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Effect of Training Program for nursing leader regarding Evidence-based Practice: pathway to Evidence-based management

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Abstract:Nurseleader play an important role which promoting evidence-based practice (EBP) on clinical units within hospitals. They have to use evidence skillfully to use in both in practice and leadership. ***Aim of the study:***This study aimed to assess the effect of nursing leader training program regarding evidence-based practice (EBP) at AL-Menshawy Hospital. ***Research design****:* A quasi experimental design was used in this study. ***Studysetting:***The study was conducted in inpatients units of Medical ,Surgical departments and Intensive Care units at EL-Menshawy Hospital affiliated of Ministry of Health, the total number of the studied units were(3)units. The study sample was all the available nurse leader(n=40). ***Tools for data collection:*** One toolwasused: Evidence-based Practice Questioners, this tool has six subscales of EBP, attitudes towards EBP, and Knowledge/Skills associated with EBP, Leadership roles towards developing EBP, leadership responsibilities for changing the cultures of EBPandbarriers toadopting Evidence-based Practice Questioner. **The results** showed that, there was a highly statistical significant improvement in nurses leader perception of using research knowledge to build up the evidence-based practice.Also, there was a highly statistical significant difference improvement in nurses leader level (80%) post program compared to preprogram (32,5%) regarding to perceptions of effect of training program of EBP.Also, the most of nurses leader reported that the common barriers, lack of access of internet at work, lack of resources, lack of time lack of knowledge and lack of cooperation with doctors. **Thestudyconcluded** that there was appositive attitude towards EBP and the training had helped nurse leaders to understand that decision can be justified with research knowledge, which strengthened the leaders responsibility to develop EBP. The study **recommended**that Evidence-based practice should be included in the curricula of students nursing education of. In-services training for nurses leader and nurses for EBP to reduce barriers for using research evidence in clinical practice.

Keywords:Nursing leader**;** Training program; Evidence-based Practice ; Evidence-based Management

INTRODUCTION

A vital factor in delivering high-quality patient care is nursing implementation of evidence-based practice (EBP); **institutional** leadership such as head nurses, plays an integral role in the implementation of EBP on nursing units[(1)]. Evidence-based practice allow nurses to make composite health care decisions based on findings from high quality research report [(2,3)]. Evidence –based practice is a systematic approach to use the best research evidence functionalto clinical expertise and patients values [(4,5)]. Evidence-based leadership covers the best use of evidence to organize, guide, deliver, economics and improve the quality of care and patient safety[(6)].

Nurse Leader haveroles lively roles related to EBP at the unit level and central to mounting evidence-based nursing practice[(7-12)] because they create a culture of evidence-based practice and have the **responsibilit**y of conniving and supporting nursing environments that advance the high of care, based on the best available evidence [(13-16)]. Nurse leaders themselves need to able to use scientific evidence and hold close continuous learning [(6,8)].

Leadership is a key element in developing EBP in health care organizations [(17,13)]. The nurse leaders should be competent at evidence-based practice in order to spearheads the change from **experience**-based to evidence-based practice. The key skills of leaders trying to advance EBP are inventive thinking, planning and implementation of the change [(18)]. The application and integration of evidence-based principles into nursing leadership is a complex process, itself part of complex system.This process needs the passion, respect and knowledge of nursing practice [(13, 19)]. Support from nurse leaders is vital to the promotion of EBP.

Evidence-based practice emerged as a maker for the quality of health care that is vital to improve the systemof health care [(19,20)]. Nurses leader in health care organization should use evidence-based practice and research to assess and enhance their skills They must formulate and implement policies and procedures, perform effective clinical interventions, and provide care plan to improve patient outcomes [(21)]. Evidence-based practice is a problem-solving approach to provide services and health care, so that the best evidence of studies and data related to care of patients is integrated with experience of services providers and patient's preferences and values [(22)].

Nurse leaders who take out evidence-based practice appreciate the expertise of other evidence-based professionals. Innovative nurse leaders understand the scientific methodology and searching for useful research papers and articles [(23, 24)]. Johansson et al. [(25)] found that head nurses who had additional education in scientific methodology utilized more research findings than those lacked that additional education. The effective leadership successful facilitations in promoting an EBP culture included supporting participation of nursing staff in research, meeting staff learning needs, goal setting for

presentation and publications [26]. On the other hand, barriers to the use of research in clinical practice are plentiful. Studies have identified common barriers among nurses; the nurses" research values and skills, the quality of research and how the research is presented [27-29].The most common barriers to evidence-based practice were, insufficient time to find research reports, inability to implement recommendations of research studies, inability to properly interpret the results of research studies and inability to understand statically terms [30]. Hence, there is an essential need to enhance nurses practice of EBP to improve quality of care and patient safety.

Benefits of evidence-based practice are many for health care system, patients, nursing staff regarding their research and education. For health-care system, provide the most cost-efficient nursing care and strong basis for health care savings decisions. While for patients, improve conditions for patient-centered care as enhanced patient outcomes, increase quality of care and patient safety [31]. In additions, for nursing staff, increase job satisfaction, improved skills to integrate patient preferences into practice, increase confidence in decision making focus on nursing practice that based on evidence and research. Also, for student nursing education, keep policies and procedures are current and include the latest research, be in line with international best evidence at the time of care [32].

Significance of the study:

Wider acceptance of EBP is yet needed to improve quality, safety, and promote effective care that can positively impact patient outcomes [34]. Several Institute of Medicine reports published since 2001 focusing broadly on health care quality and redesigning systems to ensure patients receive safe, effective, patient centered, timely, efficient and evenhanded care, much progress has been made in developing systems to support EBP[33]. The nurse leaders play a significant role in facilitating the integration of evidence into practice and use of research-based evidence in nursing practice [34]. Nursing leadership that is responsive and adapts to change, both within and outside the health care setting, can influence the success of the organization. Nurse leaders, must take action at the individual organization and environmental levels to support staff nurses in their delivery of evidence-based nursing practice (EBNP), nurse leaders must be able to identify the changes needed in their organizations for EBNP to become a reality.

The application of EBP can be challenging and requires cooperation and team work among nurses practicing in various roles. Also, the need of competences-based evidence system to advance health professional education to better meet the needs of dynamic system of health care and communities [35, 36].While organizational culture is critical to ensuring that a best practice climate is fostered, successful EBP requires more than positive leadership [37]. Therefore, it is most important to educate nurse leaders about EBP.Thetraining program willingness of nurses leaders to adopt EBP has been seen to be important in the management of evidence-based practice[38].

Aim of the study:

The study aimed to assess the effect of training program for nursing leader regarding evidence –based practice: pathway to evidence based management .

Research questions:

1. What are nurse leaders perceptions about evidence-based practice before the training program?
2. What are nurse leaders perceptions about evidence-based and practice after the training?
3. What are the barriers that facing nurse leaders to implementation of Evidence-based Practice?

SUBJECTS AND METHOD

Research design:

A quasi experimental research design was one group pre and posttest used to carry out the study.

Setting:

The study was conducted in inpatients units of Medical ,Surgical departments and Intensive care units at EL-Menshawy General Hospital at Gharbia Governorate which is affiliated to Ministry of Health and Population which consist of three buildings (A,B,C) include twenty inpatient and outpatient departments.

Subjects:

Subjects of the study include all nurse leader group available nurse (n= 40) and working in the above-mentioned study setting.

Tools of Data Collection:

One tool was used to collect the study data

Evidence-based Practice (EBP) questionnaire

A structured questionnaire developed bythe researcher based on the review of the related literatureKhammarrnia, et al (2014)[39] , Oaska (2012) [40]Gerrish et al. (2007) [41], Uopn et al. (2006) [42], McKennaet al.,(2004) [43]and to assess the effect of leadership training on nurses leaders' perceptions of evidence-basedpractice and barriers to implementation of evidence- based practice. It consists of two parts: part one; include Personal characteristics of nurse leader as;department, age,sex, marital status, educational qualification, experience years and previous training about EBP. Part two: It comprised of 61 items concerning evidence-based practice and barriers to implementation of evidence –based practice.

This tool was classified under main categories which covered six areas as the following:

- Confirming the use of research knowledge (15 items)
- Impact of training on the nurse leaders perceptions of EBP (6 items)
- Responsibility of nurse leaders for changing the cultures(10 items)
- Nurse leader use of research knowledge for development of staff (7 items)
- Motivating the staff to reach common goals and participation (8 items)
- Barriers to implementation of evidence-based practice (15 items)

Scoring System:

The response of nurse leader for questionnaire was measured by using a three- point Likert- Scale as follow: agree (3),partly disagree (2),and disagree (1). The scores of each category summed up and converted into percent score,where scores of >75% high nurse leader perception of EBP,60-75% was indicated to moderate nurse leader perception of EBP and <60% was illustrated low nurse leader perception of EBP.

Methods:

Operational Design:

The operational design of the current study includes; content validity and reliability, pilot study and field work.

Tools Validity:

Study tools contents were developed and tested for its validity by jury of 7 academic staff in nursing administration at different faculties of nursing. The validity of the tools aimed to judge its clarity, comprehensiveness, relevance and accuracy. All of their comments were taken into consideration.

Tools reliability:

The Cronbach's Alpha test was done for study tools. The calculated reliability was (r=0. 986) for evidence-based practice questionnaire and within the accepted limit.

Approval:

An official permission was obtained from hospital authorities in the identified setting to collect the necessary data and implement the program after explaining its purpose.

Pilot Study:

A pilot study was carried out during July 2018 on (4 head nurses) who were constituted 10% of the current study sample before starting the actual data collection to ascertain the clarity and applicability of the study tools. It also. needed to estimate the time necessary to fill in these tools. Participants in the pilot study was excluded from the main study.

Ethical Considerations:

Purpose and expected outcome of the study were explained to each study subjects. They were secured that all the gathered data will be used for the research purpose only, the study is harmless and their approval to participate is a prerequisite to be included in the study. Each subject was assured that they can withdraw whenever they want.

Field Work:

The study was carried out for (six months) from at the beginning of July to the end of September 2018 as the following:

- Pre-implementation phase (Initial assessment): Preparation of data collection tool and the training program about evidence-based practice based on a review of recent national and international related literature using Journals, periodicals, textbooks, internet and theoretical knowledge of the various aspects concerning the topic for two weeks July. Contents of the program included: Leadership of evidence-based practice; the leader as a promoter of work well – being;Challenges and opportunities of leadership; patient satisfaction and patient safety; Nurse Leader role in staff commitment to change management and identifying barriers to implementation EBP in clinical environment.
- Implementation phase (intervention) was carried in last two weeks in July to end of October. At the beginning; studied nurses leaders divided into5 groups each group was contain8 nurses leaders then the preprogram tests are fulfilled by the nurses leaders before beginning of the training program. EBP questioner took from 25-30 minutes to be compelled. This study test was designed to allow the researcher collect a baseline assessment of nurses leaders perception of knowledge for evidence-based practice and barriers to implementation of evidence-based practice in order to compare it with post program. The data collected three days/week in the morning and afternoon at the beginning of October to the end of November 2018.
- After the questionnaires were completed the training program was implemented by the researchers. The time plan of the program implemented over the period from the beginning of November2018 to end of December 2018. The training program has taken 10 hours for each groups distributed as the following; 5 sessions, 2 hour/session days/week at morning and afternoon shifts, at the beginning of the program sessions, orientation to the program and its purpose took place and the nurse managers were informed about the time and place of sessions which were carried out at the training department lecture room. Each session was started by setting objectives and overview of the new topic, at the end of each section the nurses leaders were discussed. Each group perceived the program content using the same teaching strategies and handout, methods of teaching were used as the following; lecture, group discussion, and brain storming. Between the teaching days, the nurses leader carried out assignments on the topics taught and the nurses leaders selected three of the most interesting themes suggested to them when they applied for the course. Teaching and instructional media included the following; hand out, CD, and power point presentation.

Statistical Analysis:

Data entry and analysis were done using statistical package for social science (SPSS) Version 18. Date was presented using: Descriptive statistics in the form (frequency, percentage, mean, and standard deviation, and Chi Square). Test of significant was done. Significant level was considered when p≤ 0. 05 and a highly significant level value was value was considered when p≤ o. o1.

RESULTS

Table (1): Indicate distribution of nurses leader according to their personal characteristics, more than fifths (55%) of them had age from 31-40 years while 45% of nurses leader had age 20-30 years. According to work department, the most of nurses leader 42.5% were working in medical units and 35% were working in surgical units and the last of them 22.5% were in intensive care units. As regard to Educational qualification, ail of nurses leader had Bachelor of nursing and two of them have a master degree. In relation to years of

experience, more than half of nurses leader (55%)had< 10 years. Also, the last ofthem (45%) had 10-20 years of experiences. As regards to working experience in health care, 55% of nurses leader were have below 10 years, while 45% of nurses leader have above 10years.

Table (2): Shows the nurses leader perceptions of knowledge for EBL and promoting BP pre and post program. There was highly statistically significant improvement in perceptions of nurses leader regarding to knowledge of EBP pre and post program. The majority (67. 5%, 65%,and 62. 5%) had the positive perceptions towards developing nursing using research knowledge. Especially related to allow enough time to their staff to read about research, select new staff members that have research interests and experience, respectively. Also, nurses leaders had a agree post program are the same percent 60%for(search for evidence from publication in their unit, use the research to develop their unit and encourage the staff to explore the latest research in their unit)respectively. On the other hand, the nurses leaders felt partially disagree before program(75%, 72,5%%,and 67,5%) according to the staff in their unit not know what about evidence-based practice, care of patients in their unit was evidence-based, use of research to develop care in their units and the staff are interested in developing using EBP respectively.

Table (3): Shows the distribution of nurses leaders perceptions of EBP pre and post program. The table revealed that there was a highly statisticalsignificance improvement in perceptions of nurses leader regarding impact of training for EBP post program. Most of nurses leaders (72. 5%) agreed that the training program had helped to understand that evidence-based practice, understanding that the evidence-based practice increase the quality of care, helped them to understand that decisions can be justified with research knowledge and helped them to developed evidence-based practice respectively. On the other hand, 2% of themhad total disagree that the training had improved their knowledge of EBP whereas 11% agree. Also, 5% of nurse leader totally disagree that the training program promoted them to understanding how the research based on evidence-based practice.

Table (4): Clarifies that the nurses leader responsibilities for changing the cultures of evidence-based practice pre and post program. The table revealed that there was a highly statistical significance improvement in perceptions of nurses leader responsibilities for changing the cultures of EBP. The nurses leader recognized their responsibility for coordinating nursing practice, work orientation, developing EBNL, making staff participate in evidence-based practice, and developing multi-professional collaboration (75%,72,5%,72,5%, 72,5%, and 70%) respectively. Also, about two third (65% and60%)the nurses leader agreed that their responsibility for developing evidence nursing practice, developing unity of work, and planning the additional training of staff respectively. On the other hand, pre training program 10% of nurses leader (were agreed related to planning the additional training of staff whereas 2% of them had total disagree.

Table (5): Shows that nurses leaders attitude about the use of research knowledge in EBP. The table displayed that there was a highly statistical significant improvement in nurses leadership regarding use of research knowledge in EBP post training program. Most of nurses leader (72,5%)post program had agreed that the use of research knowledge in EBP, regularly bring research knowledge for their staff, and regularly discuss scientific publication to their staff respectively. On the other hand, (30%,29%and 26%) of nurses leader were had partially disagree according to link research knowledge to their previous experience, new research knowledge to develop their professional skills and have a clear goal in leadership respectively.

Table (6): Illustrates that how nurses leader role to motivating their staff for EBP. The table revealed that there was a highly positive statistical significant in nurses leadership regarding to conscious to develop EBP and their working unit. Near of three quarters (70%) of nurses leader were had a agreed post program for using research knowledge, making the staff participate, developing the skills of the staff and developing collaboration among their staff respectively. While, (75,50%72,50%, 65%) partially disagree pre-program for supporting their staff, setting an example in working unit and making the staff to participate respectively.

Table (7): Indicates barriers facing nurse leader to implementation of evidence-based practice pre program. The table showed that the major barrier to their adoption of EBP was the lack of internet access at work (87%) followed by insufficient resources (e g,equipment, materials to implement EBP (80%)respectively. The next barriers, identified by more than 47.50% of nurses leader were to insufficient time at work place to implement changes in their current practice, inability to properly interpret the results of research, inability to implement recommendations of research studies into clinical practice, lack of knowledge, lack of time to read literature and no cooperation by physicians respectively. On the other hand, most of nurses leader reported that other barriers (52,50%, 45,00%, 30,0%)to lack of autonomy to change their practice, lack of ability to work with computer and inability to understand statistical terms in research articles respectively.

Table (8): Displays level of nurses leader regarding evidence-based practice Pre-post training program. It was observed that there was a highly statistical significant improvement perception for EBP. The table revealed that the highest percent for nurses leader post program (77, 5%) for felt of responsibility for changing the cultures and followed (75%) for use research knowledge in leadership. Also, (72,5%, 70%) for using EB knowledge in leadership and promoting EBP in their unit and development the nurses leader an EB leader respectively.

Figure (1): Shows that the total level of nurses leader regarding evidence-based practice pre-post program. the figure revealed that there was a highly statistical significant difference improvement in nurses leader level (80%) post program compared to preprogram (32,5%) regarding to perceptions of effect of training program of evidence –based leader and practice.

Table (9): Shows that mean scores and standard division of nurses leader of evidence-based practice pre- post program. The table revealed that there was a statically significance difference in nurses leader perception training program pre-post program. The total mean scores increased post program to 119. 950± 21,514 compared to pre program 98. 350±15.877. Also, the highest mean score (37,925±7,556) of nurses leader post program for using EB knowledge in leadership and promoting EBPcompared to 31,600±5,852 pre program and followed it the responsibility of nurses leader for changing the cultures 26. 375 ± 5.107 post program.

Table (10): Reveals correlation between nurses leader perceptions of training for evidence –based practice and their age pre- post program. The table revealed that there was no statistical significance difference between nurses leaders perceptions of training program for EBP and their age pre-post program.

Table (11): Showed that the matrix correlation between nurses leader of training for evidence-based practice pre – post program. There was statistical significance correlation between nurses leader training program of evidence-based practice pre-post program.

Table (1): Distribution of nurses leader regarding to their personal characteristics (n=40)

Personal characteristics		N	%
Age groups	**20-30 Years**	18	45. 00
	31-40 Years	22	55. 00
Age	**Range**	20	40
	Mean±SD	30. 775	5. 181
Department			
Surgical unit	**1**	14	35%
Medical unit	**2**	17	42.5%
ICU	**3**	9	22.5%
Working experience in current job	**<10 Years**	22	55. 00
	10-20 Years	18	45. 00
Working experience in health care	**<10 Years**	22	55. 00
	10-20 years	18	45. 00
Nurses' qualification	**Bachelor**	38	95%
	Master	2	5%

Table (2): Frequency distribution of nurses leader for using evidence-based practice knowledge in promoting EBP pre and post program (n=40)

Knowledge in promoting EBP		Pre		Post		Chi-Square	
		N	%	N	%	X^2	P-value
I search for evidence from publication in my organization	**Agree**	7	17. 50	24	60	15. 221	<0. 001*
	Partially disagree	31	77. 50	15	37. 5		
	Total disagree	2	5. 00	1	2. 5		
I use the research to develop my unit	**Agree**	11	27. 50	24	60	8. 759	0. 013*
	Partially disagree	28	70. 00	15	37. 5		
	Total disagree	1	2. 50	1	2. 5		
The staff of my unit know what evidence practice	**Agree**	6	15. 00	21	52. 5	13. 133	0. 001*
	Partially disagree	30	75. 00	18	45		
	Total disagree	4	10. 00	1	2. 5		
The patient care in my unit is evidence-based	**Agree**	6	15. 00	22	55	14. 940	0. 001*
	Partially disagree	29	72. 50	17	42. 5		
	Total disagree	5	12. 50	1	2. 5		
I use research knowledge to help my leadership work	**Agree**	8	20. 00	21	52. 5	9. 386	0. 009*
	Partially disagree	27	67. 50	17	42. 5		
	Total disagree	5	12. 50	2	5		
Developing evidence-based practice is an essential part of my leadership practice	**Agree**	10	25. 00	22	55	7. 594	0. 022*
	Partially disagree	26	65. 00	15	37. 5		
	Total disagree	4	10. 00	3	7. 5		
I appreciate that evidence-based practice is an important part of my leadership style.	**Agree**	10	25. 00	21	52. 5	8. 659	0. 013*
	Partially disagree	29	72. 50	16	40		
	Total disagree	1	2. 50	3	7. 5		
I understand about developing nursing using research knowledge	**Total agree**	10	25. 00	22	55	7. 514	0. 023*
	Partially disagree	27	67. 50	16	40		
	Total disagree	3	7. 50	2	5		
I encourage my staff to explore the latest research in my own area	**Agree**	11	27. 50	24	60	8. 780	0. 012*
	Partially disagree	26	65. 00	15	37. 5		
	Total disagree	3	7. 50	1	2. 5		
The staff in my unit have opportunities to participate in evidence-based practice nursing training.	**Agree**	9	22. 50	23	57. 5	10. 625	0. 005*
	Partially disagree	25	62. 50	15	37. 5		
	Total disagree	6	15. 00	2	5		
The staff are interested in developing using EB knowledge.	**Agree**	10	25. 00	23	57. 5	9. 243	0. 010*
	Partially disagree	27	67. 50	14	35		
	Total disagree	3	7. 50	3	7. 5		
I make it possible for staff to	**Total agree**	11	27. 50	23	57. 5	7. 664	0. 022*

develop EBP by giving time for search for evidence.	**Partially disagree**	27	67. 50	15	37. 5		
	Total disagree	2	5. 00	2	5		
My staff have enough time to read about research	**Agree**	5	12. 50	25	62. 5	21. 667	<0. 001*
	Partially disagree	20	50. 00	10	25		
	Total disagree	15	37. 50	5	12. 5		
When I select new staff members it is important they have interest in research	**Agree**	8	20. 00	27	67. 5	18. 537	<0. 001*
	Partially disagree	25	62. 50	11	27. 5		
	Total disagree	7	17. 50	2	5		
When choose new staff members it is important that they have research experience.	**Agree**	9	22. 50	26	65	14. 825	0. 001*
	Partially disagree	25	62. 50	12	30		
	Total disagree	6	15. 00	2	5		

Table (3): Frequency distribution of nurses leader perception of evidence-based practice pre and post program (n=40)

Nurses leader perceptions of EBP		**Pre**		**Post**		**Chi-Square**	
		N	**%**	**N**	**%**	**X^2**	**P-value**
Evidence based increased my knowledge aboutevidence-based practice.	**Agree**	11	27. 50	29	72. 5	16. 837	<0. 001*
	Partially disagree	27	67. 50	11	27. 5		
	Total disagree	2	5. 00	0	0		
EBP improved my knowledge about evidence leadership.	**Agree**	10	25. 00	27	67. 5	14. 544	0. 001*
	Partially disagree	28	70. 00	12	30		
	Total disagree	2	5. 00	1	2. 5		
EBP promoted my understanding of how nursing has to be based on research knowledge	**Agree**	5	12. 50	27	67. 5	25. 251	<0. 001*
	Partially disagree	28	70. 00	10	25		
	Total disagree	7	17. 50	3	7. 5		
EBP promoted my understanding of how evidence-based practice increase the quality of care.	**Agree**	10	25. 00	29	72. 5	18. 514	<0. 001*
	Partially disagree	25	62. 50	8	20		
	Total disagree	5	12. 50	3	7. 5		
EBP helped me to understand that decision can be justified with research knowledge.	**Agree**	11	27. 50	29	72. 5	16. 296	<0. 001*
	Partially disagree	25	62. 50	9	22. 5		
	Total disagree	4	10. 00	2	5		
EBP training developed my evidence-based practice.	**Agree**	9	22. 50	29	72. 5	20. 069	<0. 001*
	Partially disagree	26	65. 00	9	22. 5		
	Total disagree	5	12. 50	2	5		

Table (4): Frequency distribution of nurses leader responsibilities for changing the cultures of evidence-based practice pre and post program (N=40)

Nurses leader responsibilities for changing cultures of EBP		**Pre**		**Post**		**Chi-Square**	
		N	**%**	**N**	**%**	**X^2**	**P-value**
For developing evidence nursing practice.	**Agree**	9	22. 50	26	65	18. 652	<0. 001*
	Partially disagree	31	77. 50	12	30		
	Total disagree	0	0. 00	2	5		
For developing unity of work	**Agree**	9	22. 50	24	60	11. 818	0. 003*
	Partially disagree	30	75. 00	15	37. 5		
	Total disagree	1	2. 50	1	2. 5		
For planning the additional training of staff.	**Agree**	10	25. 00	24	60	10. 028	0. 007*
	Partially disagree	28	70. 00	15	37. 5		
	Total disagree	2	5. 00	1	2. 5		
For developing the professionalism of staff	**Agree**	10	25. 00	26	65	13. 244	0. 001*
	Partially disagree	26	65. 00	13	32. 5		
	Total disagree	4	10. 00	1	2. 5		
For work orientation	**Agree**	8	20. 00	29	72. 5	22. 175	<0. 001*
	Partially disagree	29	72. 50	10	25		
	Total disagree	3	7. 50	1	2. 5		
For coordinating nursing practice	**Agree**	10	25. 00	30	75	20. 000	<0. 001*
	Partially disagree	27	67. 50	9	22. 5		
	Total disagree	3	7. 50	1	2. 5		
For developing multi-professional collaboration	**Agree**	10	25. 00	28	70	16. 263	<0. 001*
	Partially disagree	27	67. 50	11	27. 5		
	Total disagree	3	7. 50	1	2. 5		
For using evidence- based knowledge in their leadership	**Agree**	7	17. 50	27	67. 5	20. 770	<0. 001*
	Partially disagree	30	75. 00	11	27. 5		
	Total disagree	3	7. 50	2	5		
For making the staff participate in evidence-based practice.	**Agree**	7	17. 50	28	70	24. 900	<0. 001*
	Partially disagree	31	77. 50	9	22. 5		
	Total disagree	2	5. 00	3	7. 5		
For developing EBNL	**Agree**	7	17. 50	29	72. 5	26. 181	<0. 001*
	Partially disagree	30	75. 00	8	20		
	Total disagree	3	7. 50	3	7. 5		

Table (5): Frequency distribution of nurses leader attitude for developing the staff nurses to use BP pre and post program (n=40)

Nurses leader attitude to use knowledge for developing of staff		Pre		Post		Chi-Square	
		N	%	N	%	X^2	P-value
I recognize the need for research knowledge about nursing in developing my own skills.	**Agree**	8	20. 00	29	72. 5	22. 645	<0. 001*
	Partially disagree	29	72. 50	9	22. 5		
	Total disagree	3	7. 50	2	5		
I use research knowledge to develop my own professional skills	**Agree**	8	20. 00	28	70	20. 211	<0. 001*
	Partially disagree	29	72. 50	11	27. 5		
	Total disagree	3	7. 50	1	2. 5		
I have my goals in leadership clear	**Agree**	9	22. 50	26	65	15. 257	<0. 001*
	Partially disagree	26	65. 00	13	32. 5		
	Total disagree	5	12. 50	1	2. 5		
I link research knowledge to my previous experience	**Total agree**	7	17. 50	27	67. 5	20. 479	<0. 001*
	Partially disagree	30	75. 00	12	30		
	Total disagree	3	7. 50	1	2. 5		
I will systematically use research knowledge to support my leadership work	**Agree**	7	17. 50	28	70	23. 269	<0. 001*
	Partially disagree	29	72. 50	9	22. 5		
	Total disagree	4	10. 00	3	7. 5		
I regularly bring research knowledge for my staff	**Agree**	8	20. 00	29	72. 5	23. 838	<0. 001*
	Partially disagree	29	72. 50	8	20		
	Total disagree	3	7. 50	3	7. 5		
I regularly discuss scientific publication to my staff	**Agree**	9	22. 50	29	72. 5	20. 193	<0. 001*
	Partially disagree	27	67. 50	9	22. 5		
	Total disagree	4	10. 00	2	5		

Table (6): Frequency distribution of nurses leader role for motivating staff nurses to use evidence-basedpractice pre and post program

Items		Pre		Post		Chi-Square	
		N	%	N	%	X^2	P-value
Supporting my staff	**Agree**	9	22. 50	26	65	14. 978	0. 001*
	Partially disagree	30	75. 00	13	32. 5		
	Total disagree	1	2. 50	1	2. 5		
Using research knowledge	**Agree**	8	20. 00	28	70	26. 475	<0. 001*
	Partially disagree	31	77. 50	8	20		
	Total disagree	1	2. 50	4	10		
Setting an example in working unit	**Agree**	10	25. 00	27	67. 5	14. 860	0. 001*
	Partially disagree	29	72. 50	12	30		
	Total disagree	1	2. 50	1	2. 5		
Making the staff participate	**Agree**	10	25. 00	28	70	16. 304	<0. 001*
	Partially disagree	26	65. 00	10	25		
	Total disagree	4	10. 00	2	5		
Motivating to reach common goals	**Agree**	12	30. 00	26	65	9. 825	0. 007*
	Partially disagree	24	60. 00	12	30		
	Total disagree	4	10. 00	2	5		
Developing the skills for the staff	**Agree**	12	30. 00	28	70	13. 029	0. 001*
	Partially disagree	25	62. 50	10	25		
	Total disagree	3	7. 50	2	5		
Developing the practice	**Agree**	10	25. 00	27	67. 5	14. 860	0. 001*
	Partially disagree	29	72. 50	12	30		
	Total disagree	1	2. 50	1	2. 5		
Developing collaboration	**Agree**	10	25. 00	28	70	16. 626	<0. 001*
	Partially disagree	29	72. 50	11	27. 5		
	Total disagree	1	2. 50	1	2. 5		

Table (7): Barriers facing nurses leader to implementation evidence-based practice pre-program (n=40)

Barriers to implementation of EBP	Agree		Partially disagree		Total disagree	
	N	%	N	%	N	%
Difficulty in finding time at work place to search for and read research articles and reports	24	60. 00	10	25. 00	6	15. 00
Inability to understand statistical terms in research articles.	18	45. 00	10	25. 00	12	30. 00
Inadequate understanding of research terms used in research articles'	12	30. 00	19	47. 50	9	22. 50
Difficulty in judging the quality of research articles and reports	15	37. 50	25	62. 50	0	0. 00
Insufficient time at work place to implement changes in their current practice	23	57. 50	15	37. 50	2	5. 00
Insufficient resources (e g, equipment, materials to implement EBP	32	80. 00	8	20. 00	0	0. 00
Inability to properly interpret the results of research studies	19	47. 50	13	32. 50	8	20. 00
Difficulty in determining the applicability of research findings	18	45. 00	16	40. 00	6	15. 00
Inability to implement recommendations of research studies into clinical practice	19	47. 50	17	42. 50	4	10. 00
Lack of knowledge	19	47. 50	15	37. 50	6	15. 00

Lack of ability to work with computer	7	17. 50	15	37. 50	18	45. 00
Lack of autonomy to change practice	9	22. 50	10	25. 00	21	52. 50
Lack of internet access at work	35	87. 50	5	12. 50	0	0. 00
No cooperation by physicians	19	47. 50	9	22. 50	12	30. 00

Table (8): Distribution of nurses leader levels of evidence-based practice pre and post training program (n= 40)

Items of EBP		**Pre**		**Post**		**Chi-Square**	
		N	**%**	**N**	**%**	**X^2**	**P-value**
Using EB knowledge in leadership and promoting EBP in their own unit	**High**	10	25. 00	29	72. 5	18. 256	<0. 001*
	Moderate	24	60. 00	8	20		
	Low	6	15. 00	3	7. 5		
Impact of training on the nurse leaders perceptions of EBP	**High**	14	35. 00	30	75	13. 077	0. 001*
	Moderate	20	50. 00	7	17. 5		
	Low	6	15. 00	3	7. 5		
The nurse leader responsibilities for changing the cultures	**High**	15	37. 50	31	77. 5	13. 110	0. 001*
	Moderate	20	50. 00	7	17. 5		
	Low	5	12. 50	2	5		
How nurses leader attitude about use of research knowledge in EBP	**High**	12	30. 00	30	75	16. 473	<0. 001*
	Moderate	22	55. 00	7	17. 5		
	Low	6	15. 00	3	7. 5		
How nurses leaders felt about their roles for motivating the staffto use EBP	**High**	14	35. 00	28	70	9. 967	0. 007*
	Moderate	21	52. 50	9	22. 5		
	Low	5	12. 50	3	7. 5		

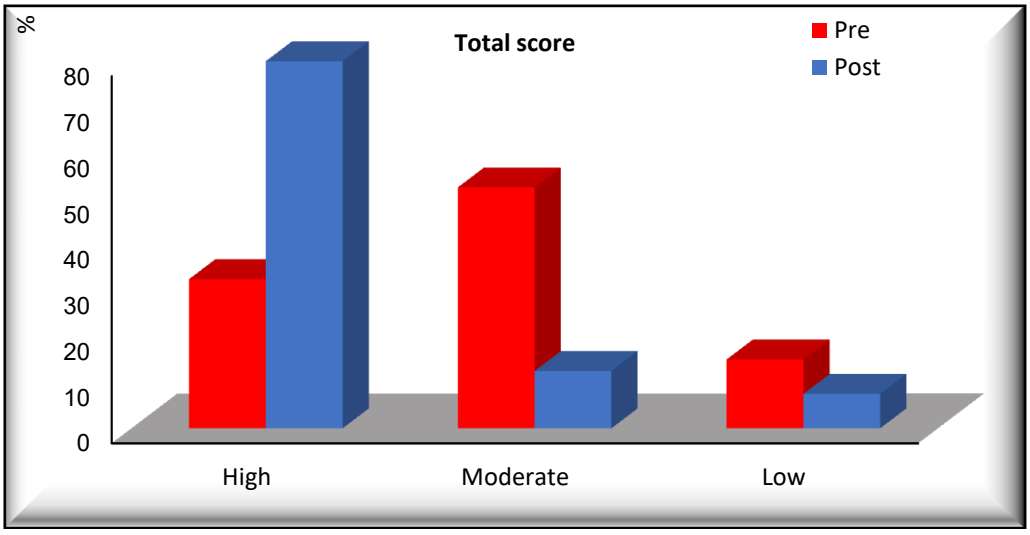

Figure (1): Distribution of total levels for nurses leader regarding evidence-based practice pre and post program (n=40)

Table (9): Distribution of mean scores of nurses leader regarding to evidence-based practice pre and post training program (n=40)

Items of EBP	**Pre**			**Post**			**T-Test**	
	Mean	**±**	**SD**	**Mean**	**±**	**SD**	**T**	**P-value**
Using EB knowledge in leadership and promoting EBP in their own unit	31. 600	±	5. 852	37. 925	±	7. 556	-4. 186	<0. 001*
Impact of training on the nurse leaders perceptions of EBP	12. 775	±	2. 616	15. 975	±	3. 174	-4. 920	<0. 001*
The nurse leader responsibilities for changing the cultures	21. 575	±	3. 935	26. 375	±	5. 107	-4. 709	<0. 001*
How nurses leader attitude about use of research knowledge in EBP	14. 775	±	2. 869	18. 575	±	3. 601	-5. 220	<0. 001*
How nurses leaders felt about their roles for motivating the staff to use EBP	17. 625	±	3. 224	21. 100	±	4. 235	-4. 129	<0. 001*

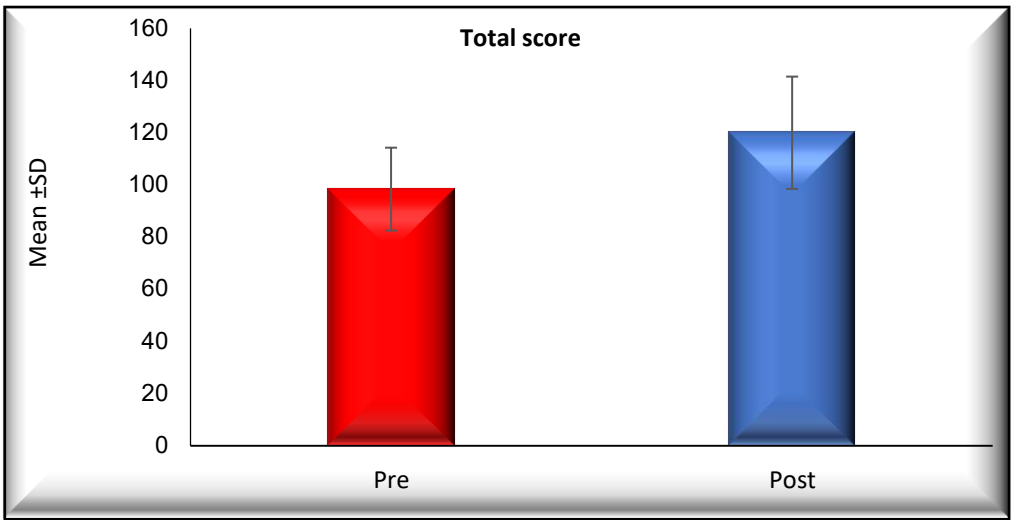

Figure (2): Distribution of total mean score of nurses leader regarding to evidence-based practice pre and post program (n=40)

Table (10): Correlation between nurses leader age and their perception aboutevidence-based practice and leader pre and post program (n=40)

Correlations				
Items of evidence-based practice	**Age**			
	Pre		**Post**	
	r	**P-value**	**r**	**P-value**
Using EB knowledge in leadership and promoting EBP in their own unit	0. 250	0. 120	0. 051	0. 755
Impact of training on the nurse leaders perceptions of EBL and EBP	0. 231	0. 152	0. 065	0. 690
The nurse leader responsibilities for changing the cultures	0. 083	0. 610	0. 061	0. 707
How nurses leader attitude about use of research knowledge in EBP	0. 190	0. 241	0. 051	0. 754
How nurses leaders felt about their roles for motivating the staff to use EBP	0. 257	0. 109	0. 084	0. 606
Total score	0. 237	0. 140	0. 031	0. 847

Table (11): Correlation matrixof nurses leader perception ofevidence-based practice pre and post program

Correlations							
Time			**Using EB knowledge in leadership and promoting EBP in their own unit**	**Impact of training on the nurse leaders perceptions of EBL and EBP**	**The nurse leader responsibilities for changing the cultures**	**How nurses leader felt about use of research knowledge in leadership**	**How nurses leaders felt about their own development as anEB leader**
Pre	**Impact of training on the nurse leaders perceptions of EBL and EBP**	**R**	0. 758				
		P-value	<0. 001*				
	The nurse leader responsibilities for changing the cultures	**R**	0. 708	0. 713			
		P-value	<0. 001*	<0. 001*			
	How nurses leader felt about use of research knowledge in leadership	**R**	0. 763	0. 560	0. 518		
		P-value	<0. 001*	<0. 001*	0. 001*		
	How nurses leaders felt about their own development as anEB leader	**R**	0. 587	0. 570	0. 630	0. 698	
		P-value	<0. 001*	<0. 001*	<0. 001*	<0. 001*	
	Total score	**R**	0. 926	0. 838	0. 848	0. 824	0. 796
		P-value	<0. 001*	<0. 001*	<0. 001*	<0. 001*	<0. 001*
Post	**Impact of training on the nurse leaders perceptions of EBL and EBP**	**R**	0. 738				
		P-value	<0. 001*				
	The nurse leader responsibilities for changing the cultures	**R**	0. 837	0. 889			
		P-value	<0. 001*	<0. 001*			
	How nurses leader felt about use of research knowledge in leadership	**R**	0. 708	0. 851	0. 767		
		P-value	<0. 001*	<0. 001*	<0. 001*		
	How nurses leaders felt about their own development as anEB leader	**R**	0. 689	0. 813	0. 766	0. 803	
		P-value	<0. 001*	<0. 001*	<0. 001*	<0. 001*	
	Total score	**R**	0. 913	0. 920	0. 942	0. 882	0. 875
		P-value	<0. 001*	<0. 001*	<0. 001*	<0. 001*	<0. 001*

DISCUSSION

Use of evidence-based practices ensures the best scientific evidence, clinician expertise, and patient advocacy are used in health care delivery. Promotion of evidence-based practice (EBP) is an important leadership role of clinical nurse specialists**Fleiszar,et al (2016) [44], Bleich& Kist (2015) [45]&Linton (2013) [33].** Practicing nurses must be prepared to formulate questions, critically assess practice and evaluate research, clinical guidelines, and levels of evidence **Subramaniam&Krishinan (2015)**[46]. After training program nurses leaders are conscious of the importance of EBP and EBL. They emphasize their responsibility to develop EBP and their working unit.

Concerning of training nurses leadership in using EB knowledge and promoting EBP in their unit. The study of present study revealed that over fifty percent of nurses leaders post training felt the important to be assessed the care in their units to be evidence-based practice. **Melnyk (2012) [47] and Linton (2013)** [10] supported this result they found that near of fifty for nurses leaders were felt the important to assess the care based on evidence practice. Also, nurses leader felt post training that the research skills of new nurses are not the main priority when choose new staff. This result may be attributed that the mean age of nurses leader thirty years, it is possible that they have had little education in EBP; it might still be quite a new issue for them. Nurses leader should understand the important of good research skills to develop their evidence-based practice. Also, all of nurses leader had Bachelor degree and only two of them had a Master degree whereas, the master degree curricula contain more specialized course about nursing research than the baccalaureate degree curricula. So, it is important priorities of nurses leader to start understand the power of evidence practice. **Barends&Briner (2014) [48].Melnyk et al (2012) [47]** criticized the contents of EBP teaching at universities, saying that they might be considered old- produced. Findings by**(Evans,2014 [49],Black, et al 2015 [50], Koehn &Lehman 2008[51] whose** suggest that nurses with higher level of education are more likely to use research findings **.**

The current study revealed that the above two thirty of nurses leader felt post programthe importantto find enough time for their staff to read about research. These findings may reflect a high workload that only allows the most urgent tasks to be done. This result supported by **Johanssons, et al (2010) [18]. Sadeghi ,et al (2014) [53] and Mclnerney et al (2010) [54] and Solomons (2011) [55]**they mentioned that availability of adequate time appear to be the important factor for nurses to learn and implement EBP. As, evidence –based practice is a multistep process, nurses need sufficient time to identify clinical issues where EBP can be implemented.

The current study showed that the near of three quarter of nurses leader were had a agree post training towards EBP whereas training program increased their knowledge about EBP, promoted their understanding of how evidence increases quality of care, help them to take decisions and developed their EBP. This result supported with **Johansson (2010)**[18]who reported that head nurses had appositive attitude towards EBP. This result reflect that the important of training program that help nurses leader to be aware of up to date of knowledge about EBP.

Regards to nurses leader responsibility for changing the cultures of EBP.The current study revealed that the nurses leaders understood their responsibilities for change of cultures of EBP. Also, nurses leaders making their staff to participate in evidence-based practice. Moreover, leadership role for developing and motivating and orientation work to their staff and developing multi professional collaboration. While above two thirty of nurses leader post training were had a total agree towards developing evidence nursing practice and planning for additional training of staff and help develop the professionalism to their staff. This result may be attributed that the nurses leaders had a sense of autonomy and commitment to improve their work and improve quality of care. **Kvist et al (2014) [56]**contrast his finding who found thatsome of nurses leaders did not know that they had a responsibility to plan additional or help develop the professionalism.

The present study post training program revealed that the above seventy of nurses leader recognize that the need for research knowledge, use of research knowledge to develop own professional skills, regularly bring research knowledge for their staff and regularly discuss scientific publications to their staff. These findings reflect that nurses leader high readiness and willingness to learn and acquire the knowledge of EBP to improve their staff performance and achieved high quality of care. Also, most of nurses leader previous attended courses for quality assurance that help them to be knowledgably for enrichment quality of care. **Leane (2019) [57]&Melnyk (2018) [58]**are supported this result who mentioned that it was important for nurses to have more education and skills in EBP and competencies must be integrated into the curriculum (Academic profession).

Thomas, et al (2011) [59] who mentioned that health care professions must effectively incorporate the necessary knowledge, skills and attitudes required for EBP into education programs. In contrast of this ofthe result of**Adeniran, (2012) [25] who** found that some of nurses leader did not recognize that they had responsibility to plan additional training. Current study revealed that the seventy of nurses leaders post trainingprogram positive were felt for their roles to use research knowledge, making the staff participate, developing the skills and collaboration of their staff. This result may be attributed that the nurses leaders enhancing administrative support and encouragement, cooperative with their staff and improving the under satiability of research reports.

These findings are supported by several other studies. **Shifaaz et al (2014**) [60] found that support, encouragement, and recognition from the management and administration were the most frequent facilitators for research utilization and**EL-Said et al (2013) [61],** proved that improving the

understandability of research reports, enhancing administrative support and cooperative are they key for implementing evidence-based practice. not in agreement of this result **OvasKa (2012)** [40]who found that there only a few nurse leaders who made research knowledge available to or discussed scientific publications with their staff.

Concerning with barriers of using evidence-based practice reported by nurses leader pre training, the result of the current study revealed that the most of nurses leader complain from lack of internet accessatwork**.** Also**,** eighty of nurses leader reported that insufficient resources and equipment are hinders them to apply evidence based**. Duncombe, et al (2018)** [62]and **Farokhzadian,et al (2015)**[63]supported this result they found that the most barriers reported organizational barriers to implementation of EBP were lack of resources to implement EBP. and lack of internet access at work. Also, **Oluwatoyin, (2015)** [64]supported this result who found that above forty of nurses complain from not internet access at their work.**Karmmarnia, et al (2015)** [65] and**Aye et al (2014)** [66]**.**

Moreover, about two thirty of them had reported the difficulty in finding time at work place to search andread research**.** Also, other hinders facing nurses leader to implement BP **such as,** insufficient time at work place to implement changes intheir current practice, inability to properly to interpret the result of research and no cooperation by physicians. **Karmmarnia, (2015)** [65] and**Shayan et al (2019)** [67]confirm with this result they found that the major barrier to their adoption of EBP was the lack of time at their work places to search and read research articles.

Also this result is consistent with other studies by **Baatiema et al (2017)**[68],**Hulchinson et al (2013)** [69]**andWeng, (2013)** [70],they most commonly reported personal barriers is lack of time in different parts of world. Another studies by **D'Ippolito et al, (2015)** [71]and **Bressan et al, (2017)** [72]they mentioned that the important factor to find the best evidence to clinical practice questions is having the ability to work with computers. The availability of database in the hospital is a crucial element in conducting research. However, it decreased practicing the EBP for time overwhelming reason and the priority that nurses give to the patient routine care. Furthermore, collaborative relationships with inter-disciplinary staff are integral to ensure that the patients receive care based on the best available evidence**Karki et al., (2015)**[73].

The result of this study indicated that the nurses leader had high level of perception post program compared to pre-program for responsibility to change the cultures, how to improve EBP , positive felt use research knowledge in leadership and feeling about their own development as EB leadership. This result may reflect that the nurses leader had readiness to accept knowledge and willing to be learn the scientific research process and identify their roles towards their staff to management of EBP and achieved high quality of care. This result supported with **EidAbuRuz, et al (2017**) [74] who found that nurses have positive attitude towards EBP.

The current study revealed that there was no statistically significant correlation between age of nurses leaders and their perception about evidence-based practice. The result may be attributed that the most age of nurses leader ranged from 30-40 years, it is possible that they had little education and knowledge in EBP, it might still be quite a new issue for them. **Leung et a., (2014)**[75]supported this result who found that there was no any significant correlation between the age of nurses and Knowledge, skill and attitude of EBP.

As regards to the matrix correlation between effect of training nurses leader for evidence-based practiceand pre-post trainingprogram. There was a high positive correlation effect of training leader for evidence-based practice and leader pre and post program. These findings may reflect to the important of education programs and associated curricula act a key for shaping health care professional knowledge, skills and attitudes. Therefore, play an essential role to assess the quality of care provided. **Young, et al (2014)** [76] **and Latimer, (2010)** [77]they mentioned that the professional development to expandevidence-based practice knowledge is recognized as the nurses best preparation for providing clinical care that optimizes patient outcomes.

Also, similar to other studies of **Solomon's, (2011)** [57] **and Schaefer &Welton, (2018)** [78]they mentioned that the important of opportunities and institutional support to attend conferences, further education and gain advanced training were viewed as important factors to inspire EBP adoption. In additions, **Weng, et al (2013)** [79]who mentioned that academic degree and educational training are significant factors to implementation of EBP. Nurses leader should increase their knowledge and attitude about EBP and use it for better deliver services. Besides, policy maker must provide a suitable place of work and opportunities for staff to increase their knowledge and skills in hospitals. The implementation of a successful EBP education is necessary so that learners not only understand the importance of EBP and be competent in the fundamental steps, but it untimely serves to influence behavior in terms of decision making through application of EBP in their professional practice**Lehane, et al (2019)** [59]**.**

CONCLUSION

The nurse leaders have a positive attitude towards EBP but they have to do more to promote it in their units and through their own leadership. Evidence-based practice might raise awareness of the importance of using evidence in leadership. There is a significant matrix correlation between training nurses leader of evidence-based practice and pre- post training program me. Also, the most barriers facing nurses leader to management EBP was lack of time to search and read research. Also, common hinders no of access to internet at place of the work.

RECOMMENDATION

1. Evidence-based practice should be included in the curricula of students nursing education.
2. It is essential to seek to increase awareness of nursing staff about its benefits to high quality of care. Therefore, factors promoting the adoption of EBP should be funded.

3. In-services training for nurses leader and nurses for EBP to reduce barriers to using research evidence in clinical practice.
4. Encourages nurses to attend nursing conferences, scientific meetings and involve them in the developmental activities.
5. Enhance understanding the value of research and apply evidence –based practice in the hospital.
6. The barriers to implementing EBP should be recognized and their adverse effects should be minimized.
7. The health management must encourage collaborative integration of team members will guide the development of clinical environments that promote EBP at the patient level.
8. The hospital management must be arranging EBP training and providing time off from work for nurses to learn and implements new techniques.
9. Creating organization infrastructure and required resources, including human, physical and financial resources, can be helpful.
10. Further attention is needed on strategies that support educators, education institutions, health services and clinicians to have capacity and competence to meet the challenge of providing EBP education.

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