

Barriers of Implementing Evidence-Based Practice in Nursing Profession: A Literature Review

Munirah Alatawi*, Eman Aljuhani, Fatimah Alsufiany, Kawakeb Aleid, Rehab Rawah, Sara Aljanabi, Maram Banakhar

Faculty of Nursing, King Abdulaziz University, Jeddah City, Saudi Arabia

Email address:

monera_alatawi@hotmail.com (M. Alatawi)

*Corresponding author

To cite this article:

Munirah Alatawi, Eman Aljuhani, Fatimah Alsufiany, Kawakeb Aleid, Rehab Rawah, Sara Aljanabi, Maram Banakhar. Barriers of Implementing Evidence-Based Practice in Nursing Profession: A Literature Review. *American Journal of Nursing Science*. Vol. 9, No. 1, 2020, pp. 35-42. doi: 10.11648/j.ajns.20200901.16

Received: January 5, 2020; **Accepted:** January 18, 2020; **Published:** January 31, 2020

Abstract: Background: Evidence-based practice is important in improving the overall quality of patient care, enhance nursing practice and increase the confidence in decision-making. Evidence-based practice is a technique used in solving clinical issues regarding patient care by integrating well-designed evidence with patient preferences, patient assessments, and health professionals. This review aims to explore barriers that confront nursing in the implementation of evidence-based practice. Consequently, by determining some of the barriers to the implementation of EBP among nurses, health care systems can form solutions that allow the health centers to avoid such issues and execute the approach among health care providers. Methods: peer review was undertaken following a literature search in the databases involved CINAHL, MEDLINE and EBSCO Web of Science databases. Included studies were from October 2018 to December 2018, English language and peer-reviewed studies that aimed to explore the organizational and individual barriers within the healthcare setting. The quality appraisal tool was used to appraise all the included studies. Results: A total of 12 studies were included. Six studies were quantitative, five studies were qualitative, and one study used mixed methods. Four organizational barriers to implementing Evidence-based practice among nurses were found by reviewing the literature which is ("lack of support and supervision", "lack of training" and "education", "limited resources" and "time restriction"). While, four main themes were considering as an individual barrier to implementing Evidence-based practice among nurses: ("lack of nurses' knowledge", "skills and awareness regarding use the Evidence-based practice", "lack of professional characteristic", "nurses' attitude and experience in using" and "language barrier in using or implementing Evidence-based practice"). Conclusions and implications for future practice: Nursing administrators and educators have the main role to facilitate evidence-based practice implementation among nurses, therefore; the findings of this review can help to overcome the identified barriers. Training and education are important to enhance the knowledge and skills of nurses to use evidence-based practice. Time management, providing the required resources and adequate supervision can facilitate the implementation of evidence-based practice which positively influences the quality of care. For further research, it is very fruitful to investigate the common barriers of EBP in one specific culture such as the middle eastern culture. Furthermore, future research may focus on barriers of implementing EBP related to the patients and their families.

Keywords: Implementation, EBP, Barrier, Obstacle, and Challenge

1. Introduction

Evidence-based practice (EBP) is a technique used in solving problems regarding patient care by integrating well-designed evidence with the patient preferences, patient

assessments, and health professionals' expertise leading to lower health costs, better patient outcomes and safer care [1]. Furthermore, this approach has been promoted as a method for patients to receive the best services [2]. Nowadays, the health care system faces the challenge of providing consistent and high-quality services. If it is well implemented and

utilized in health care facilities, EBP helps in improving the overall care for patients [1].

Four major steps are followed in implementing EBP to solve a clinical problem as well as to assist the healthcare professionals in decision making. Firstly, healthcare professionals need to cultivate a spirit of inquiry and develop a clear clinical question regarding the patient's issue [3]. After formulating the clinical questions, nurses need to search in the literature for clinically relevant articles that explain the problem the patient might be experienced [2]. If the nurses are successful in finding clinically relevant articles, they need to evaluate the included studies to determine how useful and valid they are. It is important to evaluate the quality of the included articles because some of the procedures or tests that may have been discussed regarding patient care may be outdated or irrelevant. Finally, after conducting an evaluation, the nurses can implement and disseminate the findings that they found useful in their clinical practice [2].

Nurses are often placed in a convenient position to enhance the quality of health care services that are based on knowledge and research [4]. Several advantages were found in applying EBP in the provision of health care services. EBP ensures that health professionals are delivering patient care that is innovative and, thus, guaranteeing better outcomes for patients [4]. Evidence-based practice also contributes to the science of nursing and increases the confidence in decision-making, resulting in ideal outcomes [4]. Finally, EBP maintains certain health practices relevant and current [4].

In the health care system, nurses make up the greatest percentage of health care providers, meaning that their role in the promotion of health care and delivery of quality services is massive. EBP has become an important subject in nursing and is being integrated into daily practices because it influences the capabilities, responsibility and professional development of nurses [5]. Nurses known for practicing based on scientific evidence make better decisions concerning the delivery of services and care. However, the approach is not being consistently utilized despite the greater professional satisfaction it is known to cause [6]. The development of research strategies has caused a change in the healthcare setting. Both experienced and new nurses experience few difficulties to adjust to the new environment of evidence-based practices from class practices [5]. However, several changes, on how nurses provide quality care to their patients, need to be made to ensure that EBP is correctly implemented into the healthcare system [5].

Several barriers were found to hinder the implementation of EBP among nurses. Evaluations conducted have revealed that both organizational and human factors are linked with barriers affecting the implementation of EBP [7]. Consequently, by determining some of the barriers to the implementation of EBP among nurses, health care systems can form solutions that allow the health centers to avoid such issues and execute the approach among health care providers. By doing so, policymakers and managers will be in a better

position to plan for better utilization of EBP among all health care providers in health facilities.

2. Methods of the Review

2.1. Search Strategy

Two steps of the search strategy were included in this review. The first step was an initial search of the database to search keywords (implementation, adoption, compliance, EBP, nurses, barrier, obstacle, and challenge). The second step, an extensive search in CINAHL, EBSCO, and MIDLAND database. The keyword used in the search was designed to reflect the subject heading (MeSH) terms, keywords and phrases from the selected databases related to the review question. The search for keywords connected by using the boolean technique as AND, OR. For example; (AND barriers OR obstacle OR challenge).

2.2. Inclusion and Exclusion Criteria

The inclusion criteria were all qualitative or quantitative studies that explore, describe, and measure barriers that affect implementation of EBP among nurses, studies conducted among registered nurses, any study conducted in period between 2013 to 2018 about search title 'barrier of evidence-based practice implementation in nursing', all peer-reviewed studies published in English language. Exclusion criteria incorporate any study conducted among other healthcare practitioners such as a physician or in non-healthcare contexts.

2.3. Assessment of Methodological Quality

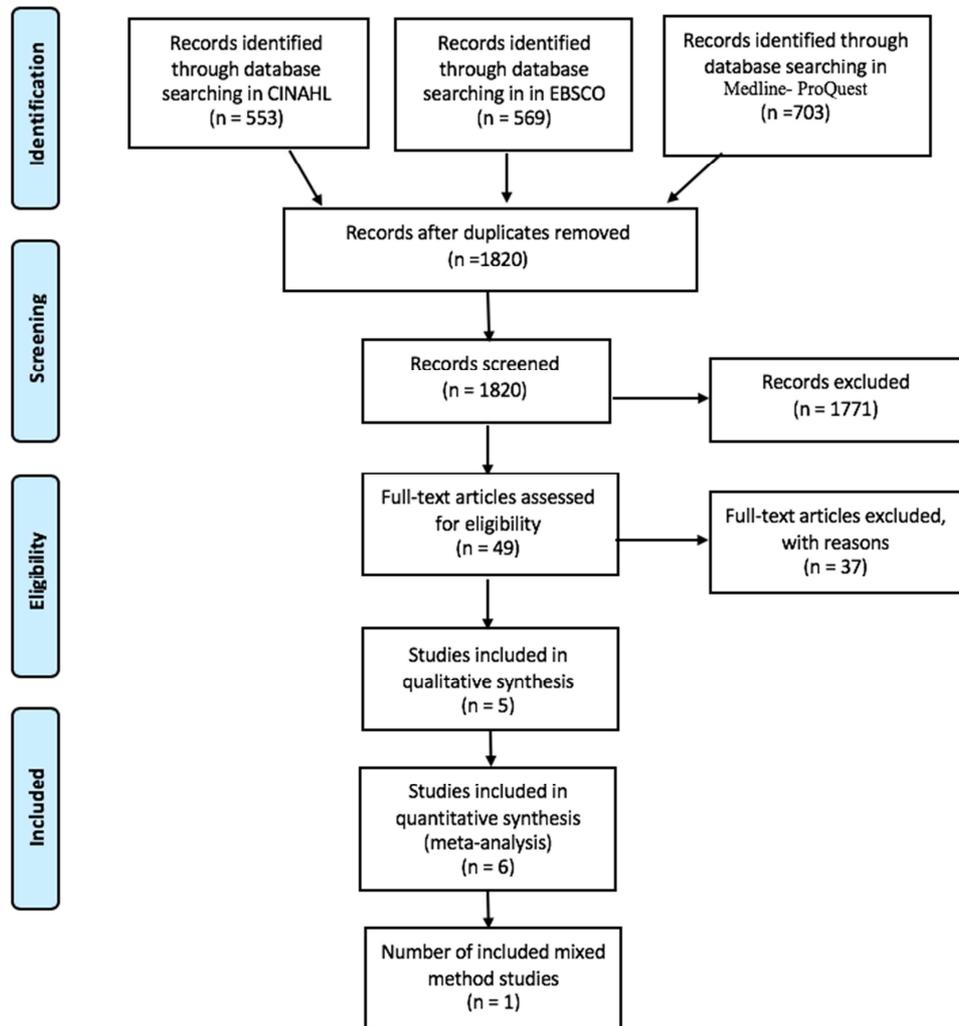
After the search in the literature, all the included studies selected were examined regarding the quality of study design. Hawker, Payne, Kerr, Hardy, and Powell (2002) critical appraisal tool was used to appraise all the included studies.

The tool consists of nine items to evaluate the following (Abstract and title, Introduction and aim, Method and data, Sampling, Data analysis, Ethics and bias, Results, Transferability or generalizability, and Implications and usefulness) measured with four-point Likert scale, ranging from (4 good, 3 fair, 2 poor and 1 very poor). An overall studies quality score can be calculated by summing the nine items score. A score ranging from 9 – 18 is described as a poor-quality study, 18 – 27 as fair quality study and 28 – 36 as good quality study.

By critiquing the included studies, the results revealed that all the studies are considered as high-quality studies. Eleven of the included studies were rating as good quality studies while only one study has fair scoring due to the limited description of the ethical issues which have been encountered by the researchers. The critique scores of all included studies are described in (table 1).



PRISMA 2009 Flow Diagram



From: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(7): e1000097. doi:10.1371/journal.pmed1000097

Figure 1. PRISMA flow chart.

Table 1. The critique scores of included studies.

Authors	Abstract	Method and data	Introduction and aims	Sampling	Data analysis
Elham Azmoude	4	4	4	4	4
Mohammad Khammarnia	3	4	4	4	4
Bridget Johnston, Carol Coole, Melanie Narayansamy, Ruth Feakes, Gillian Whitworth, Tracy Tyrrell, and Beth Hardy	3	3	4	3	4
Wendy Gifford, Qing Zhang, Shaolin Chen, Barbara Davies, Rihua Xie, Shi-Wu Wen, and Gillian Harvey	4	4	4	3	4
Rebecca R. DeBruyn, Sandra Catalina Ochoa-Marín, and Sonia Semenic	4	4	4	3	3
Srijana KC, Prithwi Raj Subramaniam, and Sarita Paudel.	4	4	4	4	3
Mahmoud ALKalaldehy, Roger Watson and Mark Hayter	3	4	4	4	4
Aste Renolen and Esther Hjalmsult	4	4	4	4	4
Souraya Sidani, Milisa Manojlovich, Diane Doran, Mary Fox, Christine L. Covell, Helen Kelly, Lianne Jeffs, and Mary McAllister	3	4	4	4	4
Bowers, Candice Andrea	3	4	4	4	4
Jamileh Farokhzadian, Reza Khajouei, and Leila Ahmadian.	3	4	4	4	4
P Jordan, C Bowers, M Cur; D Morton.	4	4	2	4	4

Table 1. Continued.

Authors	Ethics and bias	Findings / results	Transferability / generalisability	Implications and usefulness	Total
Elham Azmoude	4	4	4	4	36 good
Mohammad Khammarnia	1	4	4	4	32 fair
Bridget Johnston, Carol Coole, Melanie Narayansamy, Ruth Feakes, Gillian Whitworth, Tracy Tyrrell, and Beth Hardy	2	4	3	4	26 Fair
Wendy Gifford, Qing Zhang, Shaolin Chen, Barbara Davies, Rihua Xie, Shi-Wu Wen, and Gillian Harvey	4	4	3	4	34 Good
Rebecca R. DeBruyn, Sandra Catalina Ochoa-Marín, and Sonia Semenic	2	4	3	3	30 Good
Srijana KC, Prithwi Raj Subramaniam, and Sarita Paudel.	1	4	3	3	30 Good
Mahmoud ALKalaldehy, Roger Watson and Mark Hayter	3	4	3	3	32 good
Aste Renolen and Esther hjalmhult	4	4	4	3	35 good
Souraya Sidani, Milisa Manojlovich, Diane Doran, Mary Fox, Christine L. Covell, Helen Kelly, Lianne Jeffs, and Mary McAllister	4	4	3	3	33 good
Bowers, Candice Andrea	4	4	3	4	34 good
Jamileh Farokhzadian, Reza Khajouei, and Leila Ahmadian.	2	4	3	3	31 good
P Jordan, C Bowers, M Cur, D Morton.	4	4	3	3	32 good

3. Results

The total number of included studies is 12 according to the PRISMA flow chart. (figure 1)

Themes are identified by using the data extraction table. The main themes founded are individual barriers and organizational barriers.

3.1. Individual barriers

In the literature, four main themes were categorized as individual barriers in implementing EBP among nurses: lack of nurses' knowledge, skills and awareness regarding the use of EBP, lack of professional characteristics, nurses' attitude and experience in using EBP and language barriers in using EBP. These themes will be explained in detail in the following subsections.

3.1.1. Lack of Professional Characteristics

Lack of professional characteristics was demonstrated as an individual barrier to implement EBP in nursing within two studies in the literature [8, 9]. In the UK, Johnston et al (2016) conducted a qualitative study to identify barriers and facilitators to community nurses implementing research into practice. The findings showed that nurses had little choice regarding the used EBP tools and only expected to use those available on the computer system [8]. Similarly, in Colombia, DeBruyn et al (2014) carried out a qualitative descriptive study by using the semi-structured interview to identify and describe the perceptions of nurses regarding the barriers of implementing EBP. The study revealed that nurses' lack of professional autonomy was linked to evidence-based nursing (EBN) implementation [9].

3.1.2. Lack of Awareness, Knowledge, and Skills

A total of nine studies revealed that lack of knowledge was found as a barrier in EBP implementation [10-18]

In Iran Khammarnia et al (2015) conducted a quantitative analytical cross-sectional study aimed to determine the barriers to implement EBP among nurses. The results demonstrated that 54.4% of the participant nurses agreed on

the lack of knowledge as a common barrier to implementing EBP [17]. Recently, Gifford et al (2018) conducted a qualitative study using semi-structured interviews to explore barriers and facilitators to evidence-based practice in Hunan province in a less developed region in China. Less than half of the nurses 46% were aware of the concept of EBP, and only two of the six participants from the community had heard of it [15]. Similar results were demonstrated by Kc et al (2016) who conducted a descriptive, cross-sectional study aimed to determine the perceived barriers and facilitators of Nepalese nurses in utilizing research in the workplace. Results showed that nurses' isolation from knowledgeable colleagues to discuss research (47.6%), minimal benefits of changing nursing practice (40.2%), and nurses being incapable of evaluating research quality (37.6%) were rated as barriers to research utilization [14].

Bowers (2014) carried out a quantitative, explorative, descriptive and contextual research design aimed to identify barriers to the implementation of evidence-based practices in a critical care unit. Results reflected that nurses were not completely familiar with evidence-based practices and nurses had difficulty to locate by using search engines with a lack of quality control such as Google and Wikipedia, which contain information that lacks validity or reliability [10]. Similarly, Jordan et al (2016) conducted a quantitative, exploratory study aimed to determine the individual and organizational implementation barriers of EBP among nurses in a private intensive care unit (ICU). Results showed that the degree of familiarity with EBP among nurses is 46% with incorrectly defined and understood of the EBP concept [16]. However, in a further qualitative study which aimed to gain more knowledge about what nurses perceive as the most important challenge in implementing evidence-based practice and to explain how they act to face and overcome this challenge [12]. The authors found that the nurses had difficulty finding scientific knowledge they were willing to trust because some evidence may harm the patient [12].

Likewise, Farokhzadian et al (2015), conducted a quantitative, cross-sectional study aimed to examine nurses' attitudes towards EBP, their self-efficacy and training needs,

as well as supporting factors and barriers for implementing EBP. The study demonstrated that the most important barrier was difficulty in judging the quality of research papers and reports (2.46 ± 0.92) [18]. In a further study, semi-structured interviews were carried out to examine Jordanian nurses' perspectives on the implementation of EBP related to enteral nutrition, using the appropriate clinical guidelines and protocols, and on what constituted successful teamwork while providing nutritional care in the ICU [11]. The findings revealed that clinical experience is the first source of knowledge considered for obtaining evidence [11]. However, university education is the second source of knowledge despite the lack of holistic information [11]. While in a mixed-method study that aimed to explore nurses' perception of evidence-based interventions targeting patient-oriented outcomes [13]. Results illustrated that nurses' perceptions of evidence-based interventions have been overlooked as factors that influence uptake and implementation of these interventions in practice [13].

3.1.3. Nurses Personal Attitude and Experience

A total of eight studies found that nurses' attitudes and experience as barriers to implementing EBP [10-16, 19].

A study carried out by Kc et al (2016) demonstrated that the nurse is unwilling to change or try new ideas 30.5%. Additionally, nurses did not perceive research as being an important element of their practice [14]. Similarly, Kalaldehy et al (2014) found that nurses are poorly adhering to EBP and their current practice was based on practice transmitted from one person to another. This result is supported by Gifford et al (2018) study in which most nurses had negative attitudes and beliefs towards research. Additionally, nurses did not have enough details about how to apply the research into practice [15]. Moreover, nurses reported that evidence-based practice considered a challenge, information is missing here and difficult to be carried out and were unconfident in applying it into practice [13]. Similarly, another study showed that nurses did not rely on research and they are not comfortable with the research assessments; however, nurses used their own experiences and knowledge as they believe in the knowledge they were going to use [12].

Resistant to change from traditional practice to EBP considers by 49% of professional nurses as a barrier to implementing EBP [10]. Similarly, 59% of nurses showed resistance to change from traditional and ritualistic practices to EBP [16]. While in a quantitative cross-sectional study aimed to describe the attitude toward the application of EBP among midwives in maternity care, the results showed the highest mean scores (4.18 ± 0.53) it improves patient health care outcomes [19].

3.1.4. Language Barriers

Only two studies showed that language is considered a barrier to implement EBP [13, 15]. For example, the language barrier among patients with cognitive impairment and older first-generation immigrants were highlighted by nurses [13]. Moreover, the majority of nursing research evidence and guidelines were published in the English

language, while some nurses have a lack of readable and understandable of research evidence in Chinese [15].

3.2. Organizational Barriers

A total of four organizational barriers were found by reviewing the literature including lack of support and supervision, lack of training and education, limited resources and time restriction.

3.2.1. Limited Organization Resources

Seven studies demonstrated that lack of resources within the healthcare organizations are barriers to implement the EBP [9, 10, 13, 14, 16, 17, 19]

Midwives reported inadequate facilities as an organizational barrier for implementation of EBP with (mean = 2.64) [19]. As well as, a total of 75.3% of nurses in Nepalese reported that inadequate facilities for implementing research findings are an organizational barrier to research utilization [14]. The same finding was found in which indicated that the material resources required to provide some interventions were not readily available [13].

Lack of adequate access to computers was considered by 66% of nurses as an organizational barrier in implementing EBP [16]. In addition, a total of 49% of the nurses mentioned the availability of computers and slow or poor access to the research evidence in the critical care unit is a barrier to implement EBP [10]. Likewise, Khammaria et al., (2015) study results showed that 56% and 57% of nurses agreed that lack of internet access at work (72.2%), workload (70.0%) and shortage of nurse (lack of human resources) (78.3%) were the most organizational barriers to implement EBP. Furthermore, the lack of rewards in conducting nursing research, and institutional incentives for developing research skills were considered as barriers to implementing EBP [9].

3.2.2. Lack of Support and Supervision

A total of nine studies stated that insufficient support from managers would be a barrier to implement EBP [8-16].

Lack of knowledge, direction, support, and leadership skills from hospital administrators in implementing EBP [15]. Similarly, around 27% of nurses mentioned that nurse managers do not support the implementation of EBP [16]. Additionally, a total of 91% of nurses indicated that there is needed for an EBP mentor or champion in the ICU to enhance the effective implementation of EBP [16].

The lack of institutional administrators, head nurses, and colleagues support could reduce the implementation of EBP [11]. Lack of authority to change practice was a barrier to facilitate the implementation of EBP as reported by around 58% of nurses (Jordan et al., 2016). Additionally, 34% of nurses agreed and 23% strongly agreed that the lack of authority to change practice in the critical care unit is a barrier in implementing EBP [10]. Similarly, 54.2% of nurses reported that lack of support from health team members which make Nepalese nurses restricted with insufficient authority to change the practice of patient care [14]. Also, there are other barriers mentioned by 71.6% nurses such as

research articles were not published fast enough, and 48.8% of nurses mentioned that research has not been replicated [14].

Lack of support to implement EBP from the hospital administrator and lack of visible nursing profession leaders were perceived as contributing factors to the low recognition of nursing, another barrier was a lack of institutional incentives for developing research skills, conducting nursing research or implementing evidence-based practices [9]. Moreover, the nurses' contracts lack protected time for nurses to acquire education or research skills, or engage in research activities [9].

In a further study, Johnston *et al* (2016) illustrated that structured supervision was lacking and the main barrier was perceived to be the lengthy approvals procedure within the organization, this meant that services often struggled to respond to the research agenda. Nurses perceived that they had little power to introduce tools without management support [8]. This result is supported by Renolen and Hjälmhult (2015) study which revealed that it was difficult to implement new knowledge when the particular practice was not required or controlled by anyone and the managers at various levels largely did not check adherence to using new knowledge. Nurses felt that resources and priority of this were lacking [12]. Furthermore, nurses indicate that their situations with patients and their relationships with colleagues were crucial in implementing EBP [12]. Moreover, in Sidani *et al* (2016) study, nurses mentioned the need to collaborate with other health professionals to implement some of the evidence-based interventions in which it considered a barrier for implementation of EBP.

3.2.3. Lack of Time

Lack of time considered the main barrier in the implementation of evidence-based practice in nursing [8-19].

In Azmoude *et al* (2018) study, the results showed that the nurse does not have time to read research (mean = 2.70). Furthermore, in Khammarnia *et al* (2015) study, the results highlighted that (83.7%) of the participant mentioned the most important barrier to implement EBP is lack of time to read the literature. While Jordan *et al* (2016) study results indicated that nurses had insufficient time to implement the change that is required for EBP. Also, Johnston *et al* (2016) stated that nurses had a lack of time to keep up to date with research evidence and the uptake of educational opportunities. As in another study, nurses felt they had limited time during their scheduled working hours to provide patient care and EBP was seen as an extra work [15].

According to Sidani *et al* (2016), nurses mentioned that implementing evidence-based interventions was time-consuming. Similarly, the study results of Kalaldehy *et al* (2014) showed that restricted time can affect nurses' empowerment to develop and establish evidence-based guidelines. Likewise, Renolen and Hjälmhult (2015) found that lack of time was a challenge in implementing EBP. Also, DeBruyn *et al* (2014) highlighted that lack of time to read the research, to dedicate to research, and to acquire education or

research skills were all organizational barriers in implementing EBP in nursing practice. In addition, the major perceived barrier to research utilization for nurses is lack of time on the job to implement new ideas (60.3%)[14]. Moreover, according to Bowers (2014) 34% of nurses agreed that there was insufficient time to find or read research reports. While Farokhzadian *et al* (2015) study results indicated that the least important organizational barrier in implementing EBP was difficulty in finding time at the workplace to search for these resources.

3.2.4. Lack of Training and Education

Three studies mentioned that inadequate training and education is considered as a barrier to implementing EBP [8, 10, 12].

Johnston *et al* (2016) reported that lack of training could be used as a barrier to implement research into practice. Although the training itself might be of an acceptable standard, nurses did not necessarily feel confident in applying EBP [8]. While in Renolen & Hjälmhult (2015) study, nurses experienced that educational opportunities to learn more about the evidence-based practice was not given sufficient priority by the managers. In addition, Bowers (2014) demonstrated that around 50% of nurses agreed that in-service education on EBP would promote evidence uptake. Whereas around 47% agreed that an EBP mentor was necessary in the critical care unit to perform searches and disseminate that information to the rest of the staff. However, a total of 50% of the participants agreed that in-service training would promote the understanding of, and adherence to, evidence-based practices [10]. While 50% of the participants strongly agreed that best-practice guidelines could promote evidence-based practices [10].

4. Discussion

This review has thematically synthesized the evidence regarding the important barriers in implementing EBP among nurses in clinical practice. In this review, a total of six included studies identified the barriers of implementing EBP among nurses by using a quantitative cross-sectional study design [10, 14, 16-19]. The cross-sectional study design is appropriate for describing phenomena at a fixed point [20]. Although five included studies were conducted by using qualitative research design, two studies were grounded theory and three studies were phenomenology designed to provide maximal explanation and additional understanding from different dimensions [8, 9, 11, 12, 15]. While only one included study was conducted by using a mixed-method research design because the researcher in quantitative design come up with a nurse's perception and their attitude toward applying EBP regarding certain procedures such as acupressure, guided imagery, massage, and relaxation [13]. However, the researcher used a qualitative design to clarify the reasons underlying nurses' responses [13].

This review revealed eight barriers that were categorized into individual and organizational barriers. Individual barriers

in implementing EBP among nurses incorporate lack of professionalism, lack of awareness, knowledge, and skills, nurses' attitude and experience and language barriers. Although the organizational barriers to implement EBP include limitation of resources, lack of support and supervision, lack of time, lack of training and education. This finding highlighted the ubiquity of barriers to implement EBP among nurses and the necessity to study it to overcome them.

In this review, the time was the most common barrier found in all included studies among nurses such as nurses have no time for reading research [17, 19] or implement the changes required by EBP [16] which is caused by having staff shortage within the healthcare organizations leading to an increase in the workload [11, 15-17].

The nurses play a pivotal role in generating clinical questions about patient care and safety. However, nine studies recognized that lack of nurse's knowledge as a barrier in EBP implementation, [14-16]. Consequently, nurses need to develop essential knowledge and skills about research and evidence-based practice to use the best evidence to provide the healthcare required to improve healthcare and cost-saving [21].

5. Conclusion

Nursing administrators and educators are responsible for facilitating evidence-based practice implementation. Therefore, the findings of this review assist the nursing administrators to overcome the identified barriers.

Training and education to increase the level of nursing knowledge and skills to use evidence-based practice, organizing the nursing time, support nurses with the resources required and provide adequate supervision can facilitate the implementation of evidence-based practice which positively influences the quality of care. For further research, it is very fruitful to investigate the common barriers of EBP in one specific culture such as the middle eastern culture. Furthermore, future research may focus on barriers of implementing EBP related to the patients and their families.

References

- [1] B. M. Melnyk, L. Gallagher-Ford, L. E. Long, and E. Fineout-Overholt, "The establishment of evidence-based practice competencies for practicing registered nurses and advanced practice nurses in real-world clinical settings: Proficiencies to improve healthcare quality, reliability, patient outcomes, and costs," *Worldviews on Evidence-Based Nursing*, vol. 11, no. 1, pp. 5-15, 2014.
- [2] S. Majid *et al.*, "Adopting evidence-based practice in clinical decision making: nurses' perceptions, knowledge, and barriers," *Journal of the Medical Library Association: JMLA*, vol. 99, no. 3, p. 229, 2011.
- [3] T. W. Reader, A. Gillespie, and J. Roberts, "Patient complaints in healthcare systems: a systematic review and coding taxonomy," *BMJ Qual Saf*, vol. 23, no. 8, pp. 678-689, 2014.
- [4] A. Sharma *et al.*, "Using digital health technology to better generate evidence and deliver evidence-based care," *Journal of the American College of Cardiology*, vol. 71, no. 23, pp. 2680-2690, 2018.
- [5] C. Boswell and S. Cannon, *Introduction to nursing research*. Jones & Bartlett Learning, 2018.
- [6] B. M. Melnyk *et al.*, "The First US Study on Nurses' Evidence-Based Practice Competencies Indicates Major Deficits That Threaten Healthcare Quality, Safety, and Patient Outcomes," *Worldviews on Evidence-Based Nursing*, vol. 15, no. 1, pp. 16-25, 2018.
- [7] L. Wallis, "Barriers to implementing evidence-based practice remain high for US nurses," *AJN The American Journal of Nursing*, vol. 112, no. 12, p. 15, 2012.
- [8] B. Johnston *et al.*, "Exploring the barriers to and facilitators of implementing research into practice," *British Journal of Community Nursing*, vol. 21, no. 8, pp. 392-398, 2016, doi: 10.12968/bjcn.2016.21.8.392.
- [9] R. R. DeBruyn, S. C. Ochoa-Marín, and S. Semenic, "Barriers and facilitators to Evidence-Based Nursing in Colombia: Perspectives of nurse educators, nurse researchers and graduate students/Barreras y facilitadores en la práctica de la Enfermería Basada en la Evidencia en Medellín, Colombia," *Investigación y Educación en Enfermería*, vol. 32, no. 1, p. 9, 2014.
- [10] C. A. Bowers, "Barriers to Implementation of Evidence-based Practices in a Critical Care Unit," Nelson Mandela Metropolitan University, 2014.
- [11] M. A. Kalaldehy, R. Watson, and M. Hayter, "Jordanian intensive care nurses' perspectives on evidence-based practice in nutritional care," *British Journal of Nursing*, vol. 23, no. 19, pp. 1023-1029, 2014, doi: 10.12968/bjon.2014.23.19.1023.
- [12] Å. Renolen and E. Hjälmhult, "Nurses experience of using scientific knowledge in clinical practice: a grounded theory study," *Scandinavian Journal of Caring Sciences*, vol. 29, no. 4, pp. 633-641, 2015, doi: 10.1111/scs.12191.
- [13] S. Sidani *et al.*, "Nurses' Perceptions of Interventions for the Management of Patient-Oriented Outcomes: A Key Factor for Evidence-Based Practice: Perceptions of Interventions," *Worldviews on Evidence-Based Nursing*, vol. 13, no. 1, pp. 66-74, 2016, doi: 10.1111/wvn.12129.
- [14] S. Kc, P. R. Subramaniam, and S. Paudel, "Barriers and Facilitators of Utilizing Research Among Nurses in Nepal," *Journal of continuing education in nursing*, vol. 47, no. 4, pp. 171-179, 2016, doi: 10.3928/00220124-20160322-07.
- [15] W. Gifford *et al.*, "When east meets west: a qualitative study of barriers and facilitators to evidence-based practice in Hunan China," *BMC nursing*, vol. 17, no. 1, pp. 26-11, 2018, doi: 10.1186/s12912-018-0295-x.
- [16] P. Jordan, C. Bowers, and D. Morton, "Barriers to implementing evidence-based practice in a private intensive care unit in the Eastern Cape," *Southern African Journal of Critical Care*, vol. 32, no. 2, pp. 50-54, 2016.
- [17] M. Khammarnia, M. Haj Mohammadi, Z. Amani, S. Rezaeian, and F. Setoodehzadeh, "Barriers to implementation of evidence based practice in zahedan teaching hospitals, iran, 2014," *Nursing research and practice*, vol. 2015, pp. 357140-5, 2015, doi: 10.1155/2015/357140.

- [18] J. Farokhzadian, R. Khajouei, and L. Ahmadian, "Evaluating factors associated with implementing evidence-based practice in nursing," *Journal of Evaluation in Clinical Practice*, vol. 21, no. 6, pp. 1107-1113, 2015, doi: 10.1111/jep.12480.
- [19] E. Azmoude *et al.*, "Midwives' Attitude and Barriers of Evidence Based Practice in Maternity Care," *Malaysian Journal of Medical Sciences*, vol. 25, no. 3, pp. 120-128, 2018, doi: 10.21315/mjms2018.25.3.12.
- [20] D. Polit and C. Beck, "Essentials of nursing research: Appraising evidence for nursing practice," ed: Wolters Kluwer/Lippincott/Williams Wilkins Health, Philadelphia, PA, USA, 2014.
- [21] D. Dang and S. L. Dearholt, *Johns Hopkins nursing evidence-based practice: Model and guidelines*. Sigma Theta Tau, 2017.