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Barriers to Evidence-Based Nursing Practice Utilization from the Perspective of Nurse Managers

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Abstract:

Evidence-based practice is considered a foundation for the provision of quality care. Nurse managers (NMs) play an important role promoting evidence-based practice (EBP) on clinical units within hospitals. However, there is a dearth of research focused on NMs perspectives about barriers to evidence-based nursing practice utilization. The purpose of the study was to assess the barriers to evidence-based nursing practice utilization from the perspective of nurse managers. A descriptive comparative design was used. The study was conducted at Menoufia University hospital and Shebin El-Kom Teaching hospital. A convenient sample was used to select 90 nurse managers. Data was collected using the perceived barriers questionnaire. Nurse managers reported that there barriers related to perceived value of research (e.g, lack of interest, 74.4%), personal (inadequate computer skills, 50.0%) and administrative (lack of knowledge about research, 66.70%). So, it was concluded that nurse managers were challenged by a large number of barriers. It was recommended that the results of the study should be disseminated among the important key persons (nurse managers).

Key words: Evidence based nursing practice (EBNP), Barriers, Nurse Managers.

Introduction

In recent decades; the nursing discipline has begun to pay much greater attention to the necessity of the use of research findings into practice (Ezz, Zahran and El-Soussi, 2013). Evidence based utilization in nursing is the most important piece of the research process. Without such utilization, the research process is simply an exercise in academics. Evidence based utilization is now a part of the nurses' professional role and responsibility, which has been intertwined with concepts of efficiency, effectiveness, and quality improvement. In a profession such nursing, it is important that nurses demonstrate their practices as effective, efficient and more likely to be appropriate and justifiable (Squires, 2017).

Evidence based practice has been recognized by health care institutions as the gold standard for provision of safe and effective health care (Cruz et al., 2016). Society increasingly demands that health care be based on the best available evidence. Nurses have a societal obligation to use practices that are based on sound scientific evidence. The time from scientific discovery or publication of research to implementation in practice is lengthy and needs to be shortened. Nurse Managers can speed this process by using scientifically based strategies to facilitate the translation of research into practice (Wise, 2014).

Evidence-based practice (EBP) is a process designed to support and inform clinical and administrative decision-making by combining (a) the best available scientific evidence with regulatory and accreditation requirements for practice, (b) individual clinical, staff, leadership, and management judgment and expertise, and (c) patient and staff preferences (Stevens, 2013).

EBP is crucial in the overall health care delivery system because it can help reduce escalating health care costs, save time, afford better patient outcomes, and provide nurses with more autonomy in their practice, which can ultimately lead to greater job satisfaction and increased nurses' retention (Melnik and Fineout Overholt, 2015).

Despite the significant amount of literature regarding the benefits of EBP and nurses' positive attitudes toward it, there are many barriers for implementing EBP, and the process of implementing EBP is slow. Common barriers include: Lack of time to search for evidence, lack of understanding and interpreting skills for research findings, inadequate access to information technology, limited information technology (IT) skills, lack of autonomy to change practice, and lack of information searching skills (Al-Momani, Al-Barmawi, Al-Hadid, and Aljabery, 2016). Many factors however, can facilitate use of

EBP implementation including adequate time, education, access to information, organizational support, mentors, resources, increased awareness of and a positive attitude towards EBP (Davidson and Brown, 2014).

Additionally, the implementation of EB best practices is not just an individual, staff nurse-level pursuit. Too few nurses understand what best practices and evidence based practice are all about, and many organizational cultures do not support nurses who seek out and use research to change long standing practices, rooted in tradition rather than in science. Administrative support is needed to facilitate the utilization of evidence based nursing into practice (Prevost and Salyer, 2010).

Nurse Managers are administrative leaders accountable for the quality of patient care, exerting both expert knowledge and administrative power in the clinical setting, and are the connection between staff nurses and those on the executive level. Nurse Managers could be both a facilitator and a barrier to EBP. They could provide resources, encourage nurses and connect various stakeholders for evidence- based initiatives. Conversely, they can be considered a major barrier if nurses perceive they do not have adequate support from managers (Cheng, Feng, Hu and Broome , 2018). In view of these two contrasting perspectives of their role in influencing evidence implementation in nursing practice, active engagement of nurse managers is needed for practice change to occur (Davidson and Brown, 2014).

Significance of the study:

Worldwide, nurse managers (NMs) play an important role in promoting evidence-based practice (EBP) despite the extensive amount of research that has been conducted to evaluate evidence-based practice implementation; these practices have not been sufficiently incorporated into nursing practice in Egypt. Therefore, this study was done to

Assess the barriers to evidence-based nursing practice utilization from the perspectiveness of nurse managers.

Purpose of the study:

This study was conducted to assess the barriers to evidence-based nursing practice utilization from the perspectiveness of nurse managers.

Research questions:

- What are the perceived barriers that affect nurse managers' abilities to utilize evidence based nursing practice?

Methods

Research design: A descriptive comparative design was used in conducting this study.

Sample: A convenient sample of 90 nurse managers was recruited from Menoufia University hospital and Shebin El-kom Teaching hospital.

Inclusion criteria: They should have at least two years of experience working in the hospital.

Setting: This study was conducted in Menoufia University Hospital and Shebin El-kom Teaching hospital.

Data collection instruments: A structured questionnaire was used for data collection.

Perceived barriers questionnaire: This instrument was adopted from Funk et al., (1991) and modified by the investigator based on the literature review. It contained two parts:

- **Part one** displayed the socio-demographic characteristics of nurses such as name of hospital, age, nursing position, nursing qualifications, years of clinical experience, work place.
- **Part two** contained the barriers of evidence based practices. It consisted of 40 items. divided into five groups of barriers with 3-point response likert scales where "3" indicated "Agree"; score "2" for "Neutral"; and score "1" for "Disagree". There were five groups of "Barriers" such as perceived value of research, information resources, personal barriers, administrative and barriers of perceived utilization.

Validity:

A bilingual group of five experts was selected to test the content and face validity of the instruments. The panel included two professors from nursing administration department, two professors from Medical Surgical Nursing departments and one professor from Community Health Nursing department (Faculty of Nursing, Menoufia University). Necessary modifications and deleting of some questions were done to reach the final valid version of the instruments. The instruments were considered valid from the experts' perspective.

Reliability:

Perceived barriers questionnaire:

The instrument was tested to reliability by the internal consistency coefficient alpha ($\alpha=0.92$).

Methods:

Before any attempt to collect data, an official letter was submitted to the Dean of the Nursing College to collect data from the pre-mentioned study settings. Also, written letters were

submitted to the director of Teaching Hospital and the director of University Hospital to collect data from the pre-mentioned study subjects. The letter contained the title, purpose of the study, and methods of data collection.

Ethical consideration:

The study was conducted with careful attention to ethical standards of research and rights of the participants:-

- **Informed consent:**

The respondents were informed that participation was voluntary participation. So that informed consent was obtained by explaining the purpose, nature, time of conducting the study, potential benefits of the study and how data will be collected.

- **Anonymity and Confidentiality:**

The respondents were assured that the data will be treated as strictly confidential as possible. They were reassured that they weren't required to mention their names.

Pilot study

The pilot study was carried on 9 nurse managers. They represented 10% of sample size. The purpose of the pilot study was to ascertain clarity, relevancy, applicability of the study instruments and to determine obstacles that may be encountered during data collection. It also helped to estimate the time needed to fill the questionnaires. Based on the results of the pilot, no modifications were done to the instruments. The piloted sample were included in the final sample.

Statistical design:

The collected data were categorized, tabulated, analyzed and presented in descriptive forms by using SPSS version 18. The necessary tables were then prepared and statistical analysis included the arithmetic mean, standard deviation, chi-square test, t test and Pearson correlation (r).

Results

Table 1 represents socio- demographic characteristics of the studied subjects in the studied settings. As shown in the table, the highest percentage of the studied subjects were from University Hospital and were between 35-<45 years old. Also, the highest percentage of the studied subjects had Bachelor degree in nursing and most of them were head nurses. Regarding years of experience, the highest percentage of the studied subjects had more than or equal 15 years of experience and worked in critical care units.

Table 2 illustrates total mean percentage of barriers of EBNP as reported by the studied

subjects. As noticed from the table, percentage of barriers of EBNP constitutes 84.5%. Additionally, it showed that administrative barriers constitute the highest mean's percentage while personal barriers constitute the lowest mean's percentage.

Table 3 illustrates mean score of the studied subjects regarding barriers of the perceived value of research and EBNP. It revealed that the highest mean score of the studied subjects was the 5th item (Insufficient time on the job to read research), while the lowest mean score of the studied subjects was the 2nd item (Nurses do not see the value of research for practice).

Table 4 illustrates mean score of the studied subjects regarding barriers of information resources. It revealed that the highest mean score of the studied subjects was the 1st item (Lack of awareness of nurses about research or EBP), while the lowest mean score of the studied subjects was the 7th item (The amount of research information is overwhelming).

Table 5 illustrates mean's score of the studied subjects regarding personal barriers of EBNP. It revealed that the highest mean score of the studied subjects was the 8th item (Nurses do not have time to read research), while the lowest mean score of the studied subjects was the 1st item (Inadequate computer skills).

Table 6 illustrates mean's score of the studied subjects regarding barriers of perceived use of EBNP. It revealed that the highest mean score of the studied subjects was the 7th item (Inability to implement recommendations of research studies into clinical practice), while the lowest mean score of the studied subjects was the 3rd item (The research is not relevant to the nurse's practice.).

Table 7 illustrates mean's score of the studied subjects regarding administrative barriers of evidence based practice. It revealed that the highest mean score of the studied subjects was the 2nd item (Administration perceived EBP as a low management priority), and the 3rd item (There is no support or incentives for clinical practice development) respectively, while the lowest mean score of the studied subjects was the 5th item (Lack of education about the research process).

Fig 1 Presents ranking percent of the 1st ten barriers for EBNP utilization as reported by the studied subjects. It reflected that the highest ranked barrier for EBNP utilization by the studied subjects (93.33%) was lack of awareness of nurses about research or EBP.

Table (1): Socio- Demographic Characteristics of the Studied Subjects in the Studied Settings (N=90).

Socio-demographic characteristics Items		No	%
Hospital name	University Hospital	56	62.22%
	Teaching Hospital	34	37.78%
Age	25-<35 years	10	11.11%
	35-<45 years	63	70.00%
	≥45 years	17	18.89%
Educational Qualification	Bachelor degree in nursing	58	64.44%
	Professional diploma in nursing	19	21.11%
	Master degree in nursing	12	13.33%
	Doctorate degree in nursing	1	1.11%
Job title	Nursing director	2	2.22%
	Vice director	7	7.78%
	Nursing supervisor	18	20.00%
	Head nurse	63	70.00%
Years of Experience	5-<10 years	3	3.33%
	10-<15 years	32	35.56%
	≥15 years	55	61.11%
Department	Inpatient departments	29	32.22%
	Critical care units	40	44.44%
	Nursing administration department	9	10.00%
	Specialized units (Infection control unit, quality assurance unit and continuing education unit).	12	13.33%

Table (2): Mean of Nurse Managers Reported Perception of Barriers for EBNP

Categories of Barriers of EBNP	Mean	SD	Mean's percentage	Rank
Total barriers of EBNP	101.4	11.86	84.5%	
Total barriers of the perceived value of research and EBNP	15.76	1.7	87.56%	3
Total barriers of information resources	31.6	3.89	87.78%	2
Total personal barriers of EBNP	18.73	4.07	78.04%	5
Total barriers of perceived use of EBNP	22.01	3.66	81.52%	4
Total administrative barriers of EBNP	13.3	2.1	88.67%	1

Table (3): Mean of Nurse Managers Reported Perception of Barriers for Value of Research in Relation to EBNP

	Barriers of the perceived value of research and EBNP		Disagree	Neutral	Agree	Mean	SD	Mean's percentage
1	Lack of interest to research process	No	4	19	67	2.7	0.55	90.00%
		%	4.40%	21.10%	74.40%			
2	Nurses do not see the value of research for practice	No	4	36	50	2.5	0.58	83.70%
		%	4.40%	40.00%	55.60%			
3	Nurses do not feel enough	No	3	33	54	2.6	0.56	85.56%

	authority to change patient care practices/ lack of authority to change patient care practices	%	3.30%	36.70%	60.00%			
4	Nurses feel the benefits of changing practice will be minimal.	No	6	29	55	2.5	0.62	84.81%
		%	6.70%	32.20%	61.10%			
5	Insufficient time on the job to read research	No	2	17	71	2.8	0.47	92.22%
		%	2.20%	18.90%	78.90%			
6	Lack of compliance of relevant literature in one place	No		30	60	2.7	0.47	88.89%
		%		33.30%	66.70%			

Table (4): Mean's Score of Nurse Managers Reported Perception of Barriers for Information Resources in Relation to EBNP

	Barriers of information resources		Disagree	Neutral	Agree	mean	SD	Mean's percentage
1	Lack of awareness of nurses about research or EBP.	No	3	12	75	2.8	0.48	93.33%
		%	3.30%	13.30%	83.30%			
2	Research reports are published in a foreign language.	No	9	20	61	2.58	0.67	85.93%
		%	10.00%	22.20%	67.80%			
3	Research reports/ articles are not published fast enough	No	5	25	60	2.61	0.59	87.04%
		%	5.60%	27.80%	66.70%			
4	Research reports/ articles are not readily available	No		23	67	2.74	0.49	91.48%
		%		25.60%	74.40%			
5	Access to research evidence is poor (slow or no computers or data bases).	No		30	60	2.67	0.47	88.89%
		%		33.30%	66.70%			
6	Nurses do not have access to the library.	No		27	63	2.7	0.46	90.00%
		%		30.00%	70.00%			
7	The amount of research information is overwhelming.	No	13	29	48	2.39	0.73	79.63%
		%	14.40%	32.20%	53.30%			
8	Inadequate understanding of research terms used in research articles.	No	11	27	52	2.46	0.70	81.85%
		%	12.20%	30.00%	57.80%			
9	The hospital has no dissemination research center.	No	2	20	68	2.73	0.49	91.11%
		%	2.20%	22.20%	75.60%			
10	Superiors do not communicate the new evidences with subordinates (staff).	No	5	24	61	2.62	0.59	87.41%
		%	5.60%	26.70%	67.80%			
11	Nurses are isolated from knowledgeable colleagues with whom to discuss the research	No	3	25	62	2.66	0.54	88.52%
		%	3.30%	27.80%	68.90%			
12	Lack of knowledgeable mentors.	No	3	26	61	2.64	0.55	88.15%
		%	3.30%	28.90%	67.80%			

Table (5): Mean's Score of the Studied Subjects Regarding Personal Barriers of EBNP (N=90).

	Personal barriers:		Disagree	Neutral	Agree	Mean	SD	Mean's percentage
1	Inadequate computer skills	No	25	20	45	2.22	0.86	74.07%
		%	27.80%	22.20%	50.00%			
2	Inability to understand statistical terms used in research articles.	No	15	27	48	2.37	0.76	78.89%
		%	16.70%	30.00%	53.30%			
3	Difficulty in judging the quality of research papers and reports.	No	5	36	49	2.49	0.60	82.96%
		%	5.60%	40.00%	54.40%			
4	Inability to properly interpret the results of research studies.	No	19	22	49	2.33	0.81	77.78%
		%	21.10%	24.40%	54.40%			
5	Complexity of understanding research reports.	No	20	27	43	2.26	0.80	75.19%
		%	22.20%	30.00%	47.80%			
6	Nurses are unwilling to change/ try new ideas.	No	10	43	37	2.3	0.66	76.67%
		%	11.10%	47.80%	41.10%			
7	Nurses are uncertain whether to believe the results of the research.	No	12	45	33	2.23	0.67	74.44%
		%	13.30%	50.00%	36.70%			
8	Nurses do not have time to read research.	No	7	28	55	2.53	0.64	84.44%
		%	7.80%	31.10%	61.10%			

Table (6): Mean's Score of the Studied Subjects Regarding Barriers of Perceived Use of EBNP (N=90).

	Barriers use		Disagree	Neutral	Agree	Mean	SD	Mean's percentage
1	Unavailability of research reports/ articles.	No	12	25	53	2.46	0.72	81.85%
		%	13.30%	27.80%	58.90%			
2	The research is not reported clearly and readably.	No	2	38	50	2.53	0.54	84.44%
		%	2.20%	42.20%	55.60%			
3	The research is not relevant to the nurse's practice.	No	23	36	31	2.09	0.77	69.63%
		%	25.60%	40.00%	34.40%			
4	Conflicting results of the literature reports (research results of the same subject sometimes are different).	No	17	35	38	2.23	0.75	74.44%
		%	18.90%	38.90%	42.20%			
5	Insufficient research resources to implement EBP.	No	4	30	56	2.58	0.58	85.93%
		%	4.40%	33.30%	62.20%			
6	Insufficient time at workplace to implement changes in their current practice.	No	1	35	54	2.59	0.52	86.30%
		%	1.10%	38.90%	60.00%			
7	Inability to implement recommendations of research studies into clinical practice.	No		31	59	2.66	0.48	88.52%
		%		34.40%	65.60%			
8	Implications for practice are not made clear.	No	2	37	51	2.54	0.54	84.81%
		%	2.20%	41.10%	56.70%			
9	The conclusions drawn from the research are not justified.	No	10	40	40	2.33	0.67	77.78%
		%	11.10%	44.40%	44.40%			

Table (7): Mean Score of Nurse Managers Reported Perception of Administrative Barriers for EBNP (N=90).

	Administrative Barriers		Disagree	Neutral	Agree	Mean	SD	Mean's percentage
1	There is not a documented need to change practice.	No	6	17	67	2.68	0.59	89.26%
		%	6.70%	18.90%	74.40%			
2	Administration perceived EBP as a low management priority.	No	2	24	64	2.69	0.51	89.63%
		%	2.20%	26.70%	71.10%			
3	There is no support or incentives for clinical practice development.	No	4	20	66	2.69	0.55	89.63%
		%	4.40%	22.20%	73.30%			
4	There is resistance to make changes in the work setting	No	6	20	64	2.64	0.60	88.15%
		%	6.70%	22.20%	71.10%			
5	Lack of education about the research process.	No	6	24	60	2.6	0.61	86.67%
		%	6.70%	26.70%	66.70%			

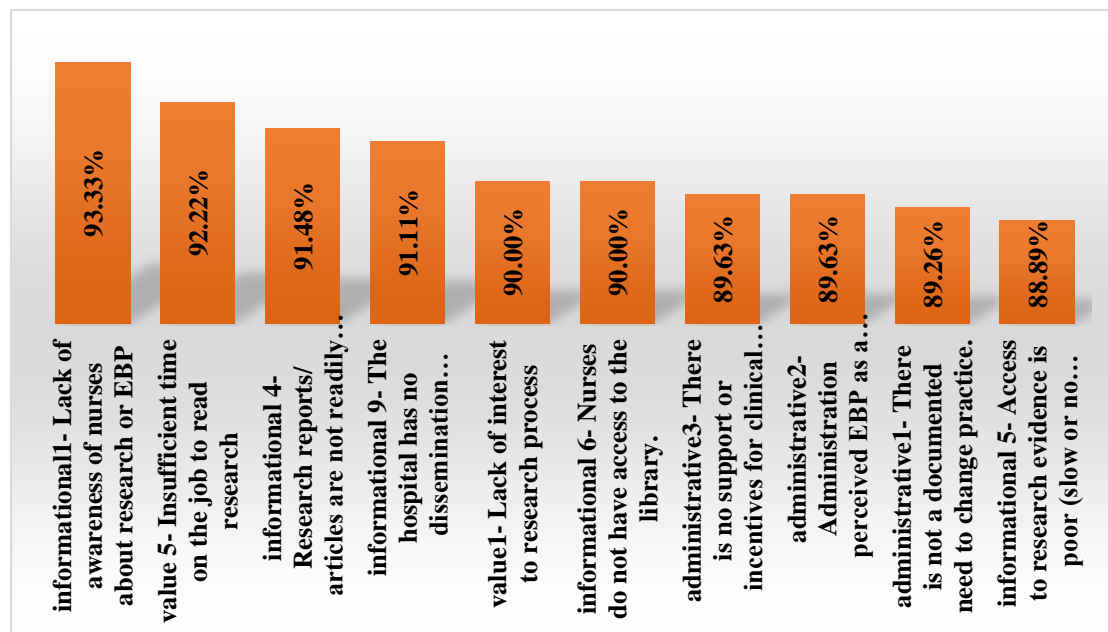


Figure (1): Ranking Percent of the 1st Ten Barriers for EBNP Utilization as Reported by the Nurse Managers (N=90).

Discussion

Concerning the answer of the research question ("What are the perceived barriers that influence nurse managers' abilities for evidence based nursing practice utilization?"). The findings of the present study showed that the major barriers to EBNP use were administrative barriers. This finding agrees with Shazly, Abdel- Azeem, and Ahmed (2018), and Shifaza et al., (2014) who reported that organizational factors were the highest barriers regarding EBP. Also, personal barriers were the lowest barriers impeding the current study subjects to use EBP. This was congruent with Ali (2014). From the investigators' point of view, these findings may be because both hospitals in the

current study have limited financial and human resources. First, the limitation of the financial resources leads to a difficulty in applying the study findings which may need extra-equipment and materials, an absence of incentives for the application of researches, and an absence of financial support to fund accessing full-text nursing articles or even a library containing up-to-date textbooks. Second, the shortage of the staff members may limit nursing staff time to read and apply research findings and hinder the administrative authorities and other health team members to support nurses to utilize research. Concerning organizational barriers:

In the present study, nurse managers reported that administration perceived EBP as a low management priority and there is no support or incentives for clinical practice development. These were the top administrative barriers, while the lowest perceived administrative barrier was for lack of education about the research and EBP process.

From the investigators' point of view, this result could be related to the nurse managers feel a lack of support, encouragement and cooperation from their hospitals. Also, there is limited organizational budget which impede EBP incorporation. This may lead to the higher level of perceived barriers related to "organization" as one of the main research utilization determinants.

This was supported by Chien, Bai and Wong (2013) who argued that importance of research utilization in nursing practice was not supported by central government agency or Ministry of Health, which could better equip nurses with research knowledge and skills and increase their responsibility and opportunities for being involved in research utilization. Also, they lacked facilities required to review or conduct research and they have only scarcity of research findings could be generalized to their settings.

Furthermore, a study done by Pryse (2012) was revealed that a lack of administrative support, a work environment not receptive to changing practice, and lack of management support, lack of financial support were frequently identified barriers and can be directly attributed to the work environment's impedes on the nurse's ability to engage in EBP.

Concerning personal barriers and barriers of the perceived value of research and EBNP. The present study revealed that highest mean score of the studied nurse managers was that they did not have time to read research. From the investigators' point of view, this could be attributed to that both hospitals were not interested in to incorporate the EBP culture. also, heavy workload as both hospitals are the largest hospitals at Menofia Governorate and offered healthcare services to a great number of patients which make load on nursing management' priorities. This was supported by Varaei et al., (2013) who reported that in the human resource category, shortage of nurses and heavy workload are the most common barriers to implementation of EBP.

This was supported by Dalheim , Harthug , Nilsen and Nortvedt (2012) who stated that lack of time is regarded as a hindrance to the implementation of EBP. Healthcare institutions tend to have a culture of 'busyness' which is valued and rewarded and which does not encourage nurses to spend time sitting and reading, but instead rewards those who visibly engage in duties with their patients .Lack of time is also linked to increased workload.

Similar to these results, Williams, Perillo and Brown (2015) found high workload to be a major barrier to the implementation of EBP, primarily because it undermines the amount of time available for nurses to read EBP-related research. In addition, the result of previous study Stokke, Olsen, Espehaug and Nortvedt (2014) revealed that lacking time and busier working were the greatest barrier.

This was consistent with Mahmoud (2013) who stated that lack of time reflects the serious and deep seated problem that exists in Egypt as well as other hospitals all over the world. Time to read, evaluate, analyze, disseminate and implement research is very limited for nurses everywhere.

Concerning barriers of information resources, the present study revealed that the highest mean score of the studied subjects was the lack of awareness of nurses about research or EBP. From the investigators' point of view, this result could be related to inadequate knowledge and skills in EBP and both hospitals had no research center. Also, access to research evidence was difficult.

In the same line, Chiu, et al., (2010) found that there are many barriers to the utilization of EBP which include nurses' unaware of evidence that could be used to improve patient outcomes. This was consistent with Maaskant et al., (2013) who showed that nurses had little understanding and did not know research utilization terms which could be a serious barrier for nurses.

Furthermore, the present study was congruent with a study conducted by Ez elarab et al., (2012) which emphasized that many nurses in clinical practice were unfamiliar with evidence based nursing concepts and infrequently used sources of new information and new research evidence in their practice and don't know how to incorporate this approach into general clinical practice settings.

On the other side of the coin, Bahadori, Raadabadi, Ravangard and Mahaki, (2016) found that the lack of awareness of research was the least important barrier to the application of research findings from the studied nurses' perspective.

Concerning barriers of perceived use of EBNP: The present study revealed that the highest barrier was the inability to implement recommendations of research studies into clinical practice. This might have more than one explanation; the first was that evidence based practice was not applied in the hospital. The second what both hospitals had no research centers The third was that both hospitals in the current study have limited financial and human resources which lead to a difficulty in applying the study findings. Hassan, (2016) showed that nurses had difficulty in determining applicability of research findings and inability to implement recommendations of research studies into clinical practice.

Concerning the top ten barriers of EBNP, they were lack of awareness of nurses about research or EBP,

insufficient time on the job to read research, research reports/ articles are not readily available, the hospital has no dissemination research center, lack of interest to research process, nurses do not have access to the library, there is no support or incentives for clinical practice development, administration perceived EBP as a low management priority, there is not a documented need to change practice, and access to research evidence is poor (slow or no computers or data bases).

In contrast Ezz, Zahran and El-Soussi (2013) found that the top ten barriers identified were insufficient time to read research during the on-duty and off-duty hours, poor access to research evidence, insufficient time to implement new ideas, inadequate facilities, unavailable research reports/articles in work setting, lack of authority to change patient care, lack of awareness regarding the research process, nonexistence of research disseminating center, and resistance to change as a normal response in any change process.

The differences between the results of the present study and those of other studies mentioned above can be due to the differences between the settings and culture of the organization in which the study was conducted. This is supported by Ezz, Zahran and El-Soussi (2013) who mentioned that the differences in ranking of barriers may be attributed to the differences in the settings and individual characteristics of nurses or might be educational background of studied participants. In the same line Bahadori et al., (2016) mentioned that the differences in ranking of barriers can be due to the differences between the environmental conditions of each organization and strategies used to provide nursing care for patients.

Recommendations

Based on the findings of this study and the review of the literature, the following recommendations are proposed:

At practical level:

- The study results should be disseminated to the important key persons (nurse managers) to be considered.

At administration level:

- Barriers to evidence based nursing practice implementation should be studied.
- Hospital administrators should give nurses sufficient time to learn skills of evidence based practice
- Access to libraries, computers and internet for online search of EB nursing practice should be facilitated.
- Online resources and electronic databases should be available for all the nurses at least in each unit or department to allow them to document, search and get their patients' related information and the appropriate nursing care.

- Small libraries (research corner) containing recent research articles and references should be established in each unit, department, or floor to overcome the barrier of nurses' time shortage and allow them to review research findings easily.

- A reward system should be established for nurses interested in EBP may be needed to help profile innovative practice.

At research level:

- Replication of the study on large sample size and different settings.

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