ay, Gençtürk, & Turan Miral, 2014; DeBruyn et al., 2014; Duncombe, 2018; Ebrahimi, Seyedrasooli, Khodadadi, & Yousefi, 2017; Farokhzadian et al., 2015; Hweidi, Tawalbeh,

Al-Hassan, Alayadeh, & Al-Smadi, 2017; Jordan, Bowers, & Morton, 2016; Kahouei, Alaei, Shariat Panahi, & Zadeh, 2015; Karki et al., 2015; Khammarnia, Haj Mohammadi, Amani, Rezaeian, & Setoodehzadeh, 2015; Mehrdad, Salsali, & Kazemnejad, 2008; Naderkhah et al., 2016; Subramaniam, Krishinan, Thandapani, Van Rostenberghe, & Berahim, 2015; Yava et al., 2009). It is unlikely that studies did not report on outcomes (barriers to EBP among nurses) since most of the studies included nurses as the participants. However, because additional sources of information were available to validate the participants, we were able to evaluate the extent, if any, of such biases since all studies reported barriers; thus, misclassification of outcomes is unlikely. One study specifically explored factors that influence nurses' use of EBP (Adib-Hajbaghery, 2007). The majority of the studies ($n = 14$) employed quantitative methods. Two studies employed qualitative research methods (Adib-Hajbaghery, 2007; DeBruyn et al., 2014). The nurses included in the studies were from diverse settings such as nurse researchers, educators, and graduate students (DeBruyn et al., 2014); psychiatric, geriatric, hospital, and community settings (Duncombe, 2018; Ebrahimi et al., 2017); critical care units (Hweidi et al., 2017; Jordan et al., 2016); and teaching hospitals (Ay et al., 2014; Khammarnia et al., 2015).

The findings of this review present barriers to EBP among nurses using three main themes proposed by the authors. The barriers fall into institutional-related barriers, interdisciplinary barriers, and nurse-related barriers (Table S2).

Institutional-related barriers

The theme of institutional-related barriers emerged to organize barriers related to nurses' workplaces. This theme emerged from four categories including resources, access to information at the workplace, inadequate staffing, and lack of support (for an overview see Table S2).

Resources

The category "resource" emerged from the subcategories of insufficient resources in the form of equipment and needed materials to implement EBP, and inadequate facilities to conduct research (Duncombe, 2018; Farokhzadian et al., 2015).

Inadequate information sources at the workplace

The category inadequate information sources at workplaces covered barriers such as lack of access to information required for EBP and lack of Internet to access online information (Khammarnia et al., 2015), as well as inadequate sources of access to evidence (Jordan et al., 2016). Furthermore, this included relevant literature not compiled in one place (Ay et al., 2014).

Inadequate staffing as an institutional barrier

Barriers to adequate staffing were reported in subcategories including the following: difficulty finding time at the workplace to search for and read reports and research articles due to work overload; insufficient time to read research articles (Adib-Hajbaghery, 2007; Amini et al., 2011; Ebrahimi et al., 2017; Farokhzadian et al., 2015; Karki et al., 2015; Mehrdad et al., 2008; Naderkhah et al., 2016; Subramaniam et al., 2015; Yava et al., 2009); and heavy workloads (Khammarnia et al., 2015).

Organizational support

The subcategories reflecting organizational support as an organizational barrier to EBP included lack of incentives for nurses to pursue advanced education or engage in research (DeBruyn et al., 2014); inability to implement recommendations of research findings into clinical practice (Farokhzadian et al., 2015); lack of organizational and ward area managerial support and other staff not being supportive of EBP (Adib-Hajbaghery, 2007; Ay et al., 2014; Duncombe, 2018; Naderkhah et al., 2016); and nurses' perceptions of study findings not being extended to the organization and job descriptions that do not emphasize nurses' roles as researchers (Mehrdad et al., 2008).

Interdisciplinary barriers

Interdisciplinary barriers comprised lack of communication between academic and clinical practice environments (DeBruyn et al., 2014), inconsistency between education and practice in the nursing discipline, lack of teamwork, and the public's negative image about the nursing profession for decades.

Nurse-related barriers

Nurse-related barriers emerged from four categories: barriers related to scope of nurses' practice, time, knowledge of EBP, and individual-related barriers.

Scope of practice barriers

Barriers related to the scope of nursing practice that hinder EBP emerged from subcategories including the following: lack of recognition of nursing as an autonomous profession (DeBruyn et al., 2014), limited availability and utility of nursing evidence (DeBruyn et al., 2014), and nurses feeling as though they do not have enough authority to change patient care procedures based on evidence (Mehrdad et al., 2008; Yava et al., 2009).

Barriers related to time

These consisted of the following: Lack of time to read research findings, conduct research, and implement new ideas into practice was reported as the most common barriers to EBP across studies.

Knowledge of EBP

Subcategories reflecting a knowledge gap with regards to various domains of EBP were numerous, including the following: having had no previous training in EBP, overwhelming information, lack of clear guidelines for doing research, low rate of publication or research reports, inconsistent results from different studies, unawareness of nurses about research, lack of understanding of some terms used in research articles, lack of training courses regarding nursing research, difficulty in appraising research findings, and unfamiliarity with EBP and translating the findings to practice (Naderkhah et al., 2016).

Individual-related barriers

Individual-related barriers emerged from categories including lack of ability to work with a computer and insufficient English-language proficiency. Others included lack of trust and underestimation of the importance of EBP, individual perceptions that underscore clinical decision making based on evidence, resistance to change and perceiving research as a worthless action by nurses (Kahouei et al., 2015). Studies also highlighted a lack of access to individuals who can serve as EBP mentors and knowledgeable colleagues with whom to discuss research, becoming accustomed to a specific structure of practice, minimal perceived self benefits, and lack of interest (Ducombe, 2018; Naderkhah et al., 2016).This theme also emerged from subcategories that highlighted an individual's inability to properly interpret results from studies and an inability to understand statistical terms used in research articles (Farokhzadian et al., 2015; Naderkhah et al., 2016).

DISCUSSION

This review explored literature from various studies conducted in LMICs reporting on barriers to EBP, specifically among nurses. Given the rich content reported across studies, we consider classifying these barriers into three main themes as a way of facilitating an understanding of the phenomenon of "barriers to EBP." We also believe that classifying them into the three themes may be important in selecting or constructing outcome measures for evaluation of interventions at the systems level. These are discussed in depth in this section.

One of the main themes was institutional-related barriers. Quality healthcare delivery is vitally important; however, it can be sabotaged due to the evidence-to-practice gap. This gap could potentially be created if institutions do not embrace the benefits of EBP (Baatiema et al., 2017; Florczak, 2016) to inform practice and policy by creating an environment that enables their employees to keep abreast of current credible evidence. In our review, we identified various institutional-related barriers. Similarly, barriers related to institutional settings have been reported elsewhere—for instance, in Kajermo and colleagues' review that sought to assess barriers to research utilization from studies using the Barriers scale. In their review, barriers related to workplace settings were the most commonly cited barriers (Kajermo et al., 2010). Most of the barriers identified under this theme pointed to resources, information access, staffing, and support. Indeed, achievement of the concept of EBP in nursing practice is complex, requiring acknowledging various core components including organizational readiness, nursing, training, equipping, and the leadership will to support EBP. In fact, Schaefer and Welton (2018) argued that realization of EBP requires organizational readiness. This can be reflected in the form of embracing the need for EBP, providing resources, and providing a conducive environment for EBP to thrive.

In addition, proponents of EBP assume that integrating evidence in clinical practice increases the quality of health care and patient outcomes. However, this can hardly be achieved without reliable information sources at their workplaces.

Institutions need to provide resources such as Internet access with credible databases for nurses. The dual role of institutions with regards to resources lies in providing a balance in information resources and adequate staffing of both clinical and research knowledgeable workforces. Various databases have been developed for both generalists and specialist nurses. Furthermore, support in terms of staffing is not only vital in creating ample time for their employees to utilize and appraise the available evidence, but also lies in the sentiment that the available staff have the capacity to effectively utilize the available evidence. Lastly, there is remarkable evidence that could be used to inform nurses of the best outcomes for patients embedded in practice based on evidence; however, a significant difference exists in translating these findings into actual clinical practice. This is largely influenced by a number of factors.

We also identified that understaffing, middle-level managerial support, knowledge, and attitude toward evidence were also a limitation to EBP. If there is no organizational and personal will to perform and utilize research evidence, EBP cannot be achieved. In addition, if ward-level managers do not support their subordinates to acknowledge EBP, EBP cannot be achieved. Organizational support as a barrier to EBP has been reported elsewhere by Florczak (2016). Time has also been mentioned as one of the common barriers. Time is a significant need if EBP is to be realized. This lies in the fact that generating research evidence is time-consuming and use of provided evidence needs some time to be appreciated. Practitioner time constraints also tend to limit the use of EBP because of perceived barriers in their work settings (Barends et al., 2017). Similarly, in this review, lack of time to read research findings, conduct research, and implement new ideas into practice was reported

as one of the most common barriers to EBP across studies. Lack of time could partly be attributed to work overload. Indeed, low engagement of nurses in implementing EBP has been reported elsewhere. Llasus, Angosta, and Clark's (2014) study noted that EBP knowledge and engagement in EBP implementation scores are low among nurses. Time as a barrier to EBP could also be attributed to lack of interdisciplinary collaboration. We recommend that adequate staffing and interdisciplinary collaboration could provide more time for nurses to utilize and appraise evidence.

Interdisciplinary barriers to EBP could be attributed to limited interprofessional learning skills among healthcare personnel. These could contribute significantly to the low utilization of EBP. This could lead to low awareness in some professional subgroups and confidence in a particular familiar therapy. Similarly, Baatiema and colleagues' review revealed that limited medical and peer support hinders evidence utilization (Baatiema et al., 2017). Greenhalgh and colleagues argued that having put forth a clarion call for the profession to deliver real EBP, there is a need to form good interprofessional relationships delivering contextual care that is both ethical and practical (Greenhalgh et al., 2014). Perhaps for similar reasons, the healthcare providers could turn away from specific profession EBP toward interprofessional evidence-informed practice. We recommend integrative interprofessional interventions aimed at embracing actions among nurses and other health professionals to embrace being more supportive of each other, coordinating activities in a better way, and improving interprofessional collaboration and EBP. Each of these actions could be seen as facilitating the desired intentions of EBP.

In this review, we also highlighted a number of nurse-related barriers. Indeed, nurses form an important segment of the healthcare system. With the advent of an aging population, new health technologies, and the dynamic nature of the health needs of the patient, nurses will need more knowledge of EBP. Most of the reviewed studies highlighted a number of nurse-related barriers.

Similarly, Barends and colleagues' review further highlighted that unfavorable individual attitudes and social norms espoused by peers often discourage practitioners from adopting practices based on scientific evidence. For the same reason, some nurses may be limited to practicing the same practices over time and lack the motivation to implement EBP. This finding is congruent with our recommendation for interventions aimed at increasing awareness of the benefits of EBP and teamwork. This could enhance nurses' attitude, knowledge, and engagement in EBP.

Furthermore, collaboration between hospitals and training institutions is inevitable if we are to achieve EBP. Aligning the academic rigor of university academics with hospitals' areas of interest could go a long way in solving many knowledge-related barriers identified in this review such as training in EBP, overwhelming information, lack of clear guidelines for doing research, low rate of publication and research reports, and inconsistent results from different studies. Similarly, Ryan's (2016) review reported that lack of confidence and support to utilize EBP independently are some of the barriers to implementation and adherence to EBP among nurses. Greenfield argued that, despite the fact that decisions should be based on available clinical practice guidelines, the lack of consensus between guidelines developed for the same phenomenon oftentimes confuses the users on the right direction to take, leaving the clinician with doubt on the credibility of the evidence and resulting failure to utilize it (Greenfield & Kaplan, 2017). Avoiding conflicting evidence in clinical practice guidelines (CPGs) can be avoided by using specifying subgroups of patient populations where a specific recommendation from practice guidelines can be applied (Greenfield & Kaplan, 2017). Until groups developing CPGs reach consensus about important risk, subgroups, and practice recommendations associated with those subgroups, we will continue to face conflicting recommendations that confuse providers, patients, payers, and policymakers (Greenfield & Kaplan, 2017). Fineberg (2018) opined that to ensure that CPGs fulfill their intented roles; we need to find a path to consensus. This preserves public truct, supports clinical decision making and ensures that the broader uses of CPGs are met.

Finally, other barriers including lack of awareness among nurses about EBP and findings reported in studies could be solved through strategies aimed at creating awareness of EBP such as integration of EBP into nursing curriculums and offering continuous professional development opportunities for nurses. Such approaches could help nurses to develop skills of integrating EBP in their leadership and clinical roles. A similar study that sought to assess EBP use and research utilization similarly identified lack of educational preparation with regards to research utilization as hindering EBP among nurses (Stavor et al., 2017).

Individual barriers constituted one of the main barriers and were mainly in the form of varying perceptions to research utilization in nursing practice. Florczak (2016) also reported similar findings that some nurses believe that research is a complex process, question the credibility of research findings, and lack the motivation to search and appraise the evidence, all barriers to EBP.

Change to EBP is inevitable and is the way to go in this new era. Indeed, it has been reported elsewhere that care is individualized and ever-changing and involves uncertainties and probabilities (Sin & Bliquez, 2017; Zhou et al., 2016).

Individual barriers could be attributed partly to lack of knowledge on the benefits of EBP. Similarly, Greenhalgh et al. (2014) also noted that the attitude of healthcare providers toward EBP is a significant barrier toward EBP. Alzayyat (2014) argued in her review that many psychiatry nursing practices were influenced by aged norms and intuitional trial-and-error practices, albeit research evidence.

Such individual underrating of the significance of EBP could be overcome by acknowledging the attitude of nurses toward EBP and then rolling out interventions aimed at increasing awareness to the need to adapt practices based on evidence. We recommend engaging nurses in research, increasing nurses' capacity of appraising different evidence sources, and organizational support at both top level and at the ward managerial level. This recommendation is based on the fact that there is a positive correlation between an individual's attitude toward research and evidence utilization (Estabrooks, Floyd, Scott-Findlay, O'leary, & Gushta, 2003). Our review highlighted similar barriers, which are congruent with those from similar reviews by Kajermo et al. (2010) and Estabrooks et al. (2003). Our frame of categorizing barriers into three themes offers a wider system understanding of barriers to EBP and may offer a platform for interventions aimed at fostering EBP in LMICs.

STUDY LIMITATIONS

Although our review provides seminal evidence on barriers to a highly acknowledged concept of EBP, the majority of the studies used in this review are skewed to Iran, with only one study from sub-Saharan Africa, the Middle East, and parts of Asia that contribute to the block of LMICs. Owing to that sentiment, findings on barriers to EBP among nurses in LMICs not represented in this review could be different because they could have a difference in nursing practice and education.

IMPLICATIONS FOR PRACTICE AND RESEARCH

Despite the above limitations, this review goes a long way in describing the barriers to EBP among nurses in LMICs. We recommend that more organizational support and interprofessional collaboration are needed to realize the goals of EBP. There is also a need for practice change from one that underrates nurses' opinions regarding care decisions to one that acknowledges their contribution to care decisions based on evidence. We further recommend more studies be undertaken in sub-Saharan African countries (SSACs) because only one study was included from SSACs in this review.

CONCLUSIONS

Barriers to EBP in LMICs seem similar to those identified in high-income countries. More studies need to be conducted in African settings. Barriers to EBP are multifactorial, they include: institutional-related barriers, nurse-related barriers and interdisplinary barriers. Bridging the evidence-to-practice gap in health care is a collective goal and is a win-win for nurses, clinicians, and the settings where they work. Therefore, coming together for positive change is inevitable. WVN

🔗 LINKING EVIDENCE TO ACTION

- More rigorous studies on the extent of EBP, barriers, and facilitators need to be conducted in LMICs.
- Nursing practice change requires attention to both clinical and research involvement of nurses.
- Nursing curriculums and continuous professional development interventions need to acknowledge and appraise their involvement in decision-making and contributions to EBP.
- Strong organization commitment across departments and disciplines is needed to surmount implementation and sustainability of evidence-based nursing in LMICs.

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SUPPORTING INFORMATION

Additional supporting information may be found in the online version of this article at the publisher's web site:

Table S1. Summary of Included Studies
Table S2. Synthesized Findings of Barriers Associated With EBP Among Nurses in Low- and Middle-Income Countries