

## Knowledge, Attitude, and Skills of Health Care Professionals Towards Evidence-Based Practice



Nourhan E. Saleh <sup>1</sup>, Sahar M. Soliman <sup>2</sup>, Eman S. Mohamed <sup>3</sup>

<sup>1</sup> Nurse specialist, Mansoura New General Hospital, The Secretariat of Specialized Medical Centers, Dakahlia Governorate, Dakahlia 35931, Egypt

<sup>2</sup> Professor, Community Health Nursing, Faculty of Nursing, Mansoura University, Egypt

<sup>3</sup> Lecturer, Community Health Nursing Department, Faculty of Nursing, Mansoura University, Egypt

### 1- ABSTRACT

**Background:** Everyday healthcare professionals (HCPs) look for solutions to a variety of clinical problems. Evidence-based practice (EBP) approach allows HCPs to obtain the best evidence as soon as possible to quickly resolve these clinical issues and apply that knowledge in clinical practice to improve patient outcomes. **Aim:** To assess healthcare professionals' EBP knowledge, attitude, and skills towards EBP. **Method:** A descriptive cross-sectional study was carried out at Specialized Medical Hospital in Dakahlia Governorate, Egypt. The researchers used a rubric observational checklist and a self-administrated questionnaire for data collection and distributed these tools to 120 HCPs including nurses, physicians, and pharmacists in October 2022. **Results:** Greater than two-thirds (62.5%) of the HCPs displayed a poor EBP knowledge score level with an average of 28.07(5.75) marks. Moreover, 98.3% of them displayed an incompetent skill score level with an average of 57.80(6.31) marks. Concerning their attitude, 66.7% of the HCPs reflected a positive attitude towards EBP with an average of 38.32(3.57). **Conclusion:** Most of the HCPs had a poor knowledge score level and incompetent skills score level regarding EBP. Moreover, about two-thirds of them showed a positive attitude toward EBP. **Recommendations:** Designing and implementing educational programs about EBP in healthcare settings as a technique for ongoing training and education for professional development to improve the competencies needed to apply EBP.

**Keywords:** knowledge, Attitude, Skills, Evidence-Based Practice, Healthcare professionals

### 2- Introduction:

For a long time, there has been a limited incorporation of the current and available evidence into clinical practice. It has long been acknowledged that research findings are rarely translated into actual clinical practice in large clinical settings like hospitals. Many patients consequently receive subpar care, and some of them experience serious health problems that may have been prevented (Albarqouni, Hoffmann, & Straus, 2018; Beshir, Woreta, & Kebede, 2017).

With the availability of sophisticated medical care, the exponential growth in research information, growing client expectations for the best care possible, longer life expectancies, and rising healthcare costs force governments everywhere to adopt evidence-based practice (EBP) as a critical instrument for providing high-quality healthcare (Abu-Baker et al., 2021). The phrase "evidence-based medicine" (EBM) was initially used in the field of medicine in the 1980s at McMaster University. After that, the term was employed as EBP in other health fields (Mariano et al., 2018).

In general, EBP now is a global concern for researchers as well as healthcare administrators and workers. It is a problem-solving method of providing clinical care that continuously

incorporates the application of study results from well-planned experiments, combined with professionals' knowledge, and patient preferences (Fineout-Overholt et al., 2015). emphasized the importance of using the best research evidence when providing health and social services. Additionally, it has been demonstrated that the significance of EBP has been demonstrated as a reason for the 28% improvement in patient outcomes that occurred when clinical care was grounded in evidence rather than customary practices (AbuRuz et al., 2017).

It has been found that EBP leads to safe and quality health care by promoting effective practices based on new scientific methods, enhanced health outcomes and collaboration between HCPs, and higher satisfaction at work (Atakro et al., 2020). Moreover, EBP can help HCPs address information overload, allocate healthcare resources more fairly, lower healthcare costs, and defend treatment decisions to the general public (Abdel-Kareem, Kabbash, Saied, & Al-Deeb, 2019).

Five key processes are necessary for successful EBP integration in clinical practice. (1) asking validated research questions, (2) looking for and gathering evidence to answer the questions, (3) evaluating and synthesizing the evidence, (4)

Integrating personal clinical experience with the evidence, local context, and patient preferences, and (5) Assessing the decisions, interventions or changes to practice effectiveness. These procedures need HCPs to have sufficient knowledge, abilities, and a positive attitude to successfully use the best available evidence in clinical practice settings (Labrague et al., 2019; Disler et al., 2019).

Implementing EBP relies heavily on knowledge, skills, attitudes, and practice. Only 25% of staff are practicing according to the EBP framework. Depending on their educational background, level of experience, and interest, today's HCPs have varying degrees of knowledge and skills in EBP. Learning the EBP process gives nurses, physicians, and other HCPs the tools they need to take ownership of their practices. Obtaining baseline data about EBP enables an organization to develop ongoing educational initiatives and process changes for successfully integrating EBP into daily practice. Because the effectiveness of initiatives to apply EBP may be impacted by staff knowledge and skills, attitudes, and practice, therefore it's crucial to investigate them to assess the implementation plan (Al-Busaidi et al., 2019). In Egypt, comparatively little research has been conducted to evaluate HCPs' knowledge, attitudes, and skills regarding EBP.

**2.1 Aim of the Study:** To assess the knowledge, skills, and attitudes of healthcare professionals regarding EBP.

### 3- Method

**3.1 Study Design:** A descriptive cross-sectional study was used to fulfill the purpose of the study.

**3.2 Study Setting:** The researchers carried out this study at a Specialized Medical Hospital affiliated with the Ministry of Higher Education and Scientific Research in Dakahlia governorate.

**3.3 Study Subjects:** Healthcare professionals including doctors, nurses, and pharmacists who had at least a bachelor's degree, and a full-time job, were available during the study period and willing to engage in the study.

**3.4 Sample size and technique:** The researchers selected 120 healthcare professionals in this study using a convenience sampling technique.

**3.5 Tools of data collection:** The researchers designed four tools after reviewing the relevant literature. Tool I based on (Laberge & Shachak, 2013). Tools II, III, & IV are based on (Al-Baghli, 2013; Samy, Ahmed, & El-Mouty, 2019).

#### **Tool I: Demographic and occupational data self-administered structured questionnaire.**

This tool included questions about the HCPs's age, gender, occupation, educational level, department, years of experience, and previous training programs about EBP and research.

#### **Tool II: Knowledge regarding EBP self-administered structured questionnaire.**

This tool included questions about the definition of EBP, asking an answerable question, tracking down the relevant evidence, critically appraising discovered literature, and applying and disseminating the evidence.

The questions were divided into seven categories; all of these categories consisted of 59 questions. With a score of (1) for the right response to each knowledge question and (0) for the incorrect answer, and don't know as the following: The concept of evidence-based practice (It included 8 items = 8 marks).

- Asking an answerable and searchable question (It included 12 items = 12 marks).
- Types of research designs and evidence hierarchy (It included 7 items = 7 marks).
- Acquiring research (It included 11 items = 11 marks).
- Appraising research (It included 9 items = 9 marks).
- Synthesis of evidence (It included 5 items = 5 marks).
- Disseminating the evidence (It included 7 items = 7 marks).

The overall score for knowledge was between (zero to 59 marks) and was summed up for each staff member. Three categories were used to classify the knowledge level:

- **Poor** = less than 50% of the total point obtained (0- fewer than 30 marks).
- **Fair** = 50% to less than 75% of the total points (30 – fewer than 44 marks).
- **Good** = more than 75% of the total points. (44 marks and more).

#### **Tool III: Skills of EBP rubric observational checklist:**

This tool included questions about the HCPs' skills to carry out the EBP steps, including formulating meaningful questions, creating and conducting an appropriate search strategy, and critical appraisal. The rubric contained unique questions for skills evaluations arranged in columns, explicit grading standards for all of those

questions in corresponding rows along a Quality grading scale continuum with scores assigned for each category. A judgment on these standards was created by the researcher. All questions will require a response on a 3-point Likert-rating scale with 3 continuums (competent, improving, and incompetent). Their skills were measured using a scoring system. The competent was given three marks, the Improving given two marks, and the incompetent was given one mark, which created a total score of (147) marks as follows:

- Asking answerable questions (It included 12 items = 36 marks).
- Determining best study design (It included 6 items = 18 marks).
- Acquiring research (It included 12 items = 36 marks).
- Appraising randomized control trials (It included 11 items = 33 marks).
- Appraising systematic reviews (It included 8 items = 24 marks).

The total skills points were between (zero to 147 marks) and were summed up for each staff member. The skills level was divided into three categories as follows: -

- **Incompetent** = less than 50% of the total point (0- fewer than 74 marks).
- **Improving** = 50% to less than 75% of the total point (74 – fewer than 110 marks).
- **Competent** = more than 75% of the total points (110 marks and more).

**Tool IV: - Attitude toward using the EBP self-rating scale:**

This tool consisted of seventeen statements that asked for a response using five continuums and a 5-point Likert scale (strongly agree, agree, neutral, disagree, and strongly disagree). Their attitudes were measured using a scoring system. Each positive statement received a score of (4) points for strongly agree, (3) point for agree, (2) point for neutral, (1) point for disagree, and (0) for strongly disagree. Negative statements received a reversed score in SPSS as (0) was given to strongly agree, (1) point was given to agree, (2) point to neutral, (3) point to disagree, and (4) point to strongly disagree which created a total point of 70 marks.

The total attitudes score ranged from (zero to 70 marks) and was summed up for each staff member and was classified as follows:

- Negative attitude = less than 75% of the total points (< 53 marks).
- Positive attitude = greater than 75% of the total point (≥ 53 marks).

**3.6 Procedure**

**Administrative process and ethical considerations**

Before carrying out the study, the researchers obtained Ethical approval from the Research Ethics Committee at the Faculty of Nursing, Mansoura University (Reference No. 115). An official letter was issued from the faculty of nursing at Mansoura University to the appropriate authorities of the directorate of the Specialized Medical Hospital to obtain their permission. The participants gave verbal informed consent to the researchers after being notified of the study's objective and given the assurance that their answers to the questionnaire and identities would remain private. Their answers were voluntary, and their participation didn't affect their work conditions.

**Development of study tools**

The researchers designed the tools for gathering data after reviewing related literature.

**Validity and reliability of the study tools**

The face and content validity of the designed tools were evaluated by a panel of five community health nursing professionals. Face validity is a test used to determine how well a test or assessment appears to measure the variable or construct that it is intended to measure. Content validity was used to appropriateness of content and identify any misunderstandings or omissions.

Then the researchers used Cronbach's Alpha to evaluate internal consistency, and the reliability coefficient of the study tools in SPSS program version 24, which is carried out on 12 HCPs.

- The knowledge domain's Cronbach's alpha value is (0.732), (0.893) for the skills domain, and it was (0.703) for the attitude domain. This means the high reliability of the research tools.

**3.7 Pilot study**

the researchers conducted a pilot study on 10% (12 HCPs) who were excluded from the study to assess the reliability, applicability, and clarity of the study tools and estimated the anticipated amount of time needed to collect the data of the study tools. It was also helpful in determining the challenges and issues that were raised when the data was being collected. The researchers made the recommended modifications. Certain queries were added, while others were either clarified or

removed. The questionnaires were hand-delivered to each study participant. They took approximately 25 to 30 minutes to complete each questionnaire.

### 3.8 Data Collection

- The researchers attended Mansoura Medical Specialized Hospital and initiated data collection after being granted permission to conduct the study. Data collection lasted over one month, starting from October 2022.
- The researchers distributed the self-administered questionnaires using tools I, II, & IV to HCPs individually according to their work schedule five days/week (starting from Sunday to Thursday) covering the work's two shifts.
- The required time to fill the questionnaire fully ranged from 25-30 minutes for each HCP.
- The researchers used tool III to assess the skills of each HCP' regarding EBP and observed them with an indirect attitude to avoid nurse anxiety, fear, and stress; the required time ranged from 15-20 minutes.

### 3.9 Data Analysis

The researchers sorted, coded, arranged, and classified data, and transferred it into formats that have been specifically created. Then, analyzed it with the Statistical Package for Social Science (SPSS) for Windows (Standard version 24). Qualitative or quantitative data was described using numbers and percentages. Continuous variables were displayed as median (Min-Max) for non-normal data and mean  $\pm$  SD (standard deviation) for data that was normally distributed.

## 4- Results

**Table 1.** indicates that 62.5% of the HCPs aged 25-30 years with a mean of 28.39 (3.15) years. Regarding their gender and educational qualification, 70% and 93.3% of them were females, and had a bachelor's degree, respectively.

Nurses represented 58.3% of study participants and 41.7% of them worked in the intensive care department. Concerning years of experience, 76.7% of them work for less than five years with a mean of 4.24 (3.74) years.

**Table 2.** indicates that 77.5% and 59.2% of the HCPs had poor score levels of knowledge regarding the concept of EBP, types of research designs, and evidence hierarchy domain with a mean of 3.16(1.69) & 3.20(1.59) marks respectively. Additionally, 58.3% of them had a poor score for knowledge regarding both domains of asking an answerable, searchable question and disseminating the evidence with a mean of 6.01(2.32) & 3.23(1.22) marks respectively. Also, regarding appraising, acquiring, & synthesizing the evidence domains, 55.8%, 55.0%, & 50.0% of them had poor knowledge scores level, with a mean of 4.50(1.47), 5.33(1.66), & 2.61(1.05) marks, respectively. Collectively, 62.5% of the HCPs had a poor score for knowledge level regarding EBP with a total mean of 28.07(5.75) marks.

**Table 3.** reveals that 60% of the HCPs showed improvement in skills' score levels regarding asking answerable questions domain with a mean of 19.22 (2.59). Moreover 99.2% & 98.3% of the HCPs showed incompetent score levels of skills regarding determining the best study design, acquiring the evidence, appraising systematic reviews, and appraising randomized control trials domains, with a mean of 6.29 (0.97), 12.95 (1.83), 11.19 (1.47), and 8.14 (1.10) marks, respectively. Collectively, 98.3% of the HCPs had incompetent score levels of skills regarding EBP with a total mean of 57.80 (6.31) marks.

**Table 4.** points out that 66.7% of the HCPs reflected a positive attitude toward EBP with a mean of 38.32(3.57) marks. However, 33.3% of the HCPs reflected a negative attitude toward EBP with a total mean of 15.50 (2.23) marks.

**Table 1.** Demographic and Occupational Information About Healthcare Professionals

Participants' characteristics	The study group (n=120)	
	n	%
<b>Age (Years)</b>		
<25 y	20	16.7
25-30 y	75	62.5
>30 y	25	20.8
<b>Mean (SD)</b>	28.39 (3.15)	
<b>Gender</b>		
Male	36	30
Female	84	70
<b>Educational Qualification</b>		
Master	8	6.7
Bachelor	112	93.3
<b>Specialty</b>		
Doctor	12	10
Pharmacist	38	31.7
Nurse	70	58.3
<b>Department</b>		
Emergency	4	3.3
Operating unit	4	3.3
Medical and Surgical	19	15.8
Intensive care	50	41.7
Others	43	35.8
<b>Years of experience</b>		
<5 y	92	76.7
5-10 y	17	14.2
>10 y	11	9.2
<b>Mean (SD)</b>	4.24 (3.74)	

**Table 2.** Healthcare Professionals' Score Level of Knowledge Regarding Evidence-Based Practice (n=120)

Score levels							
Knowledge items	Poor		Fair		Good		Mean (SD)
	n	%	n	%	n	%	
The concept of evidence-based practice (Score = 8)	93	77.5	24	20.0	3	2.5	3.16 (1.69)
Asking searchable question (Score = 12)	70	58.3	38	31.7	12	10.0	6.01 (2.32)
Types of research designs and evidence hierarchy (Score = 7)	71	59.2	45	37.5	4	3.3	3.20 (1.59)
Acquiring research (Score = 11)	66	55.0	51	42.5	3	2.5	5.33 (1.66)
Appraising research (Score = 9)	67	55.8	40	33.3	13	10.8	4.50 (1.47)
Synthesis of evidence (Score = 5)	60	50.0	34	28.3	26	21.7	2.61 (1.05)
Disseminating the evidence (Score = 7)	70	58.3	45	37.5	5	4.2	3.23 (1.22)
Total knowledge score level (Score = 59)	75	62.5	44	36.7	1	0.8	28.07 (5.75)

**Note.** Poor< 50%, Fair 50 < 75%, Good≥ 75%.

**Table 3.** Healthcare Professionals' Score` Level of Skills Regarding Evidence-Based Practice (n=120)

Score levels							
Skills items	Incompetent		Improving		Competent		Mean (SD)
	n	%	n	%	n	%	
Asking answerable questions (Score = 36)	47	39.2	72	60.0	1	0.8	19.22 (2.59)
Determining the best study design (Score = 18)	119	99.2	0	0	1	0.8	6.29 (0.97)
Acquiring the evidence (Score = 36)	118	98.3	2	1.7	0	0	12.95 (1.83)
Appraising randomized control trials (Score = 33)	118	98.3	0	0	2	1.7	11.19 (1.47)
Appraising systematic reviews (Score = 24)	118	98.3	2	1.7	0	0	8.14 (1.10)
Total skills score (Score = 147)	118	98.3	2	1.7	0	0	57.80 (6.31)

**Note.** Incompetent < 50%, Improving 50 < 75%, Competent ≥ 75%.

**Table 4.** Healthcare professionals' score` level of attitude regarding evidence-based practice (N=120)

Attitude categories	Attitude level	
	N	%
Positive attitude	80	66.7
Negative attitude	40	33.3
Positive attitude score (≥ 75 %)		
Mean (SD)	38.32 (3.57)	
Negative attitude score (< 75)		
Mean (SD)	15.50 (2.23)	
Total attitude score (Score = 68)		
Mean (SD)	53.82 4.35)	

## 5- Discussion

Evidence-based practice (EBP) has become critical to patient safety in healthcare. It is now a common practice to improve the quality of patient care and services provided by healthcare systems. It has been a widely held expectation for several years, but it has yet to be fulfilled (Kaseka, Mbakaya, 2022; Li, Jeffs, Barwick, & Stevens, 2018). All health professionals (HCPs) should receive EBP education to provide high-quality patient-centered care, according to the Institute of Medicine's most recent study (Bakr & Mukhtar., 2020; Sreedharan et al., 2023).

To improve client and system outcomes, HCPs are becoming more expected to use research evidence in program development, policy decisions, and practice. This includes locating, obtaining, analyzing, and interpreting the best available evidence, and then adapting, implementing, and evaluating its impact. Putting knowledge into action simply requires that one needs the skills and knowledge related to making

decisions based on evidence. (Yost, Ciliska, & Dobbins, 2014).

This attention indicates the need for a broad, strategic view of the practice environment relative to EBP. Alternatively, consider methods and strategies for incorporating evidence use into the clinical organization's core operations, as evolving research suggests (Cullen et al., 2022). However, implementing EBP in healthcare organizations is acknowledged as a challenge for clinical practice. It takes a diverse set of skills to formulate questions that arise during the course of work, as well as the ability to access relevant literature, objectively analyze information, and implement outcomes in the patient-care process. To successfully integrate the best evidence into daily healthcare delivery, all practicing HCPs must possess a wide range of competencies (Hashish, Aly, & Alsayed, 2020; Ramadan, Elsabahy, & El-Shaer, 2020; Saunders et al., 2019). Therefore, this study seeks to evaluate the knowledge, skills, and attitudes of HCPs toward EBP.

Focusing on the knowledge score, it was noted that the HCPs had fair and poor score levels of knowledge with an average of 28.07 (5.75) marks regarding the concept and steps of EBP, evidence hierarchy, and research design. That could be explained due to the institution's lack of preparedness for applying EBP. Similarly, increasing EBP adoption in healthcare institutions is critical through providing additional training and raising HCP awareness. These results are congruent with **Taganoviq et al., (2023)** results which demonstrated that participants had some or little knowledge of EBP. Such findings were attributed to their educational experience as nurse educators, where EBP is widely used.

Furthermore, this study demonstrated that most HCPs displayed an incompetent score level of skills with an average of 57.80 (6.31) marks concerning asking answerable questions based on clinical problems using PICOT format, determining best study design, acquiring research with concern to the level of evidence, appraising randomized control trial, appraising systematic review and meta-analysis. This outcome is in line with **Dessie et al., (2020)** results which demonstrated that the majority of respondents had low confidence in their skills to assess the quality of research; nearly half stated they could not locate relevant research articles, and half stated they could not locate the best resources for applying EBP.

Concerning the HCPs' attitudes toward using EBP. It was shown that almost two-thirds of them had a positive attitude and about one-third of them reflected a negative attitude. Bring to light, the majority of them strongly agreed that EBP is considered necessary at the workplace, improves the quality of work, and helps in making work-related decisions. These results are consistent with **Rajpal, et al., 2021** who noted that most study participants believed that EBP improves patient care and were willing to participate in education programs to enhance their knowledge and skills related to the implementation of EBP. However, the finding is in contrast with **Taganoviq, et al., (2023)** findings which showed a lower point in attitudes among the study participants toward EBP (3.60±1.06).

## **6- Conclusion**

The researcher concludes that most of the studied HCPs had a poor score level of knowledge and incompetent score level of skills regarding evidence-based practice. Moreover, about two-thirds of them showed positive attitudes toward evidence-based practice.

## **7- Recommendations**

Based on the findings and conclusions extracted from the present study, the researchers recommended that:

1. Designing and implementing educational programs about EBP in healthcare settings as a method for raising awareness, training, and ongoing professional development, to improve the skills needed to apply EBP.
2. The development of creative strategies encourages the use of EBP resources by HCPs and fosters a clinical inquiry.
3. Using policies and guidelines to integrate EBP in hospitals' routine operations.

## **8- Acknowledgments**

Greetings to all healthcare professionals and acknowledge the supervisors' outstanding work on this project.

## **9- Reference**

- Abdel-Kareem, A., Kabbash, I., Saied, S., & Al-Deeb, A. (2019).** Knowledge, practices, and attitudes of physicians towards evidence-based medicine in Egypt. *East Mediterr Health J*, 25(2), 82-9.
- Abu-Baker, N. N., AbuAlrub, S., Obeidat, R. F., & Assmairan, K. (2021).** Evidence-based practice beliefs and implementations: a cross-sectional study among undergraduate nursing students. *BMC nursing*, 20(1), 1-8.
- AbuRuz, M. E., Hayeah, H. A., Al-Dweik, G., & Al-Akash, H. Y. (2017).** Knowledge, attitudes, and practice about evidence-based practice: a Jordanian study. *Health Science Journal*, 11(2), 1.
- Albarqouni, L., Hoffmann, T., Straus, S., Olsen, N. R., Young, T., Ilic, D., ... & Glasziou, P. (2018).** Core competencies in evidence-based practice for health professionals: consensus statement based on a systematic review and Delphi survey. *JAMA network open*, 1(2), e180281e180281.
- Al-Baghli, N. A. (2013).** Evidence based medicine workshop. Randomized controlled trial of the efficacy on physician's knowledge and skills *Saudi Med J*, 34, 1055-61.

- Al-Busaidi, I. S., Al Suleimani, S. Z., Dupo, J. U., Al Sulaimi, N. K., & Nair, V. G. (2019). Nurses' Knowledge, Attitudes, and Implementation of Evidence-based Practice in Oman: A Multi-institutional, Cross-sectional Study. *Oman medical journal*, 34(6), 521–527. <https://doi.org/10.5001/omj.2019.95>
- Atakro, C. A., Atakro, A., Akuoko, C. P., Aboagye, J. S., Blay, A. A., Addo, S. B., ... & Sarpong, Y. G. (2020). Knowledge, attitudes, practices and perceived barriers of evidence-based practice among registered nurses in a Ghanaian teaching hospital. *International Journal of Africa Nursing Sciences*, 12, 100204.
- Beshir, M. A., Woreta, S. A., & Kebede, M. (2017). Evidence-based practice among health professionals in hospitals of Northwest Ethiopia: a cross-sectional study. *JBHI Evidence Implementation*, 15(4), 161-170.
- Cullen, L., Hanrahan, K., Farrington, M., Tucker, S., & Edmonds, S. (2022). *Evidence-based Practice in Action: Comprehensive Strategies, Tools, and Tips from University of Iowa Hospitals & Clinics*. Sigma Theta Tau.
- Dessie, G., Jara, D., Alem, G., Mulugeta, H., Zewdu, T., Wagnew, F., ... & Burrowes, S. (2020). Evidence-based practice and associated factors among health care providers working in public hospitals in Northwest Ethiopia during 2017. *Current Therapeutic Research*, 93, 100613.
- Disler, R. T., White, H., Franklin, N., Armari, E., & Jackson, D. (2019). Reframing evidence-based practice curricula to facilitate engagement in nursing students. *Nurse education in practice*, 41, 1-7, 10.1016/j.nepr.2019.102650
- Fineout-Overholt, E., Melnyk, B. M., & Schultz, A. (2015). Transforming health care from the inside out: advancing evidence-based practice in the 21st century. *Journal of professional nursing*, 21(6), 335-344.
- Hashish, A., Aly, E., & Alsayed, S. (2020). Evidence-Based Practice and its Relationship to Quality Improvement: A Cross-Sectional Study among Egyptian Nurses. *The Open Nursing Journal*, 14(1).
- Kaseka, P. U., & Mbakaya, B. C. (2022). Knowledge, attitude and use of evidence based practice (EBP) among registered nurse-midwives practicing in central hospitals in Malawi: a cross-sectional survey. *BMC nursing*, 21(1), 144.
- Laberge, M., & Shachak, A. (2013). Developing a tool to assess the quality of socio-demographic data in community health centres. *Applied Clinical Informatics*, 4(01), 1-11.
- Labrague, L. J., McEnroe - Pettite, D., Tsaras, K., D'Souza, M. S., Fronda, D. C., Mirafuentes, E. C., ... & Graham, M. M. (2019, April). Predictors of evidence - based practice knowledge, skills, and attitudes among nursing students. In *Nursing forum* (Vol. 54, No. 2, pp. 238-245).
- Li, S. A., Jeffs, L., Barwick, M., & Stevens, B. (2018). Organizational contextual features that influence the implementation of evidence-based practices across healthcare settings: a systematic integrative review. *Systematic reviews*, 7, 1-19.
- Mariano, A. S., Souza, N. M., Cavaco, A., & Lopes, L. C. (2018). Healthcare professionals' behavior, skills, knowledge and attitudes on evidence-based health practice: a protocol of cross-sectional study. *BMJ open*, 8(6), e018400.
- Rajpal, D., Lal, M. M., Vyas, V., Vardhan, V., Gehdoo, R. P., & Patil, S. (2021). Knowledge, attitudes, and practices of evidence-based practice among health-care professionals: Results of a cross-sectional questionnaire-based study. *Medical Journal of Dr. DY Patil University*, 14(5), 496-501.
- Ramadan, E. S. F., Elsabahy, H. E. S., & El-shaer, A. M. (2020). Nursing staff awareness about evidence based practice: Facilitations, barriers and beliefs. *Egyptian Journal of Health Care*, 11(4), 96-120.
- Samy, E., Ahmed, A. I., & El-Mouty, S. M. A. (2019). Developing competencies of evidence-based practice among community health nursing educators through implementing journal club. *American Journal of Nursing*, 7(5), 751-758
- Saunders, H., Gallagher-Ford, L., Kvist, T., & Vehviläinen-Julkunen, K. (2019). Practicing healthcare professionals' evidence-based practice competencies: An



overview of systematic reviews. *Worldviews on Evidence-Based Nursing*, 16(3), 176-185.

**Sreedharan, J. K., Krishna, G. G., Jose, A. M., Vijayan, M., Alsomali, A., Alqahtani, A. S., ... & Paul, J. (2023).** Evidence-based Practice and Quality Improvement in Allied Healthcare Education. *Education*, 12(1), 83-89.

**Taganoviq, B., Bllaca, L., Tahirbegolli, B., Hoxha, B. K., Emini, F., Pappritz, C., ... & Bellaja, E. (2023).** Evidence-Based Knowledge, Beliefs, and Skills Among Healthcare Professionals. *The Open Nursing Journal*, 17(1).

**Yost, J., Ciliska, D., & Dobbins, M. (2014).** Evaluating the impact of an intensive education workshop on evidence-informed decision making knowledge, skills, and behaviours: a mixed methods study. *BMC Medical Education*, 14, 1-9