Nurses’ Knowledge, Perception, and Attitude towards Evidence-Based Practice at King Abdullah Medical City-Saudi Arabia

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Abstract  Background: Health care organizations consider evidence-based practice as the gold standard for the provision of safe and compassionate health care. Aim of the study: The present study aims to assess the knowledge, perception, and attitude of nurses regarding evidence-based practice. Subjects and Methods: A descriptive design was utilized to achieve the aim of the study. The study included a random sample of (262) staff nurses who were responsible for providing nursing care to patients. Data were collected using three scales; knowledge scale, perception scale, and attitude scale regarding evidence-based practice. Results: The majority of the studied nurses had the knowledge and negative attitude regarding evidence-based practice and two-third of the studied nurses had a moderate level of perception regarding evidence-based practice. There was a statistically significant relationship between nurses’ knowledge and their educational qualification and there was a statistically significant relationship between nurses’ perception and their gender, educational qualification, and experience. Conclusion: There was a significant relationship between nurses’ Knowledge, perception, and attitude towards evidence-based practice. Recommendations: Nursing managers should develop an evidence-based practice training program to help nurses to be familiar with EBP steps. Nursing managers should motivate the nurses who follow up the EBP with different incentives.

Keywords: attitude, evidence-based practice, knowledge, nurses, perception

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1. Introduction

One of the most dynamic human disciplines is health care, and a lot of money are spent annually on high quality and advanced research, resulting in an exponential growth in health care literature. Regularly, new and more effective medicines and procedures are established. One major objective behind all these efforts is to help doctors, nurses, and medical technicians provide the best possible care and treatment to patients [1]. World health organization has mentioned that health improving in societies is based on nursing services supported by evidence-based practice (EBP) [2].

Beginning with Florence Nightingale in the 1800s and developing again within the medical community, EBP continues to advance along with the nursing discipline. EBP is foundational to nursing education and is a way for the nursing discipline to decrease the theory to practice gap. It initiated as an idea to deliver better outcomes for patients who experienced disgraceful and unhealthy conditions, and advanced into a foundation that nursing has adopted and maintained in order to provide safe and competent care [3].

EBP is the use of current best evidence in making decisions for individual patient care or health service delivery. Current best evidence is the use of up-to-date information from important and valid research regarding the effects of different forms of clinical care, the potential for harm from exposure to the particular agent, the accuracy of diagnostic tests, and the predictive power of prognostic factors [4,5,6,7,8]. EBP facilitates the delivery of effective, efficient, and safe patient care. There is a motivated and systemic effort to integrate EBP into every patient encounter among all clinical settings. Numerous strategies used to promote EBP among healthcare professionals with varying degrees of success in increasing knowledge and shifting attitudes towards
EBP. These strategies include journal clubs, mentorship programs, and training in scientific research [9].

The goals of evidence-based nursing are the following: provide practicing nurses with evidence-based data to deliver effective care defined by the best research; to resolve problems in the clinical setting; to achieve excellence in delivering patient care, even exceeding quality assurance standards; and to introduce innovation. Furthermore, EBP uses a systematic review to emphasize the comprehensive evaluation of all relevant research according to a clinical question [10]. For nurses, EBP considered an effective way of enhancing confidence in clinical decision-making [11].

Nurses have a vital role in ensuring the promotion of health care and delivering better services. EBP is significant to the professional development, responsibility, and capabilities of nurses, and it has become an important subject in nursing and has integrated into daily practice. In addition, nurses who practice based on the scientific evidence have been able to make better decisions in services delivery [12].

Nurses are in crucial positions to promote EBP within clinical settings and have opportunities to advance practice. Therefore, it is essential to understand their perceptions of factors promoting EBP in clinical settings [13]. Knowledge, perception and attitude are the keystone of implementing EBP. Consequently, Knowledge, attitudes can potentially predict future behavior about EBP implementation [14,15,16].

Attitudes play an important role in adopting, implementing, and maintaining evidence-based practices in clinical settings. Individuals’ positive or negative attitudes and judgments toward the EBP may directly affect their behaviors of either supporting or resisting the implementation of the EBP [17].

Positive attitudes towards EBP could be important step in adopting EBP. According to the Theory of planned behavior, beliefs, attitudes, and social standards will influence individuals' intentions to engage in selected behaviors. Intentions as self-instructions and motivations to engage in innovative behaviors will lead to adoption and use of EBP.

A growing literature has addressed the importance of attitudes toward EBP in health care settings and explored factors at multiple ecological levels that may influence attitudes toward EBP [18].

Nurses’ knowledge of EBP and their positive attitude towards it will contribute to its implementation in healthcare system. Obtaining knowledge about research methods and having the skill to evaluate research reports critically may enable overcoming the obstacles delaying the application of research findings and thus will lead to improvement of healthcare quality. Hence, the EBP attitude, knowledge, and skills of nurses are so important [19].

Nurses increasingly requested to apply evidence in to the practice in order to improve the quality and efficiency of patient care. Nurses need to have a positive attitude, adequate knowledge and applicable research utilization to employ EBP and promote quality of care effectively, [20,21,22,23]. Hence, the current study will be conducted to assess the knowledge, attitude and perception of nurses toward EBP.

1.1. Aim of the Study

The aim of this study is to assess the knowledge, perception and attitude of nurses regarding EBP at king Abdullah medical city-Holy Makkah-Saudi Arabia.

1.2. Research Questions

1. What is nurses’ knowledge regarding EBP?
2. What is nurses’ perception level regarding EBP?
3. What is nurses’ attitude level regarding EBP?
4. Is there a relationship between nurses’ knowledge and attitude regarding EBP?
5. Is there a relationship between nurses’ perception and attitude regarding EBP?

1.3. Subjects and Methods

1.3.1. Research design, setting, and participants

A descriptive, cross sectional research design was used in the current study. This study was carried out at all units of King Abdullah Medical City (KAMC) -Makkah - Saudi Arabia. The KAMC provides medical care for different patients with 390 beds capacity. A simple random sample of 262 nurses was selected from different units of KAMC proportional to the total number of nurses working in their respective clinical settings. They were responsible for providing patient care during the time of data collection.

1.3.2. Sample Size

Sample size was calculated by Epi Info software with population size 1200, expected frequency 50%, acceptable margin of error 5%, design effect=1.0, and cluster=1. The required sample was 291.

1.3.3. Tools of Data Collection

Data were collected through a self-administered questionnaire. It includes four sections as follows:

Section I: It includes personal data of the nurses such as gender, education, and experience years.

Section II: Knowledge toward EBP scale.

This scale was adopted from Karki et al [24]. It includes five statements to assess nurses’ knowledge regarding adopting EBP (e.g., adopting EBP based on research findings). The responses of nurses were either 2 for yes or 1 for no.

Section III: Perception toward EBP scale.

This scale was adapted from Majid et al (2011) [1]. It includes three subscales as follows; (1) EBP activities (9 items) (e.g., Identify clinical issues or problems), (2) EBP motivators (6 items) (e.g., Nursing colleagues who embrace EBP), (3) EBP training needs (7 items) (e.g., Identifying clinical issues for implementing EBP).

Scoring system

The items of first subscale were rated on five point likert scale ranged from 0 (poor) to 4 (excellent), while the items of other subscales were rated on five point likert scale ranged from 0 (no important) to 4 (extremely important). The total score was classified into three levels as follows; poor (<50%), good (50-75%), and excellent (>75%).
Section IV: EBP attitude scale

It was adopted from Aarons et al. [25] to assess attitude of nurses regarding adopting EBP. It consists of 50 items that cover 12 subscales as follows: (1) Appeal (4 items) (e.g., Adopting EBP requires enough training) (2) Requirement (3 items) (e.g., Adopting EBP requires supervisor) (3) Openness (4 items) (e.g., I will try therapy/interventions developed by researchers), (4) Divergence (4 items) (e.g., Clinical experience more important for adopting EBP), (5) Limitations (7 items) (e.g., EBP is too simple), (6) Fit (7 items) (e.g., Adopting EBP right for your patients), (7) Monitoring (4 items), (e.g., Work does not need to be monitored), (8) Balance (4 items) (e.g., Overall competence is more important), (9) Burden (4 items), (e.g., Cause too much paperwork), (10) Job security consists (3 items), (e.g., Help me get a new job), (11) Organizational support (3 items), (e.g., my organization provides ongoing support), and (12) Feedback (3 items) (e.g., Feedback helps me to be better).

Scoring system

The items are formulated as statements, and responses are given on a 5-point Likert scale ranging from 0–“not at all” to 4–“to a very great extent”. There are 23 items belonging to five subscales divergence, limitations, monitoring, balance, and burden are negatively framed to assess different perspectives. These items were reversed score and the mean score was computed. The total score of attitude was classified into; negative attitude less than 50% (0 – 99) and positive attitude ≥ 50% (100 - 200).

1.4. Validity and Reliability of Data Collection Scales

A pilot study was carried out on 10% of the nurses (n=29) in order to test the feasibility and applicability of the tools. These nurses were excluded from the total study sample. The Reliability was tested for the scales of knowledge, perception, and attitude by using Cronbach's coefficient alpha. It was 0.80, 83, and 0.92 for knowledge scale, perception scale, and attitude scale regarding evidence-based practice respectively. The content validity was done by three experts, and the necessary modifications were done accordingly.

1.5. Ethical Considerations

An official approval and permission from KAMC IRB were obtained before conducting the research. The aim of the study was explained to the participants and verbal consent was obtained. The anonymity, privacy of the participants, confidentiality of the data, and the right to refuse to participate in the study were assured.

1.6. Data Collection

The questionnaire was administered in paper format to nurses at the beginning of the shift with instructions about its filling. The researchers were available all the time of filling questionnaire by the nurses to clarify any doubt. The researchers checked the questionnaire for completeness after receiving it from the nurses. Data were collected from September to November 2019. The time needed to fill the questionnaire was between 20-25 minutes.

1.7. Statistical Analysis

Data were analyzed through SPSS package version 22. The categorical variables were expressed as number and percentage while continuous variables were expressed as mean, and standard deviation. Independent t-test used to compare between two mean of continuous variables whereas ANOVA test used to compare between more than two mean of continuous variables. Pearson correlation coefficient utilized to test association between continuous variables. P value was considered statistically significant at ≤0.05 and 0.01.

2. Results

Table 1 shows that the majority of the studied nurses’ age were ranged from 20-30 years with mean± SD (28.20± 3.31), female (61.5%), having a bachelor degree in nursing, with 6.27 mean of experience years, 50.4% of them accessed data base, and 67.2% did not participate in the scientific research.

Table 1. Personal data of the studied nurses

| Variables                     | No  | %  |
|-------------------------------|-----|----|
| Age                           |     |    |
| 20-30                         | 195 | 74.4|
| 31-40                         | 67  | 25.6|
| Mean ±SD                      | 28.20± 3.31 |
| Gender                        |     |    |
| Male                          | 101 | 38.5|
| Female                        | 161 | 61.5|
| Nursing qualification         |     |    |
| Diploma degree                | 44  | 16.8|
| Bachelor degree               | 213 | 81.3|
| Master degree                 | 5   | 1.9|
| Years of experience           |     |    |
| 1-5                           | 122 | 46.6|
| 6-10                          | 119 | 45.4|
| >10                           | 21  | 8.0|
| Mean ±SD                      | 6.27±3.10 |
| Data base access              |     |    |
| Yes                           | 130 | 29.6|
| No                            | 132 | 70.4|
| Participating in a research before | | |
| Yes                           | 86  | 32.8|
| No                            | 176 | 67.2|

Table 2. Nurses’ knowledge regarding EBP

| Adopting EBP based on                  | Yes (%) | No (%) |
|----------------------------------------|---------|--------|
| 1. Patient’s subjective and objective data | 251 (95.8%) | 11 (4.2%) |
| 2. Information from text books         | 223 (85.1%) | 39 (14.9%) |
| 3. Previous experiences of health care professionals | 245 (93.5%) | 17 (6.5%) |
| 4. Research findings                   | 186 (71.0%) | 76 (29.0%) |
| 5. Patient’s value/preference          | 231 (88.2%) | 31 (11.8%) |
| Total Knowledge                        | 227 (86.6%) | 35 (13.4%) |

Table 2 illustrate that the majority of the studied nurses (86.6%) had knowledge regarding EBP. The highest nurses’ knowledge was about adopting EBP based on patient’s subjective and objective data (95.8%), and the
lowest was adopting EBP based on Research findings (71.0%).

Table 3 shows that the mean of nurses’ perception toward EBP was 60.71 ±11.14. The highest nurses’ perception was related EBP activities (21.98 ±5.66) and the lowest was regarding EBP motivators (17.91 ±3.40).

Table 4 illustrates that two third of the studied nurses had moderate level of perception regarding EBP.

Table 5 illustrates the mean nurses’ attitude toward EBP was 110.38±11.31. The highest attitude subscale was fit (19.98±4.06), and the balance subscale was the lowest (5.14±2.59).

Table 7 illustrates that there was significant relationship between nurses’ Knowledge, perception, and attitude towards EBP.

Table 8 shows that there was statistically significant relation between nurses’ knowledge and their educational qualification and there was statistically significant relation between nurses’ perception and their gender, educational qualification, and experience.

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### Table 3. Nurses’ perception toward EBP

| Subscales of perception toward EBP | Min –Max | Mean ±SD |
|-----------------------------------|----------|---------|
| EBP activities                    | 9.0-36.0 | 21.98 ±5.66 |
| EBP motivators                    | 7.0-24.0 | 17.91 ±3.40 |
| EBP training needs                | 9.0-28.0 | 20.81 ±5.10 |
| Total perception                  | 26.0-88.0| 60.71 ±11.14 |

### Table 4. Levels of nurses’ perception toward EBP

| Levels of perception | Score | N | % |
|----------------------|-------|---|---|
| Low                  | 0-43  | 12 | 4.6 |
| Moderate             | 44-66 | 176 | 67.2 |
| High                 | 67-88 | 74 | 28.2 |

### Table 5. Nurses’ attitude toward EBP

| Subscales of attitude | Min –Max | Mean ±SD |
|-----------------------|----------|---------|
| 1. Appeal             | 5.0-16.0 | 10.26±2.54 |
| 2. Requirements       | 3.0-12.0 | 7.93±2.05 |
| 3. Openness           | 5.0-16.0 | 11.34±2.46 |
| 4. Divergence         | 0.0-12.0 | 6.37±2.17 |
| 5. Limitations        | 0.0-19.0 | 10.42±4.44 |
| 6. Fit                | 10.0-28.0| 19.98±4.06 |
| 7. Monitoring         | 0.0-10.0 | 6.37±2.98 |
| 8. Balance            | 0.0-12.0 | 5.14±2.59 |
| 9. Burden             | 0.0-13.0 | 5.0±1.99 |
| 10. Job security      | 0.0-12.0 | 8.37±2.22 |
| 11. Organizational support | 4.0-12.0 | 8.75±2.11 |
| 12. Feedback          | 4.0-12.0 | 9.07±2.21 |
| Total score           | 82.0-140.0| 110.38±11.31 |

### Table 6. Levels of nurses’ attitude toward EBP

| Levels of attitude | Score | n | % |
|--------------------|-------|---|---|
| Positive           | 0-99  | 36 | 13.7 |
| Negative           | 100-200| 226 | 86.3 |

### Table 7. Correlation between nurses’ knowledge, perception and attitude toward EBP

| Knowledge toward EBP | Perception toward EBP | Attitude toward EBP |
|----------------------|-----------------------|---------------------|
| 1                    | 0.29**                | 0.37**              |

*significant at p ≤ 0.05 / **significant at P ≤ 0.01.

### Table 8. Nurses’ knowledge, perception and attitude toward EBP regarding their personal characteristics

| Variables         | Total knowledge score mean±SD | Total perception score mean±SD | Total attitude score mean±SD |
|-------------------|------------------------------|-------------------------------|-----------------------------|
| Age               |                              |                               |                             |
| 20-30             | 9.56±1.21                    | 60.34±10.76                  | 110.09±11.48               |
| 31-40             | 9.49±1.02                    | 61.79±12.23                  | 111.23±10.81               |
| t-value/P-value   | 0.46/0.64                    | 0.91/0.36                    | 0.71/0.47                  |
| Gender            |                              |                               |                             |
| Male              | 9.72±0.83                    | 63.90±11.53                  | 111.66±11.98               |
| Female            | 9.44±1.32                    | 58.71±10.44                  | 109.59±10.82               |
| t-value/P-value   | 1.91/0.06                    | 3.75/0.00**                  | 1.44/0.14                  |
| Nursing qualification |                             |                               |                             |
| Diploma degree    | 9.11±1.31                    | 56.79±13.26                  | 107.45±8.74                |
| Bachelor degree   | 9.65±1.11                    | 61.47±10.23                  | 111.09±11.75               |
| Master degree     | 9.00±1.22                    | 62.80±21.63                  | 106.40±7.76                |
| F-value / P-value | 4.58/0.01**                  | 3.35/0.03*                   | 2.22/0.11                  |
| Years of experience |                             |                               |                             |
| 1-5               | 9.56±1.46                    | 59.00±10.88                  | 109.38±11.77               |
| 6-10              | 9.48±0.79                    | 62.63±11.33                  | 111.00±10.72               |
| >10               | 9.80±0.98                    | 59.76±10.36                  | 112.76±11.73               |
| F-value / p-value | 0.70/0.49                    | 3.35/0.04*                   | 1.11/0.32                  |
3. Discussion

EBP considered as critical element to improve quality of health services and achieving excellence in patient care. Furthermore, EBP is a keystone for health care quality [26]. As nurses play a vital role in the delivery of health care and results of revised studies show nurses do not generally integrate research evidence in their daily practice [27]. The current study was conducted to assess the knowledge, perception and attitude regarding EBP among nurses working at King Abdullah Medical City, Makkah, Saudi Arabia. Therefore the findings of the current study will be discussed through four sections as follows:

3.1. Nurses' Knowledge Regarding Evidence Based Practice.

Findings of the current study indicated that the majority of the studied nurses had knowledge regarding EBP. The highest nurses’ knowledge was about EBP based on patient’s subjective and objective data. This may be due to understanding of research terms used in research articles. They may have enough time to search and read research articles and implement recommendations of research studies into clinical practice, and availability of resources as equipment, materials to implement EBP. This result is in line with Majid et al [1] who studied adopting EBP in clinical decision making: nurses’ perceptions, knowledge, and barriers and reported that the nurses were open to adopt new health care approaches.

3.2. Nurses' Perception Regarding Evidence Based Practice

The present study Findings revealed that two third of the studied nurses had moderate level of perception regarding EBP. This result matched with Karki et al [24] who stated that the respondents had moderate level of perception toward EBP.

3.3. Nurses' Altitude toward Evidence Based Practice.

The current study demonstrated that the majority of the studied nurses had a negative attitude regarding EBP. These finding is in contrast with Mohsen et al [28], Padmanabhanunni [29], Al-Maskari et al [30], and Al-Busaidi et al [31] reported that all nurses have a positive attitude toward EBP.

The current study revealed that there is statistically significant relation between nurses’ knowledge related EBP and their educational qualification. This finding is matched with Xie et al [32] who stated that nurses with higher educational level performed better in the knowledge assessment test.

The present study showed that statistically significant relation between nurses’ perception and their gender was found with male scoring significantly higher compared to female. This may be related to lack of time. This result is matched with AbuRuz et al [33] who and revealed that female nurses have less positive attitude, and less knowledge about research compared to male nurses. In contrast a study done by Padmanabhanunni [29] reported that there was not a significant difference of the studied samples’ knowledge and their gender.

The present study Findings revealed that no statistical significant difference was found between nurses’ level of education and their attitude toward EBP. In contrast AbuRuz et al [33], Al-Maskari [31], and Ammouri et al [35] reported that increased education levels had a positive effect on overall attitudes towards EBP.

3.4. Relationship between the Study Variables

Statistical significant correlation was found between perception and knowledge toward EBP. This result is matched with Melnyk et al [36] who added that significant relationships were found among educators’ knowledge of EBP and their perception toward EBP.

The present study showed that statistical significant correlation found between knowledge and altitude toward EBP. Theses in line with Bashar [26] who reported that nurses who were more knowledgeable regarding EBP, had a greater positive attitude towards EBP and a stronger tendency to apply EBP. This result is in contrast with Karki et al [27] who reported that although this sample of Nepalese nurses and students had positive attitudes towards EBP, their knowledge and skills were limited, and there are many barriers to implementing EBP in Nepal.

EBP implementation is associated with all aspects of quality in health care such as efficient use of resources, improvement of patient care, decreasing costs and length of hospital stay, and increasing patient satisfaction. Literature has recommended that individuals’ attitudes, knowledge and perception always play an important role in adopting, implementing, and maintaining evidence-based practices in clinical settings [33]. Therefore, it is mandatory to increase the nurses’ knowledge and improve their practice, through the educational and in-service training programs to enhance the implementation of evidence-based research results.

4. Conclusion

The current study findings indicated that the majority of the studied nurses had knowledge, at the same time a negative attitude regarding EBP. The two third of the studied nurses had moderate level of perception regarding EBP. There was relationship between knowledge, perception and attitude toward EBP.

5. Recommendations

In light of the current study findings, the following recommendations are suggested:

- Nursing managers should develop EBP training program to help nurses to be familiar with EBP steps.
- Nursing managers should motivate the nurses who follow up the EBP procedures and guidelines by different incentives.
• Nursing managers should provide staff nurses with learning facilities such as books, advanced results of researches, posters, up to date scientific journals, in addition to the access to internet to promote self-learning.

• Nursing managers should adjust schedule of nurses to ensure sufficient time for them to learn and implement EBP.

• Nursing managers should provide support, facilities and persuading environment to focus nurses on evidence-based practice.

• Decision makers should direct the hospital budget to provide the needed equipment and supplies to implement EBP.

• Further studies are needed to determine the barriers for implementing EBP.

References

[1] Majid, S., et al. “Adopting evidence-based practice in clinical decision making: nurses’ perceptions, knowledge, and barriers.” Journal of the Medical Library Association, JMLA 99.3 (2011): 229.

[2] World Health Organization. Global diffusion of eHealth: making universal health coverage achievable: report of the third global survey on eHealth. World Health Organization, 2017.

[3] Michelle R.: Evidence-based practice: The key to advancing Bicker's health care (2016), available at https://www.beckershospitalreview.com/quality/evidence-based-practice-the-key-to-advancing-quality-and-safety-in-healthcare.html.

[4] Alshehri, Abdussalam Ali, et al. “Knowledge, attitude, and practice toward evidence-based medicine among hospital physicians in Qassim region, Saudi Arabia.” International Journal of Health Sciences 12.2 (2018): 9.

[5] Williamson, Kathleen M., et al. “Utilization of evidence-based practice knowledge, attitude, and skill of clinical nurses in the planning of professional development programming.” Journal for nurses in professional development 31.2 (2015): 73-80.

[6] Melnyk, B. M., Fineout, E., Gallagher-Ford, L., & Stillwell, S. B. Evidence-based practice, step by step: sustaining EBP through organizational policies and an innovative model. AJN The American Journal of Nursing, 111(9), (2011):57-60.

[7] Hassan H. “The Impact of Evidence-Based Nursing as The Foundation for Professional Maternity Nursing Practices.” Open Acc J Repro & Sexual Disord., 2019; 2(2): 195-197.

[8] Hassan H. “Evidence-Based Practice in Midwifery and Maternity Nursing for Excellent Quality of Care Outcome.” American Journal of Nursing Research, 2020; 8(6): 606.

[9] Black, Agnes T., et al. “Promoting evidence-based practice through a research training program for point-of-care clinicians.” The Journal of nursing administration 45.1 (2015): 14.

[10] Salem, O.: Evidence based nursing practice inside and outside middle east.” World Applied Sciences Journal 27.7 (2013): 803-10.

[11] Malik, Gulzar, Lisa McMenna, and Virginia Plummer. “Perceived knowledge, skills, attitude and contextual factors affecting evidence - based practice among nurse educators, clinical coaches and nurse specialists.” International journal of nursing practice 21 (2015): 46-57.

[12] Khammarnia, Mohammad, et al. “Barriers to implementation of evidence based practice in Zahedan teaching hospitals, Iran, 2014.” Nursing research and practice 2015 (2015).

[13] Malik, Gulzar, Lisa McMenna, and Virginia Plummer. “Perceived knowledge, skills, attitude and contextual factors affecting evidence - based practice among nurse educators, clinical coaches and nurse specialists.” International journal of nursing practice 21 (2015). 46-57.

[14] Ammouri, Ali A., et al. “Evidence-based practice: Knowledge, attitudes, practice and perceived barriers among nurses in Oman.” Sultan Qaboos University Medical Journal 14.4 (2014): e537.

[15] Moore, Elizabeth R., and Richard Watters. “Educating DNP students about critical appraisal and knowledge translation.” International journal of nursing education scholarship 10.1 (2013): 237-244.

[16] Melnyk, Bernadette Mazurek, et al. “The state of evidence-based practice in US nurses: critical implications for nurse leaders and educators.” JONA: The Journal of Nursing Administration 42.9 (2012): 410-417.

[17] Holt, Daniel T., et al. “Are you ready? How health professionals can comprehensively conceptualize readiness for change.” Journal of general internal medicine 25.1 (2010): 50-55.

[18] Qiao, Shan, et al. “Attitudes toward evidence-based practices, occupational stress and work-related social support among health care providers in China: A SEM analysis.” PloS one 13.8 (2018): e0202166.

[19] Zhou, Fen, et al. “Attitude, knowledge, and practice on evidence-based nursing among registered nurses in traditional Chinese medicine hospitals: A multiple center cross-sectional survey in China.” Evidence-Based Complementary and Alternative Medicine (2016).

[20] Belden, Catherine V., et al. “The effect of evidence based practice on workplace empowerment of rural registered nurses.” Online Journal of Rural Nursing and Health Care 12.2 (2012): 64-76.

[21] Brown, Caroline E., et al. “Multi-institutional study of barriers to research utilization and evidence-based practice among hospital nurses.” Journal of clinical nursing 19.13-14 (2010): 1944-1951.

[22] Moch, Susan D., Ruth J. Cronje, and Jessica Branson. “Part 1. Undergraduate nursing evidence-based practice education: envisioning the role of students.” Journal of Professional Nursing 26.1 (2010): 5-13.

[23] Atwa A., Hassan H., Ahmed S. “The impact of a hospital-based awareness program on the knowledge of patients about breast cancer and cancer cervix.” International Journal of Studies in Nursing, 2019, 4(1): 20-29.

[24] Karki, S., et al. “Perceptions and attitudes towards evidence based practice among nurses and nursing students in Nepal.” Kathmandu University Medical Journal 13.4 (2015): 308-315.

[25] Aarons, Gregory A., et al. “Expanding the domains of attitudes towards evidence-based practice: the evidence based practice attitude scale-50.” Administration and policy in mental health and mental health services research 39.5 (2012): 331-340.

[26] Bashir, Felor Javadi. “Assessing Attitudes towards Knowledge and Use of Evidence-Based Practice among Nurses Working in a Teaching Hospital in Kuala Lumpur.” International Journal of Education and Literacy Studies 7.1 (2019): 25-30.

[27] Mahmoud, Manal Hamed, and Zizi Fikry Mohamed Abdelrasol. “Obstacles in employing evidence-based practice by nurses in their clinical settings: a descriptive study.” Frontiers of Nursing 6.2 (2019): 123-133.

[28] Mohsen, Magda M., Nahla Ashour Saafan, and Omayma M. Okby. “Nurses’ perceptions and barriers for adoption of evidence based practice in primary care: Bridging the gap.” American Journal of Nursing Research 4.2 (2016): 25-33.

[29] Padmanabhanamuni, Anita, and Xin-Cheng Sui. “Mental health care providers’ attitudes towards the adoption of evidence-based practice in the treatment of post-traumatic stress disorder in South Africa.” South African journal of psychology 47.2 (2017): 198-208.

[30] Al-Maskari, Mohammed A., and Barbara J. Patterson. “Attitudes Towards and Perceptions Regarding the Implementation of Evidence-Based Practice Among Omani Nurses.” Sultan Qaboos University Medical Journal 18.3 (2018): e344.

[31] Al-Busaidi, Ibrahim Saleh, et al. “Nurses’ Knowledge, Attitudes, and Implementation of Evidence-Based Practice in Oman: A Multi-institutional, Cross-sectional Study.” Oman medical journal 34.6 (2019): 521.

[32] Xie, H. T., et al. “Nurses’ Attitudes towards Research and Evidence-Based Practice: Perspectives from Psychiatric Setting.” (2018).
[33] AbuRuz, Mohannad Eid, et al. “Knowledge, attitudes, and practice about evidence-based practice: a Jordanian study.” Health Science Journal 11.2 (2017): 1.

[34] Al-Maskari, Mohammed A., and Barbara J. Patterson. “Attitudes Towards and Perceptions Regarding the Implementation of Evidence-Based Practice Among Omani Nurses.” Sultan Qaboos University Medical Journal 18.3 (2018): e344.

[35] Ammouri, Ali A., et al. “Evidence-based practice: Knowledge, attitudes, practice and perceived barriers among nurses in Oman.” Sultan Qaboos University Medical Journal 14.4 (2014): e537.

[36] Melnyk, Bernadette Mazurek, et al. “Nurse practitioner educators’ perceived knowledge, beliefs, and teaching strategies regarding evidence-based practice: implications for accelerating the integration of evidence-based practice into graduate programs.” Journal of Professional Nursing 24.1 (2008): 7-13.