

Nurses' Perception, Self-Efficacy, Barriers, and Training Needs for Implementing Evidence-Based Practice: Is It Time for a Change toward Safe Care?

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Abstract Background: A crucial factor in delivering high-quality patient care is nursing implementation of evidence-based practice (EBP). **Aim of this study:** to explore nurses' attitudes, perceived self-efficacy, barriers, supporting factors, training needs, and information sources used to undertake different evidence-based practice activities in zagazig university hospitals. **Subjects and Methods: Research design:** A descriptive correlational study design was utilized. **Setting:** This research was conducted at Zagazig University Hospitals. **Subjects:** A Stratified random sample of 384 nurses working at Zagazig University Hospitals. **Tools of data collection:** A questionnaire of perceptions of nurse's evidence-based practice (EBP) was used for data collection was developed by Majid et al (2011), it includes seven parts: 1) personal characteristics of the studied nurses. 2) attitudes toward EBP, 3) level of self-efficacy, 4) supporting factors in adopting EBP, 5) barriers for adopting EBP, 6) training needs, 7) and sources of information used by the nurses. **Results:** the majority of nurses had unfavorable attitudes toward EBP, They preferred using traditional methods over changing to new approaches, and they perceived to possess moderate levels of skills to undertake different EBP activities. In addition, all nurses are facing many difficulties in implementing EBP. **Conclusion:** The majority of nurses had unfavorable attitudes toward EBP, They preferred using traditional methods over changing to new approaches, and perceived to possess moderate levels of skills to undertake different EBP activities. In addition, all nurses are facing many difficulties in implementing EBP. **Recommendations:** Encourage nurses to attend nursing conferences, scientific meetings, and involve them in the developmental activities, empower nurses to take active role in organizational change and implementation of evidence practice research findings, a reward system may be needed to enhance evidence based practice development and achievements in hospitals.

Keywords: evidence based practice, self-efficacy, barriers, supporting factors, training needs

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1. Introduction

Rapid changes throughout the healthcare system have been followed by a greater emphasis on improving the quality of healthcare services, organizational performance, patient safety outcomes, and cost containment [1]. Therefore, it is the professional responsibility of nurses to apply the best scientific evidence for designing and implementing healthcare plans and integrate the accessible research evidence into their decision-making [2]. In order to fulfill these responsibilities, evidence-based practice (EBP) was introduced as an important innovation in the healthcare system [4].

Evidence-based practice (EBP) is not clinical problem solving. It is a mechanism for solving clinical problems and making decisions about the best evidence for interventions [6]. EBP is the deliberate use of available evidence in clinical decisions in combination with clinical

expertise along with patients' concerns and preferences [3,5]. It allows nurses to make complex health care decisions based on findings from rigorous or high-quality research reports, clinical expertise, and patient perspectives. EBP marks a shift among health care professionals from a traditional emphasis on authoritative opinions to an emphasis on data extracted from prior research and studies [10].

Implementing EBP has potential benefits for healthcare providers, patients, and healthcare systems [7]. EBP reduces unsuitable variations in healthcare practices, supplies a set of standards for clinical decision-making, enhances cost effectiveness [8], and can lead to improve safety outcomes of patients by decreasing the clinical risks for clients and patients in line with the expectations of the patient and community from nursing practice. Therefore, EBP provides a framework for promoting excellence in healthcare and enhancing quality of clinical practice based on international standards [9].

Original models of implementing EBP within the health care setting suggest that there is a systematic process that moves in cyclical patterns to support providers making these complex decisions. This process begins with an impetus for change, such as a recent research report, patient outcomes, or clinical audit. Subsequent steps include conducting a literature review and evaluation of the identified topic, implementing and evaluating trial changes within practice, and proposing recommendations for clinical practice guidelines. The process allows nurses to be an integral part of the health care team and can drive EBP change and contribute to the provision of high-quality care [11].

Working conditions is one of the most important topics facing nurse managers and researchers. Internationally, researchers have been undertaken, which has identified both barriers and facilitators to the adoption of EBP. Previous studies have reported that lack of time, lack of skill to find research and lack of autonomy to change practice are major barriers to adopt EBP [12]. In addition, many researchers have stated that poor English skills, a heavy workload, a lack of internet access and insufficient time among nurses to read research or implement new ideas in the workplace are the main barriers to implement EBP. The scientific researchers are facilitated by many factors. These factors occur at the individual, organizational or institutional levels, or due to qualities of the researchers, in addition to the presentation ability and accessibility of the research [14]. Other completed studies recognize that support, recognition, and encouragement by administration and management are facilitators for evidence-based practice implementation [13].

Nursing staffs in Egypt are important health professional group. The majority of nurses work in direct care of patients; assessing patients' needs and making decisions on nursing interventions. Nurses' practice of evidence-based practice has a major impact on patients' outcomes and patient safety. Hence, there is an essential need to enhance nurses' practice of EBP to improve quality of care and patient safety.

2. Significance of the Study

At a recent time; major confirmation has been put on EBP and it is presently believed critical for encouraging high quality of health care. Researches showed that patient health was become well by 28% when clinical care was founded on proof rather than traditional performance. Thus, EBP is important as it improves patient's health and provides excellent care.

EBP also plays a role in ensuring that finite health resources are used wisely and that relevant evidence is considered when decisions are made about funding health services. In Zagazig university hospitals, there are many barriers that faced nurses to apply evidence based practice. So it is important to study these barriers and identify facilitating factors and training needs that help nurses to adopt evidence based practice.

2.1. Aim of the Study

The present study was conducted to explore nurses' attitudes, perceived self-efficacy, Barriers, supporting factors, training needs, and information sources used to

undertake different evidence-based practice activities in Zagazig university hospitals.

2.2. Research Questions

1. What are attitudes and perceived self-efficacy of nurses to perform different EBP activities?
2. What are barriers and supporting factors that interfere or help nurses' in adopting EBP?
3. What are desired areas for EBP training?
4. What are frequencies of information sources used by nurses?
5. What are Relations among nurses' total attitudes, perceived self-efficacy, barriers, supporting factors, training needs, information sources used for adopting EBP and their personal characteristics?

3. Subjects and Methods

3.1. Research Design

A descriptive correlational study design was utilized.

3.2. Study Setting

This research was conducted at all Zagazig University Hospitals (Academic hospital), Egypt, which includes two sectors involving eight teaching hospitals. The emergency sector included four hospitals; New Surgical Hospital (600 beds), Emergency Hospital (185 beds), Delivery and Premature Hospital (57 beds) and General Medicine Hospital. (322 beds). The second sector is El-Salam included four hospitals three of them provide free treatment, these were: Cardio Thoracic Hospital (212 beds), Pediatric Hospital (220 beds), and El-Salam Hospital (254 beds) and the last one provides economic treatment, it is the Economic Treatment Hospital (104 beds). With total bed capacity 1954 beds. The two sectors provide inpatient and outpatient services with total number of 2446 nurses.

3.3. Subjects

A stratified random sample was used. The required number of nurses from each hospital was calculated with the following formula (number of nurses in each hospital \times required sample size / total number of nurses in all hospitals).

3.4. Sample Size

The ideal sample size was estimated at confidence interval 95%, margin of errors 5.0%, a total population size of 2446 nurses, and by using the following formula $[X^2 NP (1 - P) / d^2 (N - 1) + X^2 P (1 - P)]$ [11]. The required sample size was 384 nurses having the following inclusion criteria: At least had one year of experience and accept to participate in the study

3.5. Tools of Data Collection

A questionnaire sheet was used to collect data for this study was developed by Majid et al. [1] and composed of seven parts:

Part (1): Personal characteristics such as, age, age, educational level, years of experience and attending training in evidence-based practice.

Part (2): Perceptions of nurses attitudes toward integrating EBP into their patient care. It consists of five items, (e.g) i approve evidence-based practice (EBP) and has an only limited advantage. All items outcomes on a five-point Likert degree from 'Strongly disagree' to 'strongly agree'.

Part (3): Level of self-efficacy, it was utilized for gathering nurses' understandings of their abilities in carrying out various EBP effectiveness, it had contained nine items scored on a five-point Likert degree.

Part (4): Supporting factors that help them in taking EBP, it contains six items, (e.g) the availability of protected time to learn and implement EBP. Items recorded on a five-point Likert scale from the lowest useful to the highest importance.

Part (5): Barriers for adopting EBP, to reference the significance of various barriers that were probably to interfere nurses from adopting EBP; it contains nine items, (e.g) less of time at workplace to study and read research papers and statements. All items scored on a five-point Likert scale ranging from 'Strongly disagree' to 'strongly agree'.

Part (6): Training needs, the nurses were required to mention EBP activities for which they would like to be given practicing. It includes seven items (e.g.) understanding research and statistical terms, conducting critical appraisals, and literature searches. Items recorded on a five-point Likert scale from less useful to highly important.

Part (7): sources of information used by the nurses to make their information up to date and adopt EBP, these knowledge sources were evaluated down three wide categories:

- A. Print sources, which include five items as textbooks, journals, and published research article.
- B. Electronic sources, which include six items as Internet resources, nursing e-books, digital medical and nursing libraries.
- C. Human information, which include six items as nursing supervisors, ward or department colleagues, nursing management staff and Doctors. All items recorded on a five-point Likert degree. After summing the results and their average worth, to give degrees of higher 4 were considered as 'considered as moderate, and below 3 unfavorable.

3.6. Content Validity and Reliability

Data were collected using a self-administered questionnaire, after the translation of the instruments to Arabic. The content and face validity were established by a jury of experts (5 professors & assistant professors) from academic nursing staff, Zagazig and Ain-Shams Universities. According to their opinions all necessary modifications were done.

The reliability of the tools was tested using the internal consistency method. Cronbach's alpha coefficients were 0.885, 0.885, 0.733, 0.837, 0.896, and 0.921 for attitude, self-efficacy, barriers, supporting factors, training needs, and sources of information respectively.

3.7. Pilot Study

A pilot study was carried out on 38 nurses (10% of the study sample) to check for the clarity, applicability, and comprehensiveness of the tools, and to identify the time needed to fill in the questionnaire sheets by each participant. Required modifications were done and the subjects who participated in the pilot study were excluded from the main study sample.

3.8. Field Work

Data were collected from the target nurses using the self-administered questionnaire after explaining orally the purpose of the study briefly to the nurses. A pilot study was carried out on 10% of the nurses to test the understandability and applicability of the instrument and the time needed to collect the data. The instrument required between 25 and 30 minutes. Data collection took two months.

3.9. Administrative and Ethical Considerations

Approval to conduct the study was obtained from the medical and nursing directors of the hospitals and the head nurses of the units after explaining the aim of the study. The participants were informed that their participation in the study is completely voluntary and that they have the right to withdraw at any step without giving any reason. The cover letter introducing the study addressed the confidentiality of the participants. Consent was established with the completion of the questionnaires.

3.10. Statistical Design

Data entry and statistical analysis were done using the Statistical Package for Social Science (SPSS), version 17.0. Cleaning of data was done to be sure that there was no missing or abnormal data. Data were presented using descriptive statistics in the form of frequencies and percentages for categorical variables, and means and standard deviations for continuous variables. Pearson correlation analysis was used for assessment of the inter-relationships between total scale scores.

4. Results

Table 1 presents the personal characteristics of the studied nurses. In this table; 55.5% of studied nurses aged between 25 to 30 years. Concerning years of experience, 42.7% of them worked from 6 to 10 years. Additionally, the highest percentage of nurses had diploma degree of nursing 36.7%, in addition, 30.2% had Bachelor's degree, and 24.2 % had Master degree. While, 70.1% of nurses did not attend any specific training on the implementation of EBP in patient care.

Table 2 shows the Nurses' beliefs and attitudes toward evidence-based practice (EBP). As indicated from this table 84.2% of the nurses either "agreed or highly agree" with the data that they chose utilizing old methods than new patient care approaches, followed by 63 % of the

nurses either "agreed or strongly agree" with the definite that they do not like people questioning their clinical performance that is founded on used methods. However, above fifty percent of the nurses opposed that great of the study papers that they had were not connected to their daily nursing performance. While more nurses agreed (50.5%) compared it opposed (22.4%) may be due to the much workload.

Table 3: Clarifies the Perceived self -efficacy of nurses to undertake different evidence-based activities. This table shows that, the highest mean score was for the items "evaluate the application of intervention and identify areas of improvement." (3.45 ±1.2). Followed by the item "Identify clinical issues/problems." (3.45 ±1). For nearly all the residual data, the average degrees happened in a very narrow between from 2.5 to 3.26, which observed that the participating nurses understood themselves to have to average levels of self- efficacy to undertake various EBP activities. The lowest average degree was for "Utilize a checklist to evaluate study papers'. (2.5 ±1.5).

Table 1.-Personal Characteristics of Nurses in the Study Sample (n=384)

Personal Characteristics	Frequency	Percent (%)
Age(years):		
• 25<	34	8.9
• 25- 30	213	55.5
• >30 years	137	35.7
Educational level :		
• Diplome	141	36.7
• Technical institute of nursing	34	8.9
• Bacculearete degree	116	30.2
• Master degree	93	24.2
Years of experiences:		
• 1-5	121	31.5
• 6-10	164	42.7
• >10	99	25.8
Attending training in EBP:		
• Yes	115	29.9
• No	269	70.1

Table 2. Beliefs and Attitudes toward EBP among Nurses (n=384)

Items	Strongly disagree		Disagree		Not agree & not disagree		Agree		Strongly agree	
	No.	%	No.	%	No.	%	No.	%	No.	%
1. I prefer using more traditional methods instead of changing to new approaches.	0	0.0	48	12.5	13	3.4	231	60.2	92	24.0
2. I do not like people questioning my clinical practices, which are based on established methods.	48	12.5	56	14.6	38	9.9	201	52.3	41	10.7
3. Most research articles are not relevant to my daily practice.	13	3.4	193	50.3	38	9.9	13	3.4	127	33.1
4. I believe evidence-based practice (EBP) has only limited utility.	98	25.5	194	50.5	51	13.3	0	0.0	41	10.7
5. My workload is too high to keep up to date with all new evidence.	37	9.6	86	22.4	13	3.4	194	50.5	54	14.1
Total mean scores	16±4.7									

Table 3. Perceived Self -Efficacy of Nurses to Practice Different Evidence-Based Activities (n= 384)

Skills scores	Mean ±SD	Median	Range
I am able to:			
1-Identify clinical issues/problems.	3.45 ±1	4	2-5
2- Translate a clinical issue/problem into a well-formulated clinical question.	3.3 ±1	3	2-5
3- Distinguish between different types of questions (e.g., intervention, prognosis, harm, and cost-effectiveness).	3.26 ±1.4	4	1-5
4- Conduct online searches (using databases and web search engines).	2.82 ±1.5	3	1-5
When reading research article, I am able to:			
5- Relate research finding to my clinical practice and point out similarities and differences.	2.61 ±1.4	3	1-5
6- Use a checklist to assess research articles.	2.5 ±1.5	2	1-5
7- Read a research report and have a general notion about its strength and weaknesses	2.34 ±1.2	2	1-4
When applying research recommendations, I am able to:			
8- Apply an intervention based on the most applicable evidence.	3.28 ±1.1	3	2-5
9- Evaluate the application of intervention and identify areas of improvement.	3.45 ±1.2	4	2-5
Total mean scores	27±8.2		

Table 4. Barriers for Adopting EBP among Nurses in the Study Sample (n=384)

Barriers for adopting EBP:	Strongly disagree		Disagree		Not agree & not disagree		Agree		Strongly agree	
	No.	%	No.	%	No.	%	No.	%	No.	%
1- Difficulty in finding time at work place to search for and read research articles and reports	62	16.1	99	25.8	44	11.4	135	35.2	44	11.4
2- Inability to understand statistical terms used in research articles.	48	12.5	91	23.7	42	10.9	161	41.9	42	10.9
3- Inadequate understanding of research terms used in research articles	0	0.0	69	18.0	74	19	167	43.5	74	19
4- Difficulty in judging the quality of research articles and reports	71	18.5	80	20.8	74	19	144	37.5	74	19
5- Insufficient time at work place to implement changes in their current practice	52	13.5	99	25.8	74	19	73	19.0	74	19
6- Insufficient resources (e.g., equipment, materials) to implement EBP	46	12.0	47	12.2	74	19	213	55.5	74	19
7- Inability to properly interpret the results of research studies	33	8.6	15	3.9	74	19	139	36.2	74	19
8- Difficulty in determine applicability of research finding.	0	0.0	124	32.3	74	19	161	41.9	74	19
9- Inability to implement recommendations of research studies into clinical practice	37	9.6	15	3.9	74	19	209	54.4	74	19
Total mean scores	27.2±4.9									

Table 5. Supporting Factors for Adopting EBP among Nurses in the Study Sample (n=384)

Factors affecting EBP:	Least important		Few important		important		Very important		Extremely important	
	No.	%	No.	%	No.	%	No.	%	No.	%
1-Nursing colleagues who embrace EBP	0	0.0	56	14.6	216	56.3	19	4.9	93	24.2
2-Nursing management who embrace EBP	0	0.0	108	28.1	173	45.1	57	14.8	46	12.0
3-Given adequate training in EBP	0	0.0	15	3.9	211	54.9	99	25.8	59	15.4
4-Given protected time to conduct EBP	0	0.0	132	34.4	118	30.7	0	0.0	134	34.9
5-Access to a system for comprehensive literature searching	0	0.0	143	37.2	182	47.4	13	3.4	46	12.0
6-Mentoring by nurses who have adequate EBP experience	0	0.0	15	3.9	169	44.0	13	3.4	187	48.7
Total mean scores	20.2±4.5									

Table 4: Clarifies the nurses’ barriers for adopting EBP. As shown in this table; the total barriers average scores for the adoption of evidence-based practice among nurses were 27.2±4.9. As well, More than 74% of the nurses either "agreed or highly agreed" that, the significant two barriers to their adoption of EBP were Insufficient resources (e.g., equipment, materials) to implement EBP, and shortage to perform recommendations of research studies into clinical performance. The next two barriers, identified by more than 61% of the nurses, were unable understanding of study terms utilized in the study findings, and hardness in determining applicability of research finding. In addition, More than 50% of the nurses agreed that hardness in evaluating the quality of study papers and reports, failure to correctly explain the outcomes of research studies, Inability to understand statistical terms used in research articles. More than 38% of the nurses agreed that less founded time at workplace to study and read study papers and statements.

Table 5: Shows the Supporting factors in implementing EBP. More than 95% of the nurses indicated either “important” or “very important” with that, the most four important supporting factors for adopting EBP were the provision of preserved time to conduct EBP, arrival to a pattern for complete literature studying, mentoring by nurses who have adequate EBP knowledge, nursing colleagues who embrace EBP. In addition, more than 74% of nurses show that the important supporting factors for adopting EBP were if they had adequate support from their nursing management and given adequate training in EBP.

Table 6: Indicates the desired areas of EBP training; as revealed from this table the two needs believed that the greatest significant were “identifying clinical issues for implementing EBP” (average degree 4.55±0.7) and “understanding what is EBP” (mean score 4.16±0.9). There were also a high demand for training in

the remaining EBP areas which are: Implementing recommendations to practice, understanding research and statistical terms, synthesizing evidence, and conducting critical appraisals and literature searches all fell in a very narrow range of 2.8±1.1-3.85±1.1, clearly indicating that nurses felt that they needed training in almost all of the mentioned areas to effectively adopt and implement EBP.

Table 7: Clarifies the frequency of information sources used by nurses for adopting EBP. This table shows that the highest total mean scores were for human information sources (21.7±5.4) followed by electronic information sources (13.4±7.6). While the lowest total mean scores were for printed sources (10.8±4.9). The most frequently information sources used were; nursing supervisor, ward colleagues, nursing research committee, doctors, professional friends working in other hospitals and clinics, medical databases, digital medical and nursing libraries, textbooks, journal articles.

Table 8: Clarifies the relations among nurses’ total attitudes, perception ability to practice, barriers to EBP and their personal characteristics; as revealed from this table there were a highly statistically significant positive relations between the nurses’ total attitudes towards EBP and all personal characteristics of nurses' (age, educational level, years of experiences, and attending training in EBP) (P<0.001). In addition, there were a highly statistically significant positive relations between the perceived self-efficacy of nurses to undertake different evidence-based activities and nurses' age, educational level, years of experiences, and attended training in EBP(P<0.001). Moreover, there were a highly statistically significant relations between the nurses’ barriers for adopting EBP and all personal characteristics of nurses' except for years of experiences no statistical significant differences was found (P>.001).

Table 6. Distribution of EBP Training Needs among Nurses in the Study Sample (n=384)

Training scores	Mean ±SD	Median	Range
1-Understanding what is EBP	4.16±0.9	5	3-5
2-Identifying clinical issues for implementing EBP	4.55±0.7	5	3-5
3-Conducting literature searches	3.85±1.1	3	2-5
4-Conducting critical appraisal of articles	3.65±1	3	2-5
5-Synthesizing evidence	2.88±1	3	1-5
6-Implementing recommendations to practice	2.8±1.1	3	1-5
7- Understanding research methods and statistical terms	2.66±1	3	1-5
Total mean scores	24.6±6		

Table 7. Frequency of Information sources used by Nurses in Adopting EBP (n=384)

Sources of information affecting EBP:	Never		Some time		Always		Most of time		Usually	
	No.	%	No.	%	No.	%	No.	%	No.	%
<i>1-print sources (Written)</i>										
Textbooks	151	39.3	54	14.1	71	18.5	75	19.5	33	8.6
Journal articles	180	46.9	41	10.7	13	3.4	117	30.5	33	8.6
Newspapers	267	69.5	13	3.4	71	18.5	0	0.0	33	8.6
Pamphlets/handouts	195	50.8	0	0.0	137	35.7	52	13.5	0	0.0
Reference books	212	55.2	54	14.1	57	14.8	15	3.9	46	12.0
Total mean scores of printed information Sources	10.8±4.9									
<i>2-Electronic sources</i>										
Nursing e-books	137	35.7	73	19.0	89	23.2	37	9.6	48	12.5
Digital medical and nursing libraries	178	46.4	19	4.9	126	32.8	0	0.0	61	15.9
Medical databases	99	25.8	98	25.5	126	32.8	0	0.0	61	15.9
Google Websites	254	66.1	19	4.9	37	9.6	13	3.4	61	15.9
On line tutorials	166	43.2	107	27.9	37	9.6	13	3.4	61	15.9
Blogs on EBP	203	52.9	120	31.3	13	3.4	0	0.0	48	12.5
Total mean scores of Electronic information Sources	13.4±7.6									
<i>3-Human (Personal)</i>										
Ward Colleagues	0	0.0	41	10.7	32	8.3	62	14.9	249	58.5
Nursing supervisor	0	0.0	41	10.7	131	34.1	13	3.4	199	46.7
Nursing management staff	93	24.2	13	3.4	57	14.8	160	41.7	61	15.9
Nursing research committee	54	14.1	0	0.0	184	47.9	98	25.5	48	12.5
Doctors	41	10.7	0	0.0	141	36.7	150	39.1	52	13.5
Professional friends working in other hospitals and clinics	41	10.7	0	0.0	175	45.6	75	19.5	93	24.2
Total mean scores of Human information Sources	21.7±5.4									

Table 8. Relations among Nurses' Total Attitudes, Perceived Self-Efficacy to Practice, Barriers to EBP and their Personal Characteristics

Personal Characteristics	attitudes scores		self-efficacy scores		Barriers scores	
	Mean ±SD	p-value	Mean ±SD	p-value	Mean ±SD	p-value
Age(years):						
• <25	14.8±5.9	<0.001**	35±0	<0.001**	-22±0	<0.001**
• -25• 30	19±0		28.7±7.6		-26.9±5.9	
• >30 years	17.1±1.5		22.4±7.6		-28.9±2.1	
Educational level :						
• Diplome	11.6±3.8	<0.001**	19.4±4.1	<0.001**	-28.7±1.9	<0.001**
• Technical institute of nursing	17.1±1.5		28.8±4.4		-22±0	
• Bacculearete degree	17.3±6.2		33.4±8.6		-29.9±5	
• Master degree	19±0		35±0		-23.4±5.4	
Years of experiences:						
• 1-5	13.7±3	<0.001**	18.3±4.5	<0.001**	-26.9±7.2	0.093
• 6-10	17.6±1.5		28.6±6.4		-26.8±4	
• >10	17.8±6.7		32±7.2		-28.1±2	
Attended training in EBM:						
• Yes	18.9±4.6	<0.001**	28.1±8.9	<0.001**	-30.6±3.8	<0.001**
• No	15.2±4		23.4±5.1		26.1±4.5	

**Correlation is significant at the 0.01 level (2-tailed). *Correlation is significant at the 0.05 level (2-tailed).

Table 9. Relations among Nurses' Total Supporting Factors, Training Needs, and Information Sources used for Adopting EBP and their Personal Characteristics

Personal Characteristics	Supporting Factors scores		Training needs scores		Information sources scores	
	Mean ±SD	p-value	Mean ±SD	p-value	Mean ±SD	p-value
Age(years):						
• <25	16±0	<0.001**	20±0	<0.001**	40±0	<0.001**
• -25• 30	20.1±5.5		24.6±7.7		51.1±18.2	
• >30 years	21.5±1.9		25.5±2.1		39.1±1.7	
Educational level :						
• Diplome	19.4±2.8	<0.001**	23.8±3.2	<0.001**	38.9±1.5	<0.001**
• Technical institute of nursing	16±0		20±0		40±0	
• Bacculearete degree	19.9±3.6		21.8±5.8		40.5±12.3	
• Master degree	23.5±6.1		30.9±5.9		65.2±14.8	
Years of experiences:						
• 1-5	19.8±5.7	0.189	22.7±8.4	<0.001**	47.8±21.4	0.093
• 6-10	20.2±4.6		25.4±5.1		48.9±11.5	
• >10	20.9±2		25.3±2.5		38.4±1.5	
Attended training in EBM:						
• Yes	17.9±4.7	<0.001**	19.7±6.2	<0.001**	37.2±9.5	<0.001**
• No	21.8±3.4		26.1±4.2		47.9±13.9	

**Correlation is significant at the 0.01 level (2-tailed). Correlation is significant at the 0.05 level (2-tailed).

Table 10. Correlations Matrix among Different Study Variables

different study variables	Attitudes towards EBP	Perceived Self -efficacy	Barriers of EBP	Facilitators of EBP	Training Needs	Information Sources
Attitudes						
Self -efficacy	0.442**					
Barriers	-0.633**	-0.554**				
Facilitators	0.494**	0.36**	-0.254**			
Training Needs	0.711**	0.501**	-0.556**	0.765**		
Information Sources	0.881**	0.666**	-0.606**	0.59**	0.71**	
Total EBP	0.741**	0.79**	-0.547**	0.72**	0.831**	0.896**

**Correlation is significant at the 0.01 level (2-tailed). *Correlation is significant at the 0.05 level (2-tailed).

Table 9: Shows the relations among nurses' total supporting factors, training needs, information sources used for adopting EBP and their personal characteristics; as revealed from this table there were a highly statistically significant positive relations between the nurses' total mean scores of Supporting factors and all personal characteristics of nurses' except for years of experiences no statistical significant differences was found ($P > .001$). Moreover, there were highly statistically significant positive relations between the nurses' total scores of the desired areas of EBP training and all personal characteristics of nurses' (age, educational level, years of experiences, and attending training in EBP). Also, there were a highly statistically significant positive relations between the nurses' total mean scores of information sources and all personal characteristics of nurses' except for years of experiences no statistical significant differences was found ($P < 0.001$).

Table 10: Shows the Spearman's correlation coefficient among different study variables, the results showed a positive highly significant relationship among nurses' attitudes and self-efficacy, supporting factors in adopting EBP, and Information sources used by nurses, While negative significant correlation with barriers that inhibit adopting EBP.

5. Discussion

The findings of this study showed that the majority (70.1%) of nurses did not attend any specific training on the implementation of evidence-based practice (EBP) in patient care. This result was congruent with [17] who studied perceptions and attitudes towards evidence based practice among nurses and nursing students in Nepal, and found that the majority (93%) of respondents had no previous training in EBP. In the same line [10] who explained adopting evidence-based practice in clinical decision-making: Nurses' perceptions, knowledge, and barriers and observed that 82.7% of nurses surveyed in Singapore had not had EBP training. In addition, [18] who stated that, half of the nurses in Assiut University Hospitals participated neither in research nor in implementation of development of guidelines.

In addition, Farokhzadian et al [15] observed that great of the participants had not presented any occupational program on EBP and had not taken part in any study activities. Furthermore, [21] who studied the evidence-based practice and concerning knowledge: The ability to read and write of nurses in Singapore: A relating to the case study showed that the truth nurses had an education

score, they had not been given any training in EBP as a part of their teaching. In the same line, Heikkila et al, [26] who mentioned that more than half of nurses (61%) had not attended any train course on EBP.

Regarding nurses' beliefs and attitudes toward evidence-based practice (EBP). The findings of this study showed that, the nurses were not open to adopt new health care methods as (EBP). In which the majority of nurses (84.2%) of the nurses either "agreed or highly agree" with the data that they preferred utilizing old approaches than new patient care approaches, and more than half (63%) of the nurses either "agreed or strongly agree" with they do not like people questioning their clinical performance that is founded on old methods. In addition, more nurses agreed (50.5%) that may be caused due to much workload; they could not up to date with all new approaches. However, about half percent (50.3%) of the nurses refused that great of the study papers that they had were not connected to their daily nursing performance. This might be due to the current shortage of experience/information concerning nursing science, nursing study, and application of study outcomes.

This result was in agreement with [15] who study the nurse leaders' behavior, self-performance, and practices necessary for achievements EBP, and found that the participants had negative view directed to EBP. They chose to utilize old methods over use new approaches. Also, Breimaier et al. [16] who explained nurses' a desire, information, attitude and perceived barriers to achieve study findings into performance among graduate nurses in Austria, and showed that, nurses had negative view directed to EBP.

The findings were compatible with Shafie et al. [25] who explained the nurses' perceptions of evidence-based practice: A quantitative research at an education hospital in Iran, in which the highest priority to be considered was "applying old methods instead of change". In disagreement with [19] who studied the nurses' perceptions and barriers for adoption of evidence based practice in primary care and found that, the nurses had a positive attitude toward EBP. In addition, [34] who conducted a cross-sectional study of nurses' and nurse educators' understandings of evidence-based practice in Kazakhstan, and reported that two-thirds of respondents agreed that EBP is beneficial and three-quarters of them need new approaches, rather than utilizing old methods.

In the same line, [31] found that, there was also a positive attitude towards EBP. As well, Majid et al [20] who studied the adopting evidence-based practice in clinical decision making: nurses' perceptions, knowledge, and barriers". They recorded that additional than 64% of

the nurses in their research expressed a positive behavior directed to EBP. Meanwhile, they added that this may be caused due to much workload, they cannot up to date with new approaches.

In the same line, Karki et al. [17] who studied the perceptions and attitudes towards evidence based practice among nurses and nursing students in Nepal, and showed that, the majority of the study respondents demonstrated positive attitudes toward EBP, consistent with findings from previous research as Heydari et al [22] who conduct a study of Iranian nurses' information, behavior, and applications of evidence-based practice, and stated that the nurses expressed a positive attitude toward EBP.

In the same direction, [33] who indicated that nurses reported generally favorable attitudes towards EBP, with most agreeing that EBP is fundamental to professional practice. Noteworthy was that two-thirds positively agreed that there will be a "changing practice due to evidence found" and they "welcome questions on their practice," whereas only a fourth positively agreed that they make time in a work schedule for research."These findings suggest that the RNs might have realized the importance of EBP and accepted the necessity for implementing it. In the previous studies by Mallion and Brooke [30], Dehghani (26), Ammouri et al [28], AbuRuz et al, [29] observed that, the nurses seeing EBP positively and their behavior directed to EBP tended to be great positive than their information/cleverness and utilize of EBP.

Additionally, Study done by Weng et al. [32] found additional than 64% of the nurses expressed a positive behavior directed to EBP. Furthermore, they pointed out that may be caused to the difficult workload they cannot save up to date with new proof. Concerning the perceived self -efficacy of nurses to undertake different evidence-based activities. The findings of this study revealed that, the participating nurses understand themselves to own conservative levels of skills to undertake various EBP activities. The highest mean score was for "evaluate the application of intervention and identify areas of improvement." (3.45 \pm 1.2). Followed by the item "Identify clinical issues/problems." (3.45 \pm 1). For about all the remaining data, the average degrees happened in a very narrow range from 2.5 to 3.26. The lowest average degree was for "Utilize a checklist to estimate study paper'. (2.5 \pm 1.5). It cleared that the nurses had comparatively lower confidence in their ability to adequately express their knowledge necessity and translate these necessities into a well-crafted clinical question. That means that nurses in the current research are in the necessity of heavy practices to be able to carry out that founded cleverness of EBP. Although more than half of them have a Bachelor and Master Degree in Nursing Science and nursing research but they were in necessity great training implementation of EBP.

These results in agreement with Karki et al. [17] who showed that the nurses understand that they had average abilities in EBP. The fewer degrees were for items linked to help study papers utilizing checklists and apply involvement founded on better applicable evidence. Various researches have shown that self-performances are a modifiable agent that has hardness for utilization of all EBP activities [34,35].

Those results were similar to Majid et al, [10] who pointed out that take part nurses understand themselves to have conservative levels of cleverness to undertake various EBP activities. The elevated average degree was for knowledge around nurses' abilities connected to identifying potential clinical issues or problems (3.25), the lowest average degree was for "Utilize a checklist to estimate study papers. In agreement with [5] who studied nurses' perceptions for adoption of evidence-based practice in primary care observed that great of the nurse educators and greater clinical nurse specialists can identify clinical issues/ problems, furthermore, about of the nurse educator-only can translate the clinical problem into a well-formulated clinical question and able to distinguish among various kinds of questions.

In the same line, [27] who conduct a cross-sectional study of nurses' perceptions of evidence-based practice in Kazakhstan, and observed that the participating nurses perceived themselves to have great levels of self-efficacy to undertake various EBP activities. They are powerful clever connected with achievement of EBP and they were able to connect the study results to their clinical performance and point out similarities and variations. Moreover, Kalhor et al [36] found that the overall mean of evidence-based practice among nurses was at a higher level than average the findings of the study. While Farokhzadian et al, [15] who pointed out that nurse understand themselves to own fewer levels of abilities to undertake various EBP activities. The greatest average degree was for "identify potential clinical issues or problems " (3.38), the lowest average degree was for "Utilize a checklist to estimate study papers'. (2.37).

Regarding the nurses barriers for adopting EBP, the results Clarified that, more than two thirds (74%) of the nurses either "agreed or strongly agreed" that, the major two barriers to their adoption of EBP were Insufficient resources (e.g., database and the availability of library with new textbooks, research journals, computers connected to internet) to implement EBP, and Inability to implement recommendations of research studies into clinical practice. The next 2 barriers, identified by less than two thirds (61%) of the nurses, were Inadequate understanding of research terms used in research articles, and difficulty in determining applicability of research finding. In addition, More than half (54%)of the nurses agreed that, difficulty in judging the quality of research articles and reports, Inability to properly interpret the results of research studies, and Inability to understand statistical terms used in research articles. Less than half (40%) of the nurses agreed that, difficulty in finding time at work place to search for and read research articles and reports, and Insufficient time at work place to implement changes in their current practice.

These results in agreement with Heikkila et al [27] when inquiring around respondents' perceptions of barriers to the adoption of EBP, the two great much-reported barriers were concerning to a shortage of resources and information. The respondents found it hard to find time to study for and read studies papers and reports to additional perform alterations. Previous studies [31,33,38] have suggested that barriers to the adoption of EBP involved a shortage of information and skills especially around

inadequacies of a finding the research, understanding the scientific research and statistical information, as well as utilizing the results to the performance to do them alterations as well as a lack of time. In the same line, Mutisya et al. [39] and Khammarnia et al. [40] also highlighted that, the most reported barriers for adopting EBP were unsuitable material resources in an additional lack of autonomy and support from their supervisors. As well as the findings of [45] highlight how Lack of resources, knowledge, and time were the major constraint in achieving evidence-based practice.

In the same way, Hussein and Hussein [30] showed that, shortage of resources to support the study for better training in nursing teaching, old textbooks in libraries, shortage of help to current study journals, and limited arrival to the internet or computers were between the greatest hindering agents for nurses to perform EBP. A well, time constraints. Other barriers such as lack of skills to critique, synthesize, and search the literature and difficulty in understanding research articles were also ranked highly. Moreover, [17] who examined perceptions and attitudes towards evidence based practice among nurses and nursing students in Nepal, and suggested that there were a number of barriers that limit the implementation of EBP in Nepal. The greatest barrier identified was the lack of adequate time and workload release, similar to findings reported from previous study [23] who studied community- and hospital based nurses' implementation of evidence- based practice, and found that, limited access to the internet or computers were among the most hindering factors for nurses to implement EBP. Another barrier identified by 52.9% of the respondents was the lack of sufficient resources.

This result was consistent with Ammori et al. [28] who stated that the greatest barriers to develop EBP among nurses were insufficient time for research and insufficient resources as database and the availability of library are barriers facing the governmental and royal medical service hospital more than private hospital in Oman.

As well, Mohsen and his colleagues [19] showed that the application of evidence in training is usually not skilled. As well as, great of the clinical nurse specialists and nurse educators reported hardly in judging the quality of study papers and reports, inadequate time at workplace to read study paper and also to perform alteration in their current performance, and not enough resources to perform EBP were considered as main barriers for adoption of evidence based practice among nurses.

These results are consistent with [37] who study barriers to and facilitators: In-line with of research utilization among Iranian nurses Literature Review". Similar to findings reported from previous studies of AbuRuz et al. [29] and Naderkhah et al [24] who concluded that, nurses viewed workload as the main challenge for them to be updated with all the new evidence, plus lacking of time to search for evidence and lacking of resources to change the routine practice to evidence based practice. In the same direction, Baiomy and Abdel Khalek [18] clarified that the common barriers of scientific research practice related to nurse experienced included incapability to evaluate quality of research, no access to the library, lack of resources, and knowledge about EBP.

Regarding the relations among nurses' total attitudes, perceived self -efficacy, barriers to EBP and their personal characteristics; the results revealed that there were a highly statistically significant positive relations between the Nurses' total attitudes towards EBP and all personal characteristics of nurses' (age, educational level, years of experiences, and attending training in EBP ($P < 0.001$). This means that nurses with high education level, longer nursing experience, and who attended EBP-related training were likely to be more positive attitudes towards EBP activities. In agreement with [15] who found that, there were considerable variations among the average score of the behavior of participants founded on period of experience, age group, and work shift. No statistically significant variations were showed between attitude and presenting EBP training.

These results supported by Ammori et al. [28] who found that there were significant positive connections among the nurses' years of experience and attitude directed to EBP . This may be due to participants with additional years of experience had the best performance and attitude compared to the newer nurses. In disagreement with [29] who found that elderly nurses research fewer, have a fewer positive attitude, and less information about the evidence than with younger nurses.

In addition, there were a highly statistically significant positive relations between the perceived self -efficacy of nurses to undertake different evidence-based activities and nurses' age, educational level, years of experiences, and attended training in EBP ($P < 0.001$). This means that nurses with greater nursing experience were probably to be additionally convinced in achievement EBP activities. It was interesting to note that for all individual EBP activities, the average degrees of nurses who had a Bachelor's or Master's Degree in nursing was higher than those who had either a certificate or diploma or post-basic or advanced diploma. As well as nurses who attended EBP-related, training was likely to feel more competent in their abilities to implement EBP.

Supporting the finding of [19] who showed that a highly statistical significant relation was found between " Nurses' practice; perception of ability to undertake different EBP and years of experience, academic nurses educator compared to for clinical nurse specialists. In agreement with [15] who found a significant difference was found between the mean scores of self-efficacy among the participants and age groups, degree of nursing, and attending training courses. This result was in-line with [10] who found that nurses who had longer experience in nursing and who had attended EBP training were likely to be more confident in implementing EBP.

Moreover, there were a highly statistically significant relations between the nurses' barriers for adopting EBP and all personal characteristics of nurses' except for years of experiences no statistical significant differences was found ($P > .001$). This means that nurses with high education level, and who attended EBP-related training was likely to have fewer barriers in adopting EBP. This result was in line with Majid et al. [10] who founded that, nurses who had a greater qualification and those who had present EBP practice direct to face lower barriers in adopting EBP. Supporting the finding of Ammori et al. [28] who concluded that the nurses with additional years

of experience understand lower barriers to find the research or variable their performance. Furthermore, academic qualifications were considerably connected with understanding barriers to find the research. Nurses who had a bachelor's degree in nursing tended to perceive fewer barriers to finding research compared to nurses with a diploma. In agreement with Mohsen and his colleagues, [5] who found a highly statistical significant relation was found between nurses' barriers toward EBP and years of experience, for academic nurses educator and clinical nurse specialists.

Regarding the Spearman's correlation coefficient among different study variables, the results showed a positive highly significant relationship among attitudes and self-efficacy, supporting factors in adopting EBP, and Information sources used by nurses, which pointed out that the participants who had positive attitude felt more confident and competent in EBP activities. While there was a negative highly significant correlation with barriers that inhibit adopting EBP. In agreement with Farokhzadian et al, [15] who concluded that the Pearson's connection coefficient observed a positive relationship among attitude of the nurses and self-efficacy to practice EBP.

This result supported by Baiomy and Abdel Khalek. [18] who found that there was statistical significant negative correlation between the barriers and supporting factors in adopting EBP. In disagreement with Ammori et al. [28] who found that, there was no considerable association among barriers and EBP associated performance, attitude and self-efficacy. The results indicated that nurses who perceived more barriers to finding and reviewing research described reduced use of EBP; they also reported less positive attitudes towards EBP and reduced EBP knowledge.

Regarding, desired areas of EBP training; the findings of the present study showed that the most important training needs to identify evidence based practice activities were identifying clinical issues for implementing EBP and understanding what is EBP. There was also a high demand for training in the remaining EBP areas: implementing recommendations to practice, understanding research and statistical terms, synthesizing evidence, and conducting critical appraisals.

In agreement with, Karki, et al [17] Who concluded that the top scores identified by respondents in the survey was understanding what is EBP, identifying clinical issues for implementing EBP, and understanding research and statistical terms and methods. In the same line, Heikkila, et al (26) who conducted a study in Kazakhstan to describe and compare the current state of evidence-based practice from the point of view of Kazakh nurses and nurse educators. Respondents reported that all activities were assessed as important. The most important topics understood research and statistical terms and methods, implementing recommendations into practice; and identifying clinical issues where they can implement EBP.

In consistent with Farokhzadian et al [15] in which the participants stated high demand for training in all areas of EBP. They needed further training on the essential component of EBP and on methods to implement it in clinical practice, which was consistent with some previous studies [16,42]. Researchers reported that most

nurses had willingness to share in training in terms of the fundamental principles of nursing research, application of research evidence in daily practice, and use of databases and libraries.

Regarding, relation between personal characteristics and training areas to adopt EBP, the results showed that there were highly statistically significant positive relations between the nurses' total scores of the desired areas of EBP training and all personal characteristics of nurses' (age, educational level, years of experiences, and attending training in EBP). This means that nurses who had above present EBP practice significant it beneficial. Similarly, nurses who had additional experience and greater nursing qualifications were also probably to estimate EBP practice. This findings was similar to Majid, et al. (10) who reported that there were highly statistically significant positive relations between the nurses' total scores of the desired areas of EBP training and all personal characteristics of nurses' (age, educational level, years of experiences. In different with Farokhzadian et al [15] who found that there was no significant difference between perceived training need among nurses and their personal variables.

As regard, the Supporting factors in adopting EBP; the result of the present study revealed that the most four important Supporting factors for adopting EBP were the availability of preserved time to understand and behavior EBP, arrival to a system for throughout literature studying, mentoring by nurses who have adequate EBP experience, nursing colleagues who embrace EBP. These findings are supported by several other studies. For example, Baiomy and Abdel Khalek [18] who found that, the common facilitators of using evidence based practice that reported by the studied nurses included enhancing administrative support and encouragement, cooperative and supportive colleagues and improving the understandability of research reports.

As well, Shifaaz et al. [40] who found that support, encouragement, and recognition from the management and administration were the most frequent facilitators for research utilization. El-Said et al [41] proved that improving the understandability of research reports, enhancing administrative support/ cooperative and encouragement with colleagues are the key facilitators for implementing evidence based practice in Yanbu General Hospital, Kingdom of Saudi Arabia. In the same line, Karki, et al (17) who stated that, respondents perceived most motivators as important as presented preserved time to behavior EBP, incoming to a system for throughout literature studying, mentoring by nurses who have adequate EBP experience, and given adequate training in EBP.

As well, Heikkila, et al (26) who concluded that the great significant facilitator that was pointed out to assist nurses to adopt EBP was the saving of adequate practice in EBP. As well, the availability of preserved time to understand and perform EBP was also opinion as important.

As regard, Information sources used by nurses for adopting EBP. The findings of the present study concluded that the highest total mean scores was for human information sources followed by electronic information sources while the lowest total mean scores

were for printed sources. The most frequently information sources used were; nursing supervisor, ward colleagues, nursing research committee, doctors, professional friends working in other hospitals and clinics, medical databases, digital medical and nursing libraries, textbooks, journal articles. These finding could be due to limited literature searching skills of nurses, or perhaps limited access to these resources in some settings.

In contrary, Karki, et al [17] who showed that textbooks and searching google were the only information sources that received mean scores above 4.0. The low use of electronic different (digital medical and nursing library, health database, HINARI, eNomed, Scribd)

In disagreement, Dalheim, et al [43] who conducted a study to examine factors influencing the implementation of evidence-based practice among nurses in a large Norwegian University Hospital and showed that the five most frequently used sources in supporting clinical practice were: 1) information learned about each patient as an individual, 2) knowledge based on personal experience, 3) information obtained from hospital policy and protocols, 4) information obtained from experienced nurses, and 5) information obtained from discussion with physicians.

In addition, Heikkila, et al [26] who conducted a study in Kazakhstan to describe and compare the current state of evidence-based practice from the point of view of Kazakh nurses and nurse educators and concluded that the least commonly used print information source was journal articles. The most frequently used electronic information sources were google, nursing e-books and electronic standard operating procedures, the least frequently used electronic information source was digital medical and nursing libraries. The most commonly used human information sources were colleagues and a nursing supervisor. In contrast, the least commonly used source was nursing research committees/EBN groups.

Regarding, relation between personal characteristics and Information sources used by nurses for adopting EBP ,there were a highly statistically significant positive relations between the nurses' total mean scores of information sources used for adopting EBP and all personal characteristics of nurses'. This finding could be due to experienced nurses have basic knowledge-based experience that provides confidence in how to carry out routine tasks and manage unforeseen events and experienced nurses often pose other types of questions that can be answered using research-based sources of evidence. In the same line, Dalheim, et al [43] who conducted a study in Norweg showed that use of self-experienced knowledge significantly increased with higher age of the nurses, with increased number of years of nursing practice, and increased number of years. As well, there was a positive association of the use of research evidence with the nurse's age and number of years of nursing practice. After adjustment of the background variables as well as current educational level, a statistically significant association was observed only between research evidence and age and between external sources of knowledge and number of years of nursing practice. This contrasts with the findings of Milner et al. [44], who found that increasing age indicated a lower score in the use of research-based evidence.

6. Conclusion

In the light of the main study findings, it can be concluded that, the majority of nurses did not attended any specific training on the implementation of evidence-based practice (EBP) in patient care, the majority of them had unfavorable attitudes toward EBP, They preferred using traditional methods over changing to new approaches, and perceived themselves to possess moderate levels of skills to undertake different EBP activities, in addition, all nurses are facing much difficulties in implementing EBP, so that nurses felt that they needed training in almost all of the areas to effectively adopt and implement EBP.

7. Recommendations

Based on the results of the main study findings, the following recommendations are suggested:

- Evidence-based practice should be included in the curricula of nursing education of nursing students.
- Management of faculties of nursing and health care agencies should develop a comprehensive strategy for building EBP competencies through proper training and encourage an EBP environment.
- Schools of nursing should address known barriers and facilitators for adoption of EBP by nursing staff, nursing educators and nursing students.
- In-service training of the nurses on skills of evidence-based practice to reduce barriers to using research evidence and to increase use of research evidence in clinical practice.
- Encourage nurses to attend nursing conferences, scientific meetings, and involve them in the developmental activities.
- Empower nurses to take active role in organizational change and implementation of evidence practice research findings.
- A reward system may be needed to enhance evidence based practice development and achievements in hospitals.

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