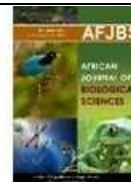




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Research Paper

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Evaluating the Impact of an Evidence-Based Practice Education Program on Clinical Nurses' EBP Competencies at HMC, Qatar: A Pre-Post Study

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Abstract:

Introduction: Internationally, evidence-based practice (EBP) is recognized as a fundamental component of healthcare professional education. The World Health Organization has prioritized promoting EBP to enhance nurses' contributions, highlighting their role in delivering effective, safe, and evidence-based care, which necessitates translating research into practice (WHO, 2017). Additionally, EBP is acknowledged as a core competency for clinical nurses (Friedmann, 2016). Adopting the EBP model in healthcare systems leads to high-quality care, better patient outcomes, reduced healthcare costs, and decreased variability in care delivery at the organizational level. At the staffing level, EBP fosters staff empowerment, job satisfaction, informed decision-making, and improved nursing practice. The study aimed to determine the effectiveness of an Evidence-Based Practice educational program targeting clinical nurses by assessing their competencies in EBP.

Research Methodology: A pre-experimental design, one-group pre-post test design was adopted to evaluate the effectiveness of the Evidence-Based Practice educational program. Clinical nurses were selected through simple random sampling. A baseline pretest was conducted using a demographic tool, the EBP Competencies Scale by Gallagher-Ford, and a post-test was conducted four weeks after the EBP educational intervention.

Results: The educational intervention's data analysis involved descriptive and inferential statistical methods. A normality check using the Shapiro LGVP;C-Wilk test revealed that the total pre-test and post-test scores for EBP among clinical nurses did not follow a normal distribution. Therefore, a non-parametric Wilcoxon signed-rank test was employed, indicating a significant increase in mean post-test EBP scores compared to pre-test scores ($p < 0.05$). The Wilcoxon signed-rank test showed a significant rise in mean post-test scores compared to pre-test scores ($p < 0.05$). Additionally, the chi-square test of independence revealed no significant association between demographic variables and the level of posttest EBP scores ($p > 0.05$).

Discussion: This study aimed to evaluate the effectiveness of an Evidence-Based Practice (EBP) education program for clinical nurses, addressing methodological shortcomings by adopting a pre-experimental approach with immediate and longer-term evaluations. The program, comprising 16 hours of lectures and practical sessions over eight weeks, aimed to enhance EBP competencies. Results showed a 9.70% improvement in EBP competency. These findings aligned with previous research to demonstrate the efficacy of EBP educational interventions, and the study result showed that there was no significant association between any of the demographic variables with the level of post-test EBP score $p > 0.05$. Further research should explore the long-term effects of EBP interventions and broader strategies for integrating EBP across nursing curricula.

Conclusion: Our study found that the EBP education program is very effective in improving Evidence-based practice competencies in clinical nurses. The EBP educational program at Al Khor Hospital, HMC, Qatar, aims to enhance the EBP competencies of clinical nurses. The study's findings will have significant implications across various aspects of nursing, including practice, administration, research, and education. By fostering a culture of EBP, the program aims to improve patient outcomes and advance the nursing profession in Qatar.

Keywords: Evidence-Based Practice, Clinical Nurses, EBP Competencies, EBP Educational Program

Introduction:

Internationally, evidence-based practice (EBP) is recognized as a fundamental component of healthcare professional education. The World Health Organization has prioritized promoting EBP to enhance nurses' contributions, highlighting their role in delivering effective, safe, and evidence-based care, necessitating translating research into practice (WHO, 2017). Additionally, EBP is acknowledged as a core competency for clinical nurses (Friedmann, 2016). Adopting the EBP model in healthcare systems leads to high-quality care, better patient outcomes, reduced healthcare costs, and decreased variability in care delivery at the organizational level. At the staffing level,

EBP fosters staff empowerment, job satisfaction, informed decision-making, and improved nursing practice.

In the U.S., many clinical nurses reported insufficient EBP capabilities and expressed a need for more EBP training (Melnik et al., 2017). Globally, nurses often perceive their EBP knowledge and skills as inadequate, leading to a lack of evidence-based practice in clinical settings (Saunders et al., 2019). In Qatar and the GCC, time constraints and unfamiliarity with EBM concepts and processes hinder EBP adoption (Wilby, K., & Al-Siyabi, K., 2013). Similarly, a study in Oman suggested that enhancing understanding among nursing leaders and staff about their roles could positively impact the implementation of EBP (Al-Maskari MA, and Patterson BJ, 2018). Recommendations from frontline nurses in Hamad Medical Corporation (HMC) included dedicated time for EBP activities, access to research experts, and EBP units to support practice (Abdulqadir J. Nashwan et al., 2016).

At HMC, the limited application of EBP among nurses is evident. While unit-level nurses address problems using current clinical policies, protocols, and guidelines, there is no standardized process for applying evidence in clinical practice. Journal clubs, improvement ideas, and quality projects support EBP, but limited exposure, knowledge, and understanding of literature hinder its use. Other barriers include misconceptions about EBP, lack of instructors, and insufficient academic focus, leading to poor integration of evidence into practice.

Involving clinical nurses in EBP education is crucial for fostering EBP skills in clinical settings. Based on experience with clinical nurses as preceptors, both formal and informal observations indicate varying beliefs and applications of EBP models and critical appraisal among nurses in HMC facilities (Kiran. p, 2022). Studies show that EBP educational interventions effectively enhance nursing students' and clinical nurses' EBP knowledge, skills, attitudes, and future use (Kim, 2019; Liu, M. et al., 2021). Furthermore, research indicates that nurses in the U.S. do not feel competent in any of the 24 EBP competencies required for practice (Melnik et al., 2018). A set of core EBP competencies for nurses has been developed for implementation in European nursing education programs (Jakub Dolezel, 2021).

Recent studies at HMC highlight significant barriers to EBP adoption among clinical nurses, including organizational issues like lack of time, empowerment, support from colleagues, and access to research articles (Al-Lenjawi, 2022). Nurses also face personal challenges such as skepticism about research findings, concerns over methodological flaws, and difficulties understanding statistical data (Al-Lenjawi, 2022). This study examined the efficacy of educational programs designed especially for clinical nurses to enhance their knowledge of Evidence-Based Practice. The study was conducted at the Al Khor Hospital of Hamad Medical Corporation (HMC), in Qatar.

Need for the Study:

Given the current healthcare landscape and the challenges posed by COVID-19, there is an urgent need to develop the EBP of clinical nurses to prepare them for future demands. Currently, HMC nurses lack sufficient EBP competencies (Kiran. P, 2022). Supporting the HMC Nurse & Midwifery Strategic Plan 2018-22, which emphasizes delivering high-quality, evidence-based, and compassionate care, requires translating evidence into practice through a culture of research and innovation (Nursing and Midwifery Strategy Hamad, 2019).

In this context, a study is proposed to investigate whether an EBP program can enhance EBP practices among unit clinical nurses and improve their EBP competencies. This competency-based educational program aims to equip current and newly hired nurses and midwives with the necessary knowledge, skills, and attitudes to understand and apply research concepts and evidence-based practices in clinical settings, ensuring the provision of high-quality, safe, and compassionate care (Reid et al., 2017). Furthermore, aligning with Qatar's 2030 vision to elevate the nation's health system to world-class standards (GSDP, 2008), the successful implementation of EBP in the nursing workforce will significantly empower nurses to contribute to this national goal.

Aim:

This study aims to investigate the impact of an EBP educational program on the EBP competencies of clinical nurses at Al Khor Hospital, HMC, Qatar.

Objectives:

To evaluate the effectiveness of the EBP educational program in enhancing the EBP competencies of clinical nurses.

Methodology:

This study used a pre-experimental, one-group pre- and post-test study design using a basic random sample technique to compare the pre-and post-test findings of clinical nurses who took part in EBP education programs. Experimental research explains the cause-and-effect relationship, or more precisely, how one independent variable influences another. The efficacy of the EBP Educational Program's EBP competencies for clinical nurses was investigated in this study. A pre-experimental design was used to ascertain the effect of an independent variable on a dependent variable. The study involved clinical nurses employed by Al Khor Hospital's HMC, All in Patients Unit, and Outpatient Unit (ED, ICU, OPD, MOT, DCU, W-1, W-2, E-2, E1, OB-OPD, OB-ED, Labor Room, Dialysis PEC, W-1 Pediatric, Discharge Lounge Units). The sample size was calculated using power at 0.80, significance threshold at $\alpha = 0.05$, rate at 10%, and 5% effect size. There were 110 nurses in the pre-and post-experimental groups. The example computation was based on the Sealed Envelope.Com Power Calculator (Sealed Envelope Ltd., 2012). The criteria for this selection procedure included the clinical nurses' availability on the day the study was conducted, as well as their ability to attend the session given their schedules. For sample selection, inclusion and exclusion criteria were inferred. Questionnaires for sample collection were created in accordance with the project's specifications.

Tool:

The EBP Competencies Scale by Gallagher-Ford & Melnyk (2022) is a valid and reliable questionnaire that measures registered nurses' self-assessed competency in EBP, based on an updated and specific competency framework. It allows for independent evaluation of attitudes, knowledge, and skills related to EBP. Through two rounds of the Delphi survey, a consensus was reached among EBP mentors, resulting in 13 competencies for practicing registered nurses and 11 additional competencies for advanced practice nurses (APNs). Integrating these competencies

into healthcare system expectations, orientations, job descriptions, performance appraisals, and clinical ladder promotion processes can enhance healthcare quality, reliability, and consistency while reducing costs.

Inclusion Criteria:

- Clinical Nurses who are working in direct patient care.

Exclusion Criteria:

- Clinical Nurses are those who are on leave.
- New clinical nurses under orientation period
- Clinical Nurses who have already undergone EBP and CT Training (Either Virtual or Face to Face).
- Clinical Nurses who have already undergone EBP and CT competency Assessment (Either Virtual or Face-to-face)

EBP Educational Program:

The researcher developed the EBP educational intervention, enabling participants to find, appraise, and apply evidence required for a critical approach to clinical practice by applying critical thinking skills. The EBP program was delivered for 2 days in virtual sessions on the MS Teams platform, delivered in phases: (i) Introduction to EBP and Critical Thinking Competence, (ii) 5 Steps of EBP (iii) EBP Promoting Critical Thinking Skills. To improve EBP The program lesson plan was developed as per standard. Furthermore, the program underwent content validation with 6 experts (2 EBP experts in Nursing Research, and 4 Nursing Professionals,).

Study Procedures:

After approval from IRB, HMC, Medical Research Center. The clinical nurses were invited to participate in the study through their respective Directors of Nursing after formal permission from the Executive Director of Nursing of the facility. The clinical nurses who are willing to participate in the study were contacted by organization E-mail. The PI or Team Member met the clinical nurses and distributed an information sheet, and an explanation was provided regarding the study, its benefits, and any inconveniences and expected participation from them. Provided 2 weeks for decision making. Follow-up Emails and telephone calls were made by the research team to ensure their participation.

Data Collection Procedure:

Study participants were given the Demographic Profile, and EBP Competencies Scale by Gallagher-Ford & Melnyk (2022). They had two weeks to complete the baseline assessment. Each questionnaire had a unique identification code for tracking responses. Data was collected via Microsoft Forms and transferred to a password-protected Microsoft Excel file accessible only by the PI and the research team.

EBP training began after obtaining informed consent. Following the pretest, participants received pre-reading materials. The research team scheduled two-day interactive training sessions in groups of 36-37 nurses each. The EBP educational program and work engagement were assessed through two assignments in August and September 2023. After completing the training, participants submitted assignments on implementing EBP in their clinical practice. A post-test using the same scales was conducted four weeks after training. Out of 110 participants, 109 completed the pre-test, post-test, and EBP program. One nurse dropped out due to time constraints but provided demographic data. Withdrawal was documented in the field notes.

Results:

The analysis of the data was conducted using SPSS version 23, employing various statistical methods including frequency, percent distribution, descriptive statistics, Pearson's correlation coefficient, and tests of association. To evaluate the impact of the online EBP program on clinical nurses' EBP competency, chi-square tests were employed to examine associations between demographic variables. A non-parametric Wilcoxon signed-rank test was used to test between EBP scores of the pre-test and post-test of clinical nurses. A normality check was done for the total pre-test score and total post-test score of the EBP of clinical nurses using the Shapiro-Wilk test. Pearson's correlation was done to check the correlation between pre-test evidence-based practice competencies among clinical nurses. Statistical significance was set at $p < 0.005$ for all tests.

Table 1: Frequency distribution of demographic variables of nurses

Sr. No.	Demographic variables	Total	%
1	Gender		
	Males	9	8.26
	Females	100	91.74
2	Designation role		
	Graduate Registered Nurse	76	69.72
	Staff Nurse	33	30.28
3	Age in years		
	24-28	1	0.92
	29-33	20	18.35
	34-39	37	33.94
	40 and above	51	46.79
4	Current practice unit		
	Pediatric and Ambulatory Division	38	34.86
	Women and Newborn Division	10	9.17
	Critical and Medical Division	29	26.61
	Perioperative and Surgical Division	32	29.36
5	Total years of experience clinically		
	0-5 years	2	1.83
	6-10 years	23	21.10
	11-15 years	31	28.44
	16-20 years	24	22.02

	>20 years	29	26.61
6	Total years of experience in HMC		
	0-5 years	36	33.03
	6-10 years	19	17.43
	11-15 years	13	11.93
	16-20 years	36	33.03
	>20 years	5	4.59
7	Academic highest qualification		
	Diploma in Nursing	19	17.43
	Bachelor's Nursing	87	79.82
	Master's Nursing	3	2.75
8	EBP competency previously		
	Yes	41	37.61
	No	68	62.39
9	EBP Education or Training		
	Yes	53	48.62
	No	56	51.38

The above table describes the analysis of the demographic of the study participants. Predominantly, the profession is populated by females (91.74%), with a majority holding the designation of Graduate Registered Nurse (69.72%). Notably, a significant proportion (46.79%) of respondents are aged 40 and above, while the Perioperative and Surgical Division emerges as the largest practice unit (29.36%). Experience-wise, a considerable segment of participants (26.61%) boasts over 20 years of clinical expertise, paralleled by a similar percentage (33.03%) who have dedicated the same duration to their current healthcare facility. Educational attainment predominantly rests at the bachelor's level (79.82%), notwithstanding a notable cohort having undergone EBP education or training (48.62%). Overall, while experienced nurses constitute a noteworthy presence, a significant proportion lacks proficiency in EBP, warranting focused attention through targeted professional development endeavors.

Pre-Test Level competencies

Table no.2: Classification of clinical nurses at HMC Qatar on pre-test level regarding the Evidence-based Practice

Level of Pre-test EBP score	Score	Frequency	Percent
Not competent	1-13	4	3.70
Need improvement	14-26	30	27.50
Competent	27-39	70	64.20
Highly competent	40-52	5	4.60
Total		109	100.00

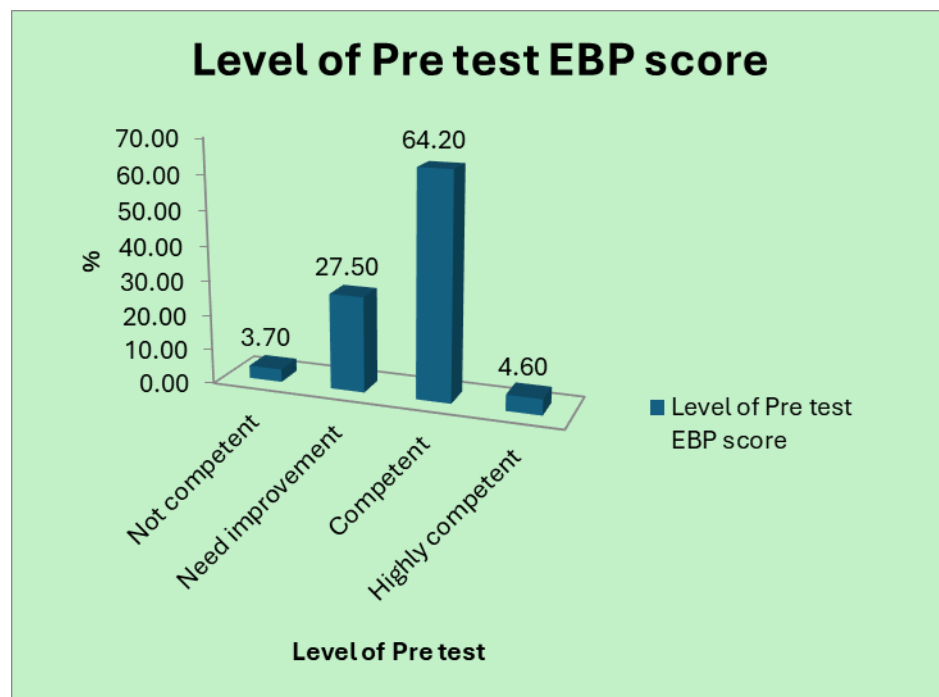


Figure no. 1: Bar diagram representing the classification of clinical nurses at HMC Qatar on the pre-test level regarding the Evidence-Based Practice

It has been determined how well the EBP educational program works to enhance clinical nurses' evidence-based practice (EBP) competencies. The pre-test EBP score of clinical nurses at HMC regarding evidence-based practice is displayed in Table 2 and Figure 1. It is evident from the table that 30 nurses (27.50%) required improvement, while 4 nurses (3.70%) were found to be incompetent. Before the EBP educational program was administered, 70 nurses (64.20%) were competent in terms of Evidence-Based Practice competencies, and only 5 nurses (4.60%) were extremely competent. The pre-test analysis revealed that 31.20% of individuals were non-competent and the majority of participants (68.80%) were competent. This suggests that many nurses are knowledgeable, focused on their careers, appreciate professionalism, and are open to new ideas.

Post-Test Level competencies

Table no. 3: Classification of clinical nurses on post-test level regarding the Evidence-Based Practice

Level of Post-test EBP score	Score	Frequency	Percent
Not competent	1-13	0	0.00
Need improvement	14-26	0	0.00
Competent	27-39	77	70.60
Highly competent	40-52	32	29.40
Total		109	100.00

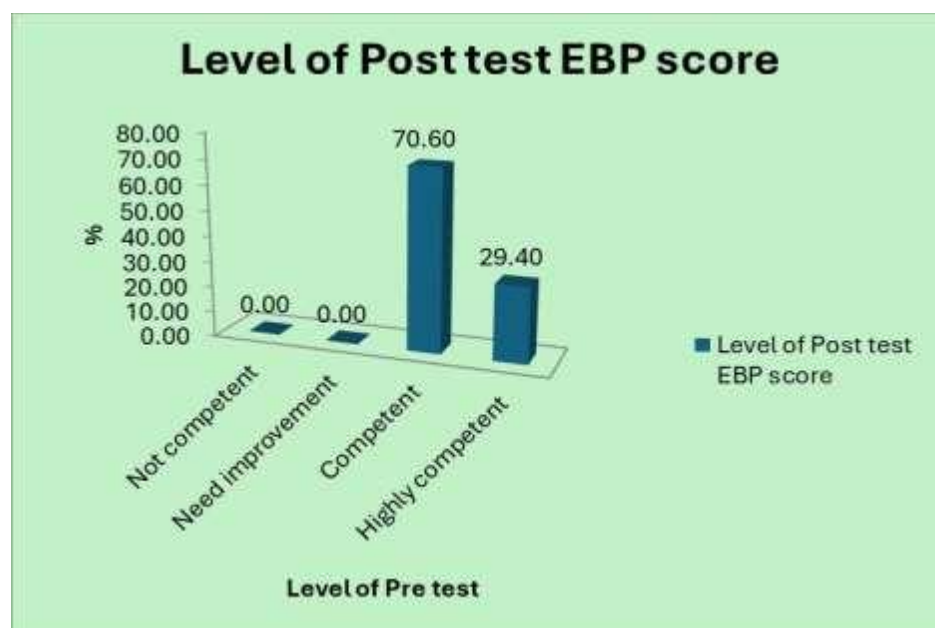


Figure no. 2: Bar diagram representing the classification of clinical nurses on the post-test level regarding Evidence-Based Practice.

The post-test level of evidence-based practice (EBP) score for clinical nurses at HMC Qatar is displayed in Table 3 and Figure 2. It is evident from the table that none of the nurses, or 0%, were incompetent or in need of improvement. Following the delivery of the EBP educational program, 77 nurses (70.60%) demonstrated competence in evidence-based practice, and 32 nurses (29.40%) demonstrated very competence. The EBP level post-test analysis demonstrates a 100% improvement. While competent participants increased to 100%, there were no non-competent participants. As we covered in the last section, this improvement shows a commitment to learning, adopting, and caring for one's career.

Association between pre-test and post-test competencies:

Table no. 4: Association between Pre-test and Post-test EBP levels of clinical nurses.

Pre-test EBP	Post-test EBP				Total		Chi-square statistic	p-value
	Competent		Highly competent					
	F	%	F	%	F	%		
Not competent	1	25.00	3	75.00	4	3.67	13.93	0.003
Need improvement	26	86.67	4	13.33	30	27.52		
Competent	49	70.00	21	30.00	70	64.22		
Highly competent	1	20.00	4	80.00	5	4.59		
Total	77	70.64	32	29.36	109	100.00		

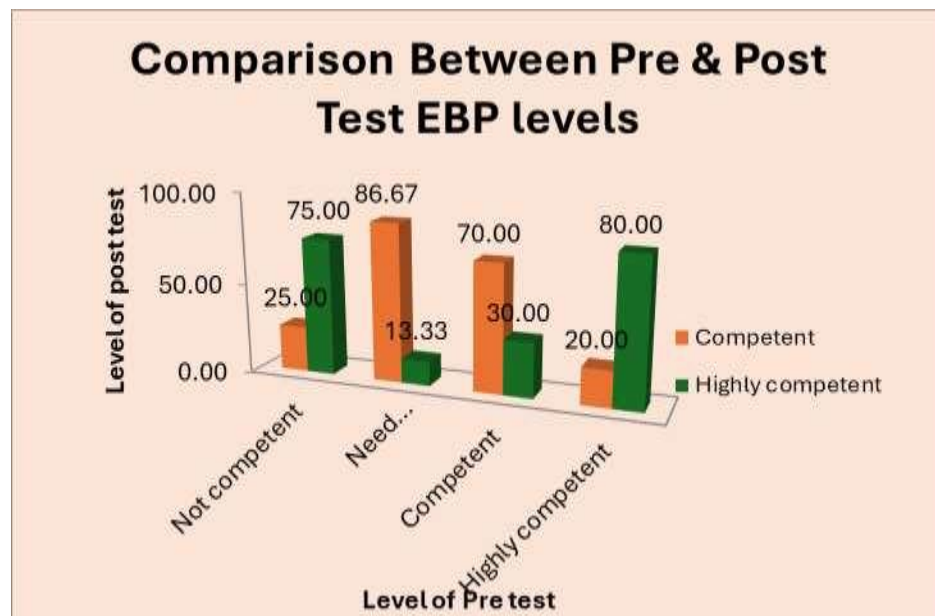


Figure no.3: Bar diagram representing a comparison between Pre-test and Post-test EBP levels of clinical nurses.

The association between the pre-test and post-test EBP levels of clinical nurses was examined using the Chi-square test for independence. A noteworthy correlation was discovered between them. It was discovered that the number of highly competent clinical nurses was significantly greater ($p < 0.05$) following the implementation of the EBP educational program. The chi-square output's p-value of $p = 0.003$ shows a strong correlation between clinical nurses' pre- and post-test skills. This further suggests that an educational program or intervention based on evidence-based practice (EBP) significantly enhances clinical nurses' competence.

Comparative analysis – Pre-test level and post-test level:

Table no 5: Comparison between Pre-test and Post-test EBP levels of clinical nurses.

EBP score	Mean	Std. Deviation	W statistic	p-value
Pretest	30.28	7.96	7.97	<0.001
Post-test	39.88	4.61		

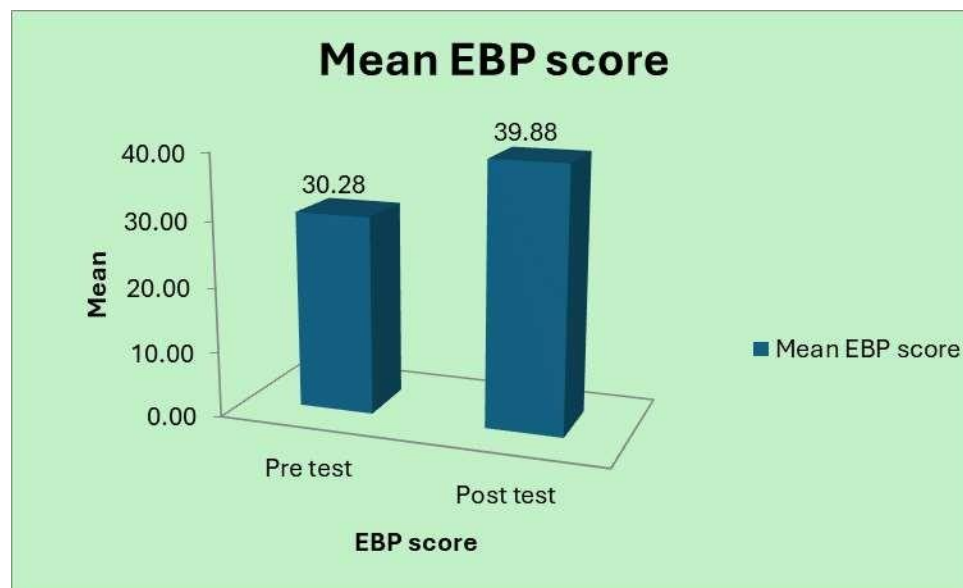


Figure no.4: Bar diagram representing the mean EBP levels of pre-test and post-test of clinical nurses

Using the Shapiro-Wilk test, normality was checked for the total pre-test and total post-test scores of clinical nurses' EBP. The results showed that the data did not follow normality. Therefore, the difference between the clinical nurses' EBP scores from the pre-and post-tests was examined using the non-parametric Wilcoxon signed-rank test. The study revealed that the average EBP pre-test score for nurses was 30.18, whereas the average post-test score for clinical nurses was 39.88. Hence, the mean EBP score after the test was considerably higher than the mean EBP score before the test ($p < 0.05$).

Effective Analysis of EBP

Table No. 6: Effectiveness of the EBP educational program in improving the evidence-based practice competencies of clinical nurses

Evidence-Based Practice	Mean	Std. Deviation
Pre-test %	58.22	15.31
Post-test %	76.69	8.87
% Gain	18.47	17.23

	Graduate Registered Nurse	5 3	69.74	2 3	30.2 6	76	69.7 2	0.09	0.75
	Staff Nurse	2 4	72.73	9	27.2 7	33	30.2 8		
3	Age in years								
	24-28	1	100.0 0	0	0.00	1	0.92	1.27	0.74
	29-33	1 3	65.00	7	35.0 0	20	18.3 5		
	34-39	2 8	75.68	9	24.3 2	37	33.9 4		
	40 and above	3 5	68.63	1 6	31.3 7	51	46.7 9		
4	Current practice unit								
	Paediatric and Ambulatory Division	2 9	76.32	9	23.6 8	38	34.8 6	6.79	0.079
	Women and New-born Division	8	80.00	2	20.0 0	10	9.17		
	Critical and Medical Division	2 3	79.31	6	20.6 9	29	26.6 1		
	Perioperative and Surgical Division	1 7	53.13	1 5	46.8 8	32	29.3 6		
5	Total years of experience clinically								
	0-5 years	1	50.00	1	50.0 0	2	1.83	2.48	0.65
	6-10 years	1 6	69.57	7	30.4 3	23	21.1 0		
	11-15 years	2 3	74.19	8	25.8 1	31	28.4 4		
	16-20 years	1 9	79.17	5	20.8 3	24	22.0 2		
	>20 years	1 8	62.07	1 1	37.9 3	29	26.6 1		
6	Total years of experience in HMC								
	0-5 years	2 4	66.67	1 2	33.3 3	36	33.0 3	2.68	0.61
	6-10 years	1 5	78.95	4	21.0 5	19	17.4 3		
	11-15 years	1 1	84.62	2	15.3 8	13	11.9 3		
	16-20 years	2 4	66.67	1 2	33.3 3	36	33.0 3		
	>20 years	3	60.00	2	40.0 0	5	4.59		
7	Academic highest qualification								

	Diploma in Nursing	15	78.95	4	21.05	19	17.43	2.21	0.33	
	Bachelor's Nursing	59	67.82	28	32.18	87	79.82			
	Master's Nursing	3	100.00	0	0.00	3	2.75			
8	EBP competency previously								0	0.99
	Yes	29	70.73	12	29.27	41	37.61			
	No	48	70.59	20	29.41	68	62.39			
9	Critical Thinking Skill competency previously								0.002	0.97
	Yes	34	70.83	14	29.17	48	44.04			
	No	43	70.49	18	29.51	61	55.96			
10	EBP Education or Training								0.37	0.54
	Yes	36	67.92	17	32.08	53	48.62			
	No	41	73.21	15	26.79	56	51.38			
11	Critical Thinking Skill Education or Training								0.16	0.69
	Yes	32	72.73	12	27.27	44	40.37			
	No	45	69.23	20	30.77	65	59.63			
	Total	77	70.64	32	29.36	109	100.00			

The chi-square test of independence was done to find an association between demographic variables and the level of posttest EBP score. It was found that there was no significant association between any of the demographic variables with the level of posttest EBP score $p > 0.05$.

Discussion:

The main objective was to evaluate the program's effectiveness in improving EBP competencies among clinical nurses. The primary outcome aimed for a 10% increase in EBP competencies, measured by the EBP Competencies Scale (Gallagher-Ford & Melnyk, 2022) from pre-test to post-test scores. The study reported a 9.70 (Table 5) (10%) increase in EBP competency levels among clinical nurses. A non-parametric Wilcoxon signed-rank test found that the mean EBP pre-test score of clinical nurses was 30.18, while the mean post-test EBP score was 39.88, indicating a significant increase ($p < 0.05$).

Assess the effectiveness of the EBP educational program in improving the (EBP) Evidence-Based Practice competencies of the clinical nurses" was the study's stated goal. The post-test level EBP

competencies show a significant improvement, according to the results. Pre-test results showed that the candidate was 3.70% not competent, 27.50% in need of improvement, 64.20% competent, and 4.60% extremely competent. The post-test results showed a considerable improvement, with the candidate scoring 0% not competent and needing improvement, 70.60% competent, and 29.40% highly competent. Significantly, it was found that, in the pre-test, 68.80% of participants were competent, whereas 31.20% of individuals were not competent. In the post-test, however, 100% of participants were competent. It was discovered that the number of highly competent clinical nurses was significantly greater ($p < 0.05$) following the implementation of the EBP educational program. The chi-square output shows a p-value of $p = 0.003$, which suggests a substantial correlation between the clinical nurses' pre- and post-test skills. This further suggests that an educational program or intervention based on evidence-based practice (EBP) significantly enhances clinical nurses' competence. The study revealed that the average EBP pre-test score for nurses was 30.18, whereas the average post-test score for clinical nurses was 39.88. Hence, the mean EBP score after the test was considerably higher than the mean EBP score before the test ($p < 0.05$). The chi-square test of independence was done to find an association between demographic variables and the level of post-test EBP score. It was found that there was no significant association between any of the demographic variables with the level of post-test EBP score $p > 0.05$ (Table No:7)

A study suggested that nurses in clinical settings should apply research findings and evidence-based practice (EBP) to improve patient outcomes. EBP mentors, as highlighted by Spiva L et al. (2017), are instrumental in teaching and supporting nurses with EBP. Gorsuch CRPF et al. (2020) proposed an EBP continuing education program that significantly improved and sustained participants' EBP skills over 12 months. Gallagher-Ford L et al. (2020) found long-term increases in EBP skills, underscoring EBP's role in improving healthcare quality and outcomes. Koota E et al. (2021) noted that an EBP educational intervention did not immediately change emergency nurses' EBP attitudes or behavior. Moore L. (2017) found that online EBP modules may not be the most effective for teaching practicing nurses. Our study showed an 18.47% increase in EBP competencies following a teaching session, highlighting the need for ongoing training. Ramos-Morcillo AJ et al. (2015) and Ruzafa-Martínez M et al. (2016) confirmed the effectiveness of EBP education. The Institute of Medicine recommended that 90% of clinical judgments be evidence-based by 2020. Studies by Llasus L et al. (2014) and Hung HY et al. (2015) emphasized integrating EBP into nursing curricula despite challenges. Upton P et al. (2014) and Zeleníková R et al. (2014) stressed evaluating EBP courses for curriculum development. Reid J et al. (2017) and Purdy IB et al. (2009) highlighted EBP's positive impact on attitudes and innovation in clinical practice. Brewer BB et al. (2009) and Li S et al. (2019) identified gaps in bedside nurses' EBP knowledge, emphasizing the need for leadership in EBP implementation. Saunders H et al. (2016) called for comprehensive research to evaluate EBP interventions. Burke LE et al. (2005) suggested strategies for integrating EBP into nursing programs. Our findings align with these studies, demonstrating the effectiveness of EBP programs in enhancing clinical nurses' competencies.

Limitations of the Study:

The short duration of the EBP educational program and its confinement to one hospital. Future research should expand the scope to include other regions, larger samples, and diverse academic nursing programs. Additionally, future studies should explore nurse educators' perspectives and

employ multimodal EBP educational interventions to further enhance the EBP competencies of clinical nurses.

Conclusion:

Our study found that the EBP education program is very effective in improving Evidence-based practice competencies in clinical nurses. The EBP educational program we developed effectively improved clinical nurses' knowledge, skills, attitudes, and future use of EBP. Therefore, we recommend implementing a comprehensive EBP educational program as regular in-service training for clinical nurses.

The EBP educational program at Al Khor Hospital, HMC, Qatar, aims to enhance the EBP competencies of clinical nurses. The study's findings will have significant implications across various aspects of nursing, including practice, administration, research, and education. By fostering a culture of EBP and critical thinking, the program aims to improve patient outcomes and advance the nursing profession in Qatar and beyond.

Key Findings:**Effectiveness of EBP Education:**

- Significant improvements were observed in EBP knowledge, skills, attitudes, and abilities among participants, consistent with findings from previous studies (Kim, Gu, and Chang, 2019; Ramos et al., 2020; Gonzalez et al., 2020).
- The immediate and four-week follow-up assessments demonstrated the program's impact on enhancing EBP competencies.

Implications in Nursing Practice:

- **Enhanced Clinical Decision-Making:** Improved EBP competencies will enable nurses to make more informed and effective clinical decisions, leading to better patient outcomes.
- **Patient Care Quality:** Nurses with enhanced EBP skills can apply research findings directly to patient care, improving the quality and consistency of care provided.

Implications in Nursing Administration:

- **Policy Development:** Administrators can use the study's findings to develop policies that encourage continuous professional development and integration of EBP in nursing practice.
- **Resource Allocation:** Demonstrating the program's effectiveness can justify the allocation of resources towards ongoing EBP training and support systems within the organization.

Implications in Nursing Research:

- **Future Research Directions:** The study can pave the way for further research on the long-term impact of EBP educational programs and their scalability across different healthcare settings.
- **Evidence Generation:** The findings will contribute to the body of evidence supporting the benefits of EBP education in nursing, encouraging more studies in this area.

Implications in Nursing Education:

- Curriculum Development: Nursing educators can incorporate the effective components of the EBP educational program into nursing curricula, ensuring that new graduates are well-versed in EBP competencies.
- Lifelong Learning: Encouraging a culture of continuous learning and professional development among clinical nurses, emphasizing the importance of staying updated with the latest evidence-based practices.

Recommendations:

- Sustainability: Implement strategies to ensure the sustainability of EBP education and practice within HMC.
- Integration: Encourage the integration of EBP skills principles into daily nursing practice through regular workshops, mentorship programs, and access to current research.
- Evaluation: Continuously evaluate the impact of EBP education on nursing practice and patient outcomes to identify areas for improvement and ensure ongoing effectiveness.
- Expansion: Future studies should include diverse regions, larger samples, and various academic nursing programs to explore the long-term effects of EBP education.

Ethical Consideration:

The study was conducted following approval from the IRB (Reg No - MRC-01-22-479 on October 3, 2022) at the Medical Research Centre, Hamad Medical Corporation (HMC), Doha, Qatar. The principal investigator ensured compliance with the principles of the Declaration of Helsinki, Good Clinical Practice, and the laws and regulations of the Ministry of Public Health (MoPH) in Qatar.

Informed consent was obtained from all clinical nurses willing to participate after explaining the study's objectives, procedures, and duration. Participants were informed of their right to refuse participation or withdraw from the study at any time without any consequences.

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Consent for Publication:

Not applicable.

Competing Interests:

The authors declare that they have no competing interests

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