

Experiences of nurses in using Evidenced-based Nursing (EBN)

A Literature Review

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Abstract <p>The aim of the searech was to study the experiences of nurses with EBN using existing literature. The purpose was to generate information that can be used to promote the use of EBNP among nurses.</p> <p>The study was implemented as a literature review. The data were collected using two databases: CINAHL and PUBMED, resulting in the selection of sixteen articles that were analyzed using inductive content analysis. The following three main categories: the influence of nurses' competence, organizational factors and personal factors.</p> <p>In conclusion, it was found from all the 16 articles reviewed in this study had importance issues of interest among nurses using EBN. The nurses had some sort of knowledge about evidence-based nursing. However, one of the major concerns was time to put it into practice. Also, the results showed that participants were used to the old practices and procedures because it was easier for them. Lastly, workload was one of the major factors why nurses were not able implement EBN. Further studies are required to understand nurse managers and administrator's readiness and willingness to train nurses about the importance of evidence-based nursing.</p>		
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1 Introduction

To increase the expectations of higher nursing care, it is no longer acceptable for nurses to deliver nursing care on trial and error, personal experiences, socio-cultural beliefs or experiences (Hao et al, 2016). Currently, nursing profession emphasizes on the basis Evidence-Based Practice (EBP), which needs to seek and apply the best evidence available (Schmidt & Brown, 2014). Basically, evidence-based nursing practice is a scientific process that seeks to validate and fine-tune existing knowledge, develop fresh ideas impacting on nursing care. This subsequently promotes quality and efficiency for clients, families, healthcare service providers, and the entity of the healthcare system (Brown, 2009; Craig & Smyth, 2007; Cullum, Ciliska, Haynes, & Marks 2008). Using evidence-based nursing practice to provide care to patients increases the nurse's confidence. Incorporating evidence-based practice into the nursing care may also help the hospital achieve better patient outcome (Stevens, K. 2013).

Evidence-based nursing practice increases the working efficiency of nurses. Making decisions based on knowledge that is backed by research makes it easier for a nurse to make informed choices about what care would be better for the patient as opposed to trying something that may or may not be beneficial. It empowers nurses and save them time, which can devote to patients care (Wood 2014.) Gerrish et al, (2008) aimed at comparing the factors influencing the development of evidence-based practice identified by junior and senior nurses. But in furtherance, this report looks at the practical experiences of these nurses in rendering their evidenced-based knowledge

and skills in their clinical practice. Subsequently, affording us the opportunity to provide information that can be used to promote the use of EBP among nurses. With several works and loads of information already available out there with some done several years ago that need to be synthesized to make an informed decision on EBN, this study will be a positive addition (Wood 2014.)

2 Development of evidence based nursing and its importance

2.1 Evidence-Based Nursing (EBN)

Nursing profession has gone through a great deal of metamorphosis over the years, and there continue to be constant changes (Dingwall et al, 2002). Fast forward twenty-first century, there is now a fair idea of what is expected of a professional nurse. The policymakers, the managers, clients, and all other stakeholders of the healthcare system place a great deal of expectation on the nurse. To be able to confidently and reliably dispatch their duties and responsibilities, nurses must ensure a safeguarded service. The healthcare system is designed in such way that its bases evidence-based policies, management protocols, and service guidance (WHO, 2015.) The nurse being a primary part of the healthcare system, must be able to deliver services with optimum credibility and confidentiality. This means care must be strategically oriented with an informed approach, a data-based reference emanating from research (Scott & McSherry 2008.)

The nurse must be integrated with clinically and systematically researched evidence (Sacket D. 1996). Thus, holistically together with professional competence, client values and expectations as well as using scientific evidence information in making clinical decisions. Evidence-based nursing (EBN) is way of giving quality decisions and providing nursing care based on the most current and relevant research available on the topic. Also, providing care, which has been proven through researched evidence of high-quality studies and statistically with significant research findings. EBN aim to manage the health problems of a patients based on current research findings. It involves several processes that can contribute to understanding the condition of the patient and the effectiveness of treatment (Scott & McSherry 2008.)

Evidence based nursing is a collection of research evidence and how to apply them in clinical decision making, this allows nurses to analysis, interpret, make decision and apply knowledge into practice. Its purpose can be used in research, practice and education which all work for a better patient outcome (Illinois Nurses Association 2015). The healthcare environment is changing rapidly, creating the need for healthcare providers to continually search, assess, and evaluate evidence as it becomes available (IOM, 2001). On the other hand, with the development of health care, evidence-based nursing is the most effective way for the development in the nursing care (Scott & McSherry 2008).

2.2 The Process of Evidence Based Nursing

Evidence based nursing involves several processes that help nursing professionals to contribute to understand the condition of the patient and the effectiveness of certain treatment (Renate 2014, Scott & McSherry 2008).

Identify clinical areas to promote best practice

Many clinical problems in clinics, hospitals and other health facilities calls for investigations. Such problems may include the prevalence of a condition or its associated problems; concerns about disparities in practice or care gaps; cost associated with different practice options; concerns about the effectiveness of practice; desire to keep practice updated and awareness of the existence of evidence-based guidelines. Once an area is being identified to promote best practice, there is the need to establish clear goals or aims (Bernhofer 2015; Melnyk et al 2010.).

Establish the scope

A clear goal for the development or implementation of EBN should be established. This helps the research to stay focus. A clearly defined goal will prevent the research to deviate from the scope of the research (Bernhofer 2015; Melnyk et al 2010.). The scope and purpose of the guidelines should be well-described and specific to patient/client to whom the guideline is meant for. The research methods and procedures will greatly depend on the aim of the research. Using the PICO's questions can serves as a guided question to limit

the scope of the search. (P) patient, population, or process of interest, (I) Intervention of interest or best practice to be assessed, (C) context or comparison group or unit, and (O) outcome or effect of interest (Hastings & Fisher 2014).

Start a search strategy

The search strategy should be exact about the research question and in a easier way, because the various electronic data base contains numerous publications. Also, the search strategy should aim at producing a manageable number of relevant studies, it should not miss too many relevant studies (Melnyk et al 2010; Rew 2011). Using multiple databases will minimize the risk of overlooking relevant studies for answering the research question(s). A manual search can also be done to explore reference list related studies to ensure that not too many relevant studies are missing. Define the key words or phrases to be used and how they will be combined, conjoined or twisted and consider language limitations (Bernhofer 2015; Corry et al 2013; Rew 2011).

Appraising the evidence

Not all published research evidence can be used in decision-making about a patients' care. Weak research designs can make interventions look better than they really are. It is therefore essential to assess the importance, applicability and methodological rigor of each paper using standardized critical appraisal instruments (Bernhofer 2015). Studies shows that critical appraisal of initial research article should be done. However, depending on the research design, different tools can be used. Craig & Smyth (2007) suggest using the following

questions to critically appraise potential studies: is the study good enough to produce the results that can be used to approach clinical decision; what are the meaning of the results for the patient; and can the result be applied in my clinical setting?

Adapt guidelines for local use

Having synthesized the evidence, it can either be adopted or adapted for use. To adopt a guideline means to accept and use the entire recommendations in the guidelines. In some circumstances only part of the guidelines may be adapted. Thus, if it is not feasible for some reason, part of the guidelines may be adjusted to meet the needs of the client. Then the research evidence goes into clinical decision-making that requires professional expertise and client/patient's preferences and beliefs alongside availability of resources and best research evidence (Craig & Smyth 2007). It needs all stakeholders' involvement. Finally, there should be a plan for when and how the recommendations will be reviewed and updated. Criteria to determine when a guideline should be updated include changes in evidence on existing benefits or harms; available interventions; and resources available for health care (Craig & Smyth 2007, Melnyk et al 2010)

2.3 The benefits of EBN

Research utilization is the application of scientific research into practice. The practice changes may be based on just one study. Evidence-based practice is

much broader. It sets out to answer a clinical question by exploring all available research evidence, and then incorporates the clinician's expertise and the patients' preferences and values before recommending a practice change (Godshall, 2010). However, evidence-based nursing and evidence-based practice plays essential role to show optimized result in nursing.

Besides that, evidence-based nursing does not only benefit for patients, but also self-protection for nurses. In some ways, EBN is a pre-education to minimize crisis for nurses in their working life (Stayt 2010, Illinois Nurses Association 2015). Providing the best possible patient care is the hallmark of nursing practice. Evidence-based nursing practice allows nurses to direct patient care according to scientific research. For instance, the use of randomized controlled trials, patient care studies and compiled patient data, relying on nursing interventions that have proven successful in the past with similar patient populations. Patients and families receive more consistent nursing interventions and achieve better clinical outcomes when research evidence is put into practice (Wood, 2014).

Nurses regularly make decisions on what care to provide for their patients. These decisions can impact the patients' health negatively or positively. The patient will likely experience a better outcome when the care is based on researched and proven methods. The health care industry's embrace of evidence-based practice as health care costs continue to rise is not coincidental. Evidence-based nursing practice across the health care spectrum often results

in better patient outcomes and lowered health care costs. Thus; fewer demands on health care resources. Wood, 2014 cites as an example the traditional nursing practice of instilling normal saline before suctioning a mechanically ventilated patient. Now, nurses know that the saline offers no benefit and just wastes time and supplies (Wood, 2014). There are numerous advantages of evidence-based practice for patients and healthcare professionals. Rather than referring to outdated practices and traditions to make decisions about patient care, evidence-based nursing practice allows nurses to contribute to the research processes and apply the most recent research and practices while discarding unproven methods. It also provides something just as important as a sense of authority in practice. Nurses who embrace evidence-based practice feel empowered and enjoy a greater satisfaction with their work (Wood, 2014.)

2.4 Challenges of EBN

Workload has been found to be a challenge to implementing research evidence into practice. There is lack of resources and for nurses and healthcare services in most part of the world. This situation increases the pressure on nurses and other healthcare personnel to meet the demands on what to do. Nurses therefore prioritize patient-based tasks such as; medication dispensing, goal setting, responding to patient needs, discharge planning, discussing with family members and many more over developing and implementing Evidence-based guidelines (Williams et al. 2014.) The issues of lack of searching skills, scarcity of time, and access requirements to the use electronic databases are also some

of the difficulties nurse might face in implementing EBN (Sadoughi, 2017). Students who either faced with the problem of time constraints in the face of enormous schoolwork to make room for doing searches on the internet or do not have the requisite knowledge and skills on how to conduct searches. Most of the current materials are not for free online.

The existence gaps between classroom instructions with students and nurses' observation of routine clinical practices (McConnell et al, 2007), nurses are baffled with the problem of not being able to implement or observe what have been taught as student in the classroom when it comes to clinical skills, especially when they go out for clinical practice. Most of the working protocols nurses observe follows on the field are different from what have learned in school as students. This, in turn, goes to does not allow the possibility of the nurses practicing what has been acquired in the classroom, as it is almost impossible practicing what is non-existent in the wards (McConnell et al, 2007.)

3 Aim, purpose and research question

The aim of this study is to explore the experiences of nurses with EBN using existing literature. The purpose is to generate information that can be used to promote the use of EBNP among nurses. The research question is what are the experiences of nurses about the use of Evidence-based Nursing?

4 Methodology

4.1 Literature Review

A literature review can be a summary of the sources which is based on principles of scientific research, research plan and gives interpretation of old material or combine new with old interpretations. (Webb & Roe 2008) A literature review process begins with a research question that defines the topic of the study. The process includes; research plan, the research question, data search, data collection, and data synthesis and writing the results. The research plan helps to know the entire research process. Literature review gives the chance to use the work of others as a source of information in conducting new studies (Myllärniemi, 2016).

Researchers can use the data from previously done studies to do a further and or another study by identifying, analyzing, and combining available works significant to the experiences of nurses using evidence-based nursing. (Kitchenham 2004 in Myllärniemi, 2016). Finding answers from previous studies about the experiences of nurses with evidence-based nursing will as well help in getting a good comprehension of the topic (Webster 2002 & Watson; Kitchenham 2004 in Myllärniemi, 2016). This will highlight the gaps, propose ideas and suggestions for improving the use of evidence-base nursing among nurses. The current literature review will serve as a pivot in detecting and integrating evidence-based knowledge among nurses. This review will help to avoid repetitions, and preventing wasting resources in conducting a new research when several scholars have investigated into nurses' experiences with evidence-based nursing. (Steinert & Thomas, 2016).

4.2 Scientific Literature Search

Articles used in this study were obtained from CINAHL and PUBMED database. Different combinations of the following key words were used in the search for the articles: nurs* AND perception OR attitude OR Opinion OR experiences AND “evidence-based nursing” OR “evidence based nursing” OR “EBN”. The predefined inclusion and exclusion criteria (table 1) allowed the inclusion of all available peer reviewed articles published in English language, from 2007 to 2019 that describe the experiences of nurses with evidence-based nursing. The selection of the articles started by screening the titles, then by the abstracts and then full text as indicated in (figure 1) prisma flow chart. The articles that answer the research question and meet the inclusion criteria were included in the analysis.

Table 1. Inclusion and exclusion criteria.

Inclusion Criteria	Exclusion Criteria
Language of publication in English	Not primary research
Scientific based articles	literature review
Published between 2009-2019	Not relevant to the research topic
Articles that answer the research question	Not answering the research question
Full text articles	
Primary research	
Peer-reviewed	

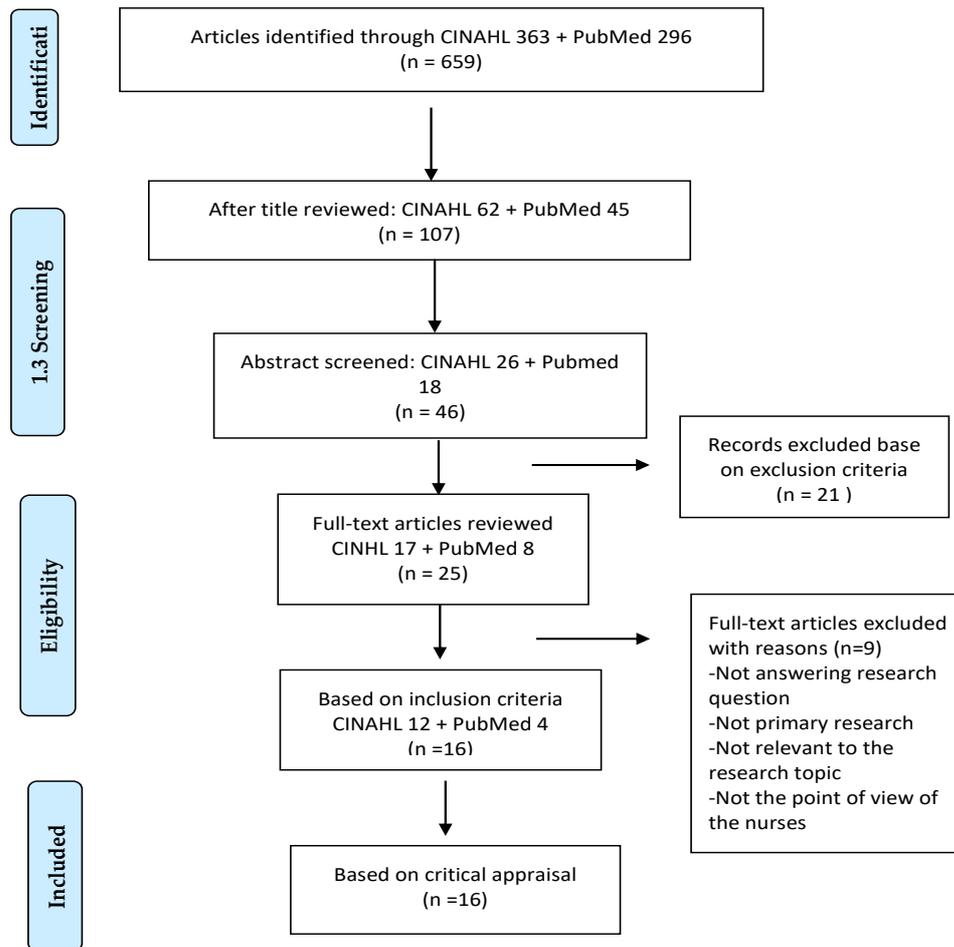


Figure 1 . A PRISMA flow chart of the selection process

4.3 Appraisal of Data

For the purpose of accessing the quality of the research article, this study used the adapted appraisal tool originally suggested by Hawker et al. (2002). The tool provides the score for 9 different parts of a research articles. Each part is awarded a score from 1 "poor" to 4 "good". The total score is summed of all the 9 parts of the article, ranging from 9 "very poor" to 36 "good". (Hawker et al., 2002, 1292). This help to evaluate the abstract and title, introduction and

aims, method and data, sampling as well as data analysis. Other parts assessed include ethics and bias, results Transferability and the implication of the study. Scrutinizing each of the articles included in the study ensure consistency in evaluating quality of articles base on their methodological rigor. The score of the articles included in the study ranged between 26 and 35. The researchers evaluated the articles separately and did the final analysis.

4.4 Data Extraction and synthesis

The selected data was analyzed according to the processes suggested by Whittemore (2005). The process begins by data reduction, data display, data comparison, drawing of conclusions and verification. The data analysis started by reading through the chosen studies repeatedly to get familiar with it. Data extracting or reduction is deciding what information to take from the articles. This was done with the research question in mind. At this stage, the relevant data that describe the experiences of nurses using evidence-based nursing was extracted from the results or discussion parts of the chosen articles. (Whittemore, 2005) Data display was the next step, which is done by converting the extracted onto an excel sheet spread sheet to help the next stage for comparison. In the comparison phase, the extracted data was then divided into main categories and sub categories according to their meanings (figure 3). The categories were then given names that describe the content. Drawing conclusion and verification is the final part of data analysis. This part includes describing the patterns, themes, relationships, or conclusions. It requires

verifying with primary source data to ensure accuracy and confirmability (Whittemore 2005; Elo & Kyngas. 2008).

5 Results

A total of all 16 selected articles, 5 of them are from the United states, 3 of them are from China, 2 of them are from England, one of them is from Iran, Newzealand, Singapore, Ireland, Africa, and Finland; 4 of them are published by 2019, 3 of them are published by 2015, 2 of the are published by 2008 and 2010, one of them is published by 2013, 2010, 2009, 2014 and 2011. The experiences of nurses regarding evidence –based nursing can be described in three main categories with n subcategories (figure 3). These categories and subcategories are described further below.

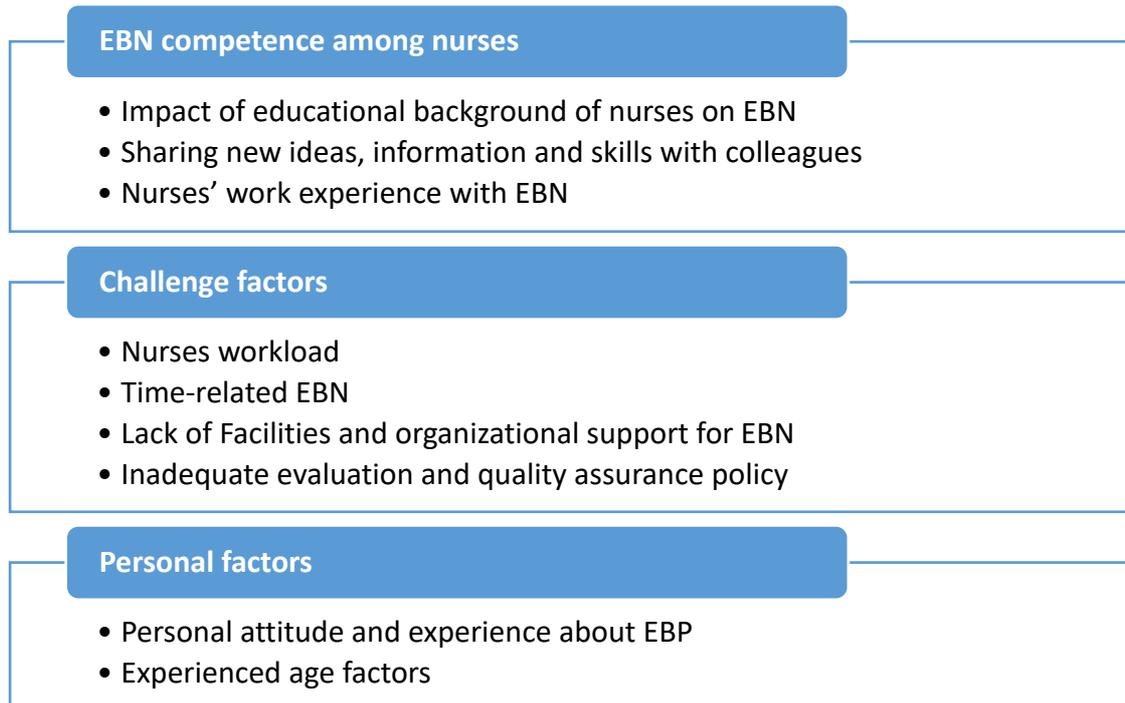


Figure 2. A Mind map of the main categories and sub-categories of nurses' experiences with EBN

5.1 EBN competence among nurses

Impact of educational background of nurses on EBN: The experiences about EBN were higher with nurses with higher education and for nurse leaders. This is because nurse leaders with increase education have demonstrate confidence in practicing EBN skills than others, this make nurse leaders described their practice as evidence-based more than staff nurses (Kimberly et al. 2019, Lisa et al. 2015). Also, nurses with higher degrees were more skillful in reading and gathering evidence-based literature for their practice. Nurses with lower education qualification lack a good understanding of research and statistical terminologies than nurses who had completed tertiary education (Adamu &

Naidoo, 2015, Lisa et al. 2015, Munroe, et. al. 2008). Additionally, Heydari et al. (2014) found that, nurses with master's degrees displayed greater knowledge or skills and practice of EBP, and more positive attitudes than nurses with bachelor's degrees.

The findings from (Prior, et.al 2010 agreed that educational level of the nurses positively influences nurses' understanding of EBN and knowledge as well as the skills required to carefully undertake a research and translate findings into practice. Nurses' attitudes toward EBN and the educational preparation of the nurses were important factors influencing the practice and had a direct impact on nurses' in using EBN (Mahvash & Mehrdad 2009, Heinonen et al. 2019).

Nurses reported that their poorest practice of EBN skills were the problem of critically analyzing evidence information and retrieving evidence (Zhou, 2016.) Also, nurses preferred to seek help from their supervisors and other colleagues to acquire the needed information. There was a low use of electronic information sources assess by nurses, and this was found as a challenge because a considerable amount of the current research information is only available in electronic format. However, the use of human sources and printed sources for information gathering were referenced by a sizable number of nurses (Shaheen, et. al. 2011).

Inadequate knowledge and skills about EBN: Most Registered nurses stated that they always get information from: the client, expert clinical nurses, literature,

nursing education and in-service and workshop training. Also, they gathered and shared new ideas and information from colleagues, which they found more comfortable compared to the use of EBP (Lisa et al. 2015, Zhou 2016). Knowledge gained from colleagues, senior nurses, practitioners and doctors also influence nurses work prominently, but less frequently used scientific sources such as: journal articles, textbooks, the internet and pharmaceutical literature (Gerrish, & Cooke 2013). There was insufficient knowledge and skills for nurses in formulating clinical question and appraisal of articles. Thus, they have difficulty performing focused searches on clinically related topics or lack the ability to assess the quality of research reports and their applicability (YIP et al. 2013).

Nurses complained that insufficient research courses and nursing educational resources for teaching and learning of research utilization. For example; one of the participants indicated that: she only became familiar with research methodology during her masters program (Heydari et al. 2014, Mahvash & Mehrdad 2009.) Nurse mentioned that they don't have necessary knowledge and skills to conduct research and the utilization. The following explanation was offered by staff nurse: It is not an easy task for us to base the nursing on research findings; we need the appropriate education to recognize the individual stages necessary. (Mahvash & Mehrdad 2009)

Nurses work experience influenced the use of EBN: The length of time practicing in health care service was negatively correlated with knowledge and skills

relevant to the implementation of EBN. There was no significant correlation between knowledge and skills relevant to the implementation of EBN and length of time registered and frequency of reading professional journals. There was a positive and negative link between the length of time of practicing as a nurse in the health care. (Heinonen et al. 2019). Where nurses who have more nursing experience and have higher studies at the master's level are more professional and practice the qualities that benefit client care directly and help health outcomes in patients by practicing EBN. Also, the ability to apply theory into practice, and the increase of taking clinical thinking and decision making was most done by nurses with experience (Lisa et al 2015, Prior, et al. 2010). Gerrish and Cooke (2013), reported that nurses lacked confidence in finding articles with evidence, reviewing it, and judging its quality. Some nurses felt that they were at the level of beginners.

5.2 Organizational factors

Nurses workload: Nurses expressed knowledge about EBP and agreed that workload was too much for them to keep up with all the current evidence. The more the workload and pressure on nurses, the lower the attitude of nurses towards EBP (Adamu & Naidoo 2015, Chang et al. 2010). Nurses were ready to adopt new health care practices and were not strongly dedicated to traditional and old techniques (Shaheen, et. al. 2011). Moreover, more nurses agreed that because of much workload, it is quite challenging to keep up with all the latest EBP. Nurses were willing and ready to adapt to new techniques,

provided they were granted enough time off from work to learn and understand. (Fifolt et al. 2014.)

Lack of time and teamwork: Nurses reported feeling isolated from knowledgeable colleagues with whom to discuss EBN. Also, some nurses did not feel capable of evaluating the quality of the research individually but rather search and interpret articles in team. In addition, having skilled and knowledgeable persons as mentors could help nurses to acquire higher levels of knowledge and practice of EBN more extensively after their training (Chang, et al. 2010, YIP et al. 2013). The issue of lack of time tends to be a critical factor in the adoption and usage of EBN. Finding Evidence-based information was not a problem, some nurses knew how to find the evidence, but time and work-related stress were barriers for not practicing EBN (Chang et al. 2010, Lisa et al 2015, YIP et al. 2013, Hodges.....). For instance, some nurses said, there might be time to search, but to comprehend, interpret and implement researched outcomes would demand much time (Shaheen et. al. 2011, YIP et al. 2013, Zhou 2016). The greatest barriers to nurses accessing and reviewing evidence-based information relate to time and their skills in judging the quality of information. Nurses were generally more confident about where to locate protocols and organizational information, but research information appeared to be more difficult to find (Gerrish, & Cooke 2013),

Lack of facilities and organizational support for EBN: Iranian nurses expressed a limited professional and organizational support for conducting and developing nursing research. They further mentioned that, the health care

system has not paid enough attention to nurses' support requirements to be research users. Lack of support in providing facilities and equipment, such as; computers and access to internet to access online information and research were major barriers EBN. The nurses highlighted that, there is no emotional, informational and practical supportive environment for them. A head nurse pointed out that there is little opportunity for the nurses to use research in their practice, because they are not provided with enough training support. The nurses pointed out that organizational and motivation supports are the way forward to strengthening individual and organizational development. However, the nurses did not have any access to any English nursing research journal. Or in some cases the journals were not up-to-date, and some are simply newsletters and not research-based articles (Mahvash & Mehrdad 2009).

The participant noted that lack of educational facilities, lack of focus on continuing and in-service education in research utilization and poor access to expert colleagues are the reasons for insufficient research education in nursing. Participants noted that the shortcoming of their organization in providing a suitable educational setting was a hindrance to EBN. A participant reported "I have been working as a nurse for 14 years now and I have only been using the same basic training I was taught in nursing school; research is not included". (Mahvash & Mehrdad 2009) The institutional and nursing organizational structure does not support a unilateral decision making. Not having enough authority to use new ideas in client care procedures also goes to affect the use of EBP (Shaheen, et. al. 2011). Another factor which was militating against the adoption of EBP was the lack of mentors who had adequate experience in the

use of EBP. Nurses also felt there was not enough support system for understandable literature enquiry. (Shaheen, et. al. 2011)

Inadequate evaluation and quality assurance policy: Nurses in Irian are not evaluated for their job on evidence-based practice, so it seems unnecessary to search and utilize the results in the nursing process. According to the nurses' research utilization is not included in the nursing evaluation checklist; they are assessed based on in-patient notes, rather than on research-based caring for the patients. (Mahvash & Mehrdad 2009) This discourages the clinical nurses from research-based practice. Nurses complained that, managers or administrators do not see the need for research utilization in their facilities. The participants also discussed that if research utilization is not incorporated in evaluation policy, nurses' motivation will decrease in using the research (Mahvash & Mehrdad 2009).

5.3 Personal factors

Nurses attitude towards EBN: Many nurses indicated that, they think their everyday nursing practice was evidence-based, because they followed hospital policies. Other nurses did not have any idea if their practice was evidence-based (Munroe, et. al. 2008). There was a statistically significant relationship with attitudes toward EBN and practice of the nurses of EBP. Also, positive practice, beliefs and attitudes of nurses were shown to influence the utilization of EBP in clinical areas (Munroe, et. al. 2008). Nurses level of registration preparation was also one of the characteristics of the nurses which had a positive impact with the practice of nurses of EBP (Prior, et.al 2010).

Nurses viewed EBP positively and their attitudes towards EBP tended to be more positive than their knowledge or skills and practice of EBP. On the other hand, all nurses were faced with the same level of barriers, but registered nurses with administrative work hold stronger attitude and skills on EBP (Zhou, 2016).

Whereas some nurses believed they were confident in understanding the language used in research articles, others had less confidence about their abilities in understanding the statistics used in research articles. However, the hospital agrees to encouraged staff to pursue new ideas on how to conduct search, with this idea, some nurses in the hospital were encouraged to carry out research. (Hart, 2008). Furthermore, some nurses did not like if people query their clinical practice which is based on research. While others indicated that most of the researched findings were not of significance to their daily practice, although majority were able to identify clinical problems for which they could utilize EBP (Adamu and Naidoo, 2015, Hart, 2008).

Nurses who do not see the important of research for practice, feels the benefits of changing practice will be small, and therefore unwilling to change or try new ideas which is seen as waste of time with little benefit for self. (Chang, et al. 2010).

The age of nurses: Nurses with more years of experience who are aged reported to have stronger knowledge and more positive attitude towards the practice

of EBN (Zhou, 2016). Most young nurses perceived more barriers to EBNP than experienced nurses, including lack of time and resources, decreased confidence in accessing evidence, and implementing evidence-based changes in their practice. As noted previously, the youngest group of nurses was the smallest group in this sample. However, it seems feasible that younger nurses would have more knowledge gained from schooling in comparison to more experienced nurses who may be more aged with much experiences or knowledge gained from attending several conferences throughout their careers. Expert nurses as mentors can achieve this through teaching, role modelling, assisting nurses with clinical problem solving and facilitating evidence-based practice changes.

6 Discussion

6.1 Discussion of key results

The current review indicate that nurses seems to have difficulty to use evidence-based information because of lack of knowledge and skills (Gerrish, & Cooke 2013). This result call for management to organize training for nurses to update them about the use of evidence-based nursing. According to the results of this study nurses appear not to have enough time to implement evidence-based nursing. (Lisa, et al 2015). As indicated by Prior, et.al (2010) the implementation of evidence-based nursing approach leads to higher levels of satisfaction than traditional approaches. Therefore, management should make a conscious effort to provide enough resource to the development and implement evidence-based nursing. The results further show that nurses are

used to old practices because they found it easier to practice (Shaheen, et. al. 2011).

To promote the use of evidence-based approach among nurses, it will be important to sensitize and motivate nurses about current practices and procedures base on research evidence because practice get outdated rapidly (Grove et al. 2013). In addition, educating nurses about some of the importance of evidence-based nursing such improving health care and better care outcomes for the population could motivate nurses to implement evidence-based nursing (Grove et al. 2013). Also, another factor which was militating against the adoption of EBP was the lack of mentors who had adequate experience in the use of EBP. Nurses also felt there was not enough support system for understandable literature enquiry. (Shaheen, et. al. 2011). Again, demonstrating to nurses that using evidence-based approach leads to higher levels of satisfaction among patient could be significant to get nurses to consider using evidence-based nursing (Grove et al. 2013). Furthermore, this study exposed a lack of confidence among nurses in finding evidence-based material, and their inability in assessing and judging the quality of the evidence. This point to the importance of developing nurses' skills in accessing and reviewing research information. However, a restraint of time and resources will mean a difficulty to get nurses to undertake training to prepare nurses for such competences (Gerrish and Cooke 2013).

6.2 Credibility and ethical considerations

In this study all the procedures for retrieving, assessing and analyzing the included articles are described step-by-step and therefore have the potential to present a comprehensive understanding of the topic. Also, the articles included in the study are from different backgrounds and therefore give a broader perspective to the issue under discussion (Whittemore & Knalf 2005). The study was conducted by three independent researchers who reviewed the quality of the included in this study separately to increase the credibility of the study. Open discussions were made to reach an agreement at any stage that the researchers differed in opinions.

This research could lack some important and valuable information, since articles published in English were included in this study. Since the study articles were limited to 10years (2009-2019), therefore, older research studies that maybe important might been missed from this study. Also, the current study was not founded, therefore only research articles available free of charge in the University's database were used. Hence articles with pay access that might have been relevant might have been avoided.

The included articles were obtained through CINHL which is... "the world's largest source of full text for nursing and allied health journals and provides full text for more than 1,300 journals indexed in CINAHL." (CINAHL 2019). This further increase the reliability of the study. Additionally, the articles included in the study were from America, New Zealand, Finland, Canada, Singapore, Taiwan, Iran, United Kingdom, Nigeria and China. It would be

difficult for a single imperial study to gather data from all these countries. The research was done according to JAMK`s thesis instructions and all articles were up to date between 2008 to 2018. Also, all articles were evidence-based and empirical studies. The statement in the study were all clearly referenced to the authors in the articles. Therefore, plagiarism was avoided.

6.3 Conclusions and recommendations for further studies

The results from all the 16 articles reviewed in this study had importance issues of interest among nurses using EBN. The nurses had some sort of knowledge about evidence-based nursing. However, one of the major concerns was time to put it into practice. Also, the results showed that participant were used to the old practices and procedures because it was easier for them. Furthermore, some of the nurse seems not to have the skills to search for evidence-based information from the internet, whereas others had difficulty understanding scientific information.

Lack of facilities and institutional interest were identified as part of the challenges to implement evidence-based nursing. Culture also played a role, because perceptions, beliefs, attitudes and behaviours towards the use of EBN does not show the readiness to use evidence based nursing in day to day care. Lastly, workload was one of the major factors why nurses were not able implement EBN. Further studies is required to understand nurse managers and administrators readiness and willingness to train nurses about the importance of evidence-based nursing.

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Key

EBP- Evidence-based practice

EBN- Evidenced-based nursing

Appendices

Appendix 1. A summary of the included studies.

Author	Title	Journal	Year	Quality Approved Total score allocation Maximum score
Donna Munroe, Pamela Duffy, Cheryl Fisher,	Nurse Knowledge, Skills, and Attitudes Related to Evidence-Based Practice: Before and After Organizational Supports	MEDSURG Nursing	2008	35
Patsy Prior, Jill Wilkinson, Stephen Neville	Practice nurse use of evidence in clinical practice: A descriptive survey	Nursing Praxis in New Zealand	2010	33
Lisa M Garland Baird, Tess Miller	Factors influencing evidence-based practice for community nurses	British journal of Community Nursing	2015	32

YIP Wai Kin, SITI ZUBAIDAH Mordiff, SHEN Liang, Emily Neo Kim ANG, ZHANG Xue, SHAHEED Majid	Nurses' perception towards evidence- based practice: A descriptive study	Singapore Nur- sing Journal	2013	32
Hui Chen Chang, Cherry Rus- sell, Mairwen K. Jones,	Implementing Evi- dence-Based Prac- tice in Taiwanese Nursing Homes At- titudes and Per- ceived Barriers and Facilitators	Journal of Ge- rontological Nursing	2010	34
Patricia Hart, LeeAnna Eaton, Mar- lette Buckner, Beth N. Mor- row, Darcy T. Barrett, Dan- ielle D. Fraser, Dwayne	Effectiveness of a Computer-Based Educational Pro- gram on Nurses' Knowledge, Atti- tude, and Skill Level Related to Evidence- Based Practice	Worldviews on Evidence- Based Nursing	2008	33

Hooks, Rebecca L. Shar- rer,				
Fen Zhou, Yufang Hao, Hong Guo, Hongxia Liu	Attitude, Knowledge, and Practice on Evi- dence-Based Nurs- ing among Regis- tered Nurses in Tra- ditional Chinese Medicine Hospitals: A Multiple Center Cross-Sectional Sur- vey in China	Hindawi Pub- lishing Corpo- ration Evi- dence-Based Complemen- tary and Alter- native Medi- cine	2016	26
Mahvash Sal- sali, Neda Mehrddad	Iranian nurses' con- straint for research utilization	BMC Nursing	2009	31
Kate Gerrish, Jo Cooke	Factors influencing evidence-based practice among community nurses	<u>British Journal of Commu- nity Nursing.</u> British	2015	29
Aliyu Adamu, Joanne Rachel Naidoo,	EXPLORING THE PERCEPTIONS OF REGISTERED NURSES TOWARDS	Africa Journal of Nursing and Midwifery	2015	33

	EVIDENCE-BASED PRACTICE IN A SELECTED GENERAL HOSPITAL IN NIGERIA			
Abbas Heydari, Seyed Reza, Mazlom, Hossein Ranjbar , Laura Scurlock-Evans,	A Study of Iranian Nurses' and Midwives' Knowledge, Attitudes, and Implementation of Evidence-Based Practice: The Time for Change Has Arrived	Worldviews on Evidence-Based Nursing,	2014	32
Shaheen Majid, Schubert Foo, Brendan Luyt, Xue Zhang, Yin-Leng Theng, Yun-Ke Chang, Intan A. Mokhtar,	Adopting evidence-based practice in clinical decision making: nurses' perceptions, knowledge, and barriers	Journal of the medical library association	2011	31

Kimberly A. Lewis Tiffany N. Ricks ,Antoinette Rowin,, Chip Ndlovu, Goldstein,Christina McElvogue	Does Simulation Training for Acute Care Nurses Improve Patient Safety Outcomes: A Systematic Review to Inform Evidence-Based Practice	Sigma Theta Tau International	2019	28
Heinonen, Kääriäinen, Juntunen, Mikkonen	Nursing students' experiences of nurse teacher mentoring and beneficial digital technologies in a clinical practice setting	Published by Elsevier Ltd	2019	26
Matthew Fifolt, McCormick, Carvalho, Lloyd, Alperin.	Connecting Public Health Students to Rural and Underserved Areas: Promoting Health Equity Through	Sage Journals	2019	25

	Field Placement Experiences			
Waxman, Bowler, For- neris, Kar- dong-Ed- gren, Riz- zolo.	Simulation as a Nursing Educa- tion Disrupter	Nursing Admi- nistration Quarterly	2019	26

Appendix 2: Summary of Critical Appraisal Scores

	Mark's Score	Esi's score	Siqi's score	Average
Article 1	34	35	35	34.7
Article 2	31	33	31	31.7
Article 3	26	32	32	30
Article 4	29	32	28	29.7
Article 5	34	31	30	31.7
Article 6	33	27	28	29.3
Article 7	24	26	25	25
Article 8	26	30	31	29
Article 9	27	25	29	27
Article 10	30	29	33	30.7
Article 11	28	32	26	28.7
Article 12	31	30	28	29.7
Article 13	27	28	28	27.7
Article 14	24	26	25	25
Article 15	24	25	25	24.7
Article 16	26	26	24	25.3
Average	28	29	30	29