

## Original Research Article

# Examining the knowledge, attitudes, and implementation of evidence-based practice among nurses in the United Arab Emirates: a national cross-sectional descriptive study

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## ABSTRACT

**Background:** Evidence-based practice across United Arab Emirates has been widely adopted as country strategic direction but the knowledge, attitudes, and its implementation among nurses are yet to be explored. This study explored the knowledge, attitude and implementation of EBP among nurses working in the UAE.

**Methods:** A cross-sectional survey was conducted from 1,602 nurses working in different healthcare settings across the UAE. Two tools were used in the survey for data collection: the self-reported EBP Questionnaire created by Upton and the EBP Implementation scale by Melnyk, Fineout-Overholt, and Mays.

**Results:** A total of 1602 nurses (response rate: 95.9%) completed the questionnaire. The mean age was 38.7 years (age range=20-60 years). The study found that the majority of participants were female (84.1%), with 39.6% being staff nurses and the largest group (28.2%) having 11-15 years of nursing experience. Attitudes towards EBP showed the highest mean score of  $4.93 \pm 1.7$  followed by knowledge ( $4.5 \pm 1.4$ ) and practice ( $3.92 \pm 1.7$ ). Hence, the nurses' attitudes towards EBP appeared to be positive, their implementation and knowledge were comparatively moderate. The total EBPQ score was found to be 106.3 out of 168.

**Conclusions:** The study's finding can be used as a starting point for future evaluations and the development of strategies to encourage EBP utilization among nurses in the UAE. Establishing academic and professional development programs for EBP is necessary for organizations and nursing leaders. Combining EBP education with mentor support can encourage nurses to engage in clinical practice informed by the best available evidence.

**Keywords:** Evidence-based practice, Nurses, Nursing, United Arab Emirates

## INTRODUCTION

Evidence-based practice (EBP) is a problem-solving approach to healthcare delivery that incorporates the scientific research with patient preferences, clinician expertise, and values.<sup>1</sup> EBP allows nurses to adapt existing evidence to the unique characteristics of their patients and healthcare facilities. Patient care and clinical practices

standardization is considered to be a primary objective of EBP by means of best practice adoption. Evidence-based practice (EBP) is a cornerstone for cultivating the safety and quality of the patient's care. Additionally, it identifies EBP as an indispensable competency that shall be mastered by all professionals. The significance of it lies in that it enables the delivery of efficient, effective, and safe care of the patient.<sup>2</sup> There is a systemic and focused

struggle to incorporate the evidence-based practice into every patient encounter among all the clinical settings. Several different strategies have been used to promote evidence-based practice among nurses with a fluctuating degree of success in culminating the knowledge of and shifting the attitudes in the route of evidence-based practice. Such kinds of strategies comprise of mentorship programs, journal clubs, and scientific research related training.<sup>3</sup>

Despite the significance of evidence-based practice in enhancing the safety and quality of patient's care, limited attention has been paid to the research studies on Evidence-based practice among nurses across United Arab Emirates.<sup>4,5</sup> In 2012, Ammouri conducted a study in Oman to examine the knowledge, attitudes as well as practice associated with Evidence based practice among 414 nurses working in 4 tertiary (referral) governmental hospitals. The results suggested that nurses perceived evidence-based practice positively, however, reported reduced levels of knowledge in regards to evidence based practice.<sup>4</sup> Saunders, Stevens, and Vehviläinen<sup>5</sup> conducted another national study in Finland indicating that nurses were aware of the concept of evidence-based practice, however, lacked the evidence-based practice self-efficacy and knowledge in using evidence-based practice needed for integrating best evidence into clinical care delivery. The EBP in different healthcare setting might yield insight into EBP utilization barriers, facilitate preparation as well as planning for nursing EBP improvement/ promotion initiatives by policy-makers along with providing the baseline data for benchmarking. Implementation of EBP varies widely among healthcare staff. EBP supports to improve the patient experience, improve population health and also aids to reduce healthcare costs.<sup>5</sup> For nurses, implementation of EBP can guide in increasing the job satisfaction, help in nurse empowerment, improved skills to integrate patient preferences into practice, support for professional growth and also guides in continuous career development through expert roles. With the application of EBP comes better outcomes for patients, improvement in quality of care, increased patient safety, stronger basis for health-care investment decisions and capacity-building through collaboration. It also limits unhelpful practice variations by narrowing the gap between research and practice.<sup>5</sup>

Nurses in general often encounter organizational or individual barriers to EBP. Camargo and colleagues<sup>6</sup> identified EBP barriers such as lack of desire to change practice, "workplace overload," and a limited capability of understanding statistical analysis and research. Although results of this study suggested that nurses mostly valued EBP, the research found that nurses consulted either local protocols or colleagues more often than research. The aims of this study are to identify the practice, attitudes, knowledge, and implementation of EBP among nurses working in different health care settings: including hospitals, and primary health care centres (PHCs) across UAE as baseline for future interventions.

## METHODS

### Design

A cross-sectional exploratory data was collected from the nurses across UAE healthcare settings, spanning from January 2022 to May 2022.

### Population and sample size

The survey was distributed to nurses across all 7 Emirates. Around 1,602 nurses took part in the study. The study included clinical population of UAE nurses. Excluding nurses who were either not employed in the UAE (retired) or still in their student phase.

### Sample size

The sample size was calculated by using OpenEPi version 3. Assuming a confidence interval of 95%, a 5% margin of error, the adequate sample size to detect the average level of knowledge of nurses was calculated as 1,670 nurses. Total of 1,602 nurses responded to the survey with 95.9% as response rate.

### Data collection

Data is collected using valid and reliable questionnaires, which are subsequently converted into an electronic survey on mSurveys. The electronic survey is then sent to participants via email and institutional SMS platform. Data collection instrument consisted of three sections. In the first section, participants' background information included socio-demographic data such as age, gender, academic qualifications, years of experience, area of practice, if the participant participated in any research previously, etc. were collected. In the second section, knowledge, attitudes, and practice about EBP were measured by 24-item self-reported Evidence-Based Practice (EBP) Questionnaire developed by Upton et al. (2006).<sup>7</sup> Finally, the third section included EBP Implementation scale by Melnyk et al.<sup>8</sup> EBP Questionnaire comprises of a total of three subscales: practice of EBP, attitudes towards EBP, and knowledge of/skills associated with EBP.<sup>7</sup> This questionnaire contains in total 24-items including three distinct subscales: EBP practice (six items), knowledge/skills (14 items), and attitudes (four items). All these items are scored from 1 to 7 with a higher score representing a positive attitude towards EBP, greater use (practice), and greater knowledge of EBP. Each of these subscales, from these three subscales, can be added.<sup>7</sup> Therefore, the total score for the practice subscale can range from 6-42, and for the attitude's subscale can range from 4-28, and for the knowledge subscale from 14-98. To clarify the instrument more, each item in the attitude's subscale had two pairs of opposing statements, a negative and a positive.<sup>7</sup> The participants were asked to rank their attitudes towards EBP using these statements. If scores were greater than 4, then they were considered as positive.<sup>7</sup>

The EBP Implementation scale by Melnyk included 18 items and had also been shortened to a 3- item scale to measure a person's ability to implement EBP. Participants respond on a 5- point Likert type scale with responses ranging from 1=Strongly Disagree to 5=Strongly Agree. The response alternatives are 0=0 times, 1 = 1-3 times, 2 = 4-5 times, 3 = 6-8 times and 4≥8 times. The total score for the survey varies from 0 to 72. A high total score indicates increased self-reported practice of EBP. The reliability analyses conducted at national and international levels further support the internal consistency of the scales, as reported by Melnyk, Fineout-Overholt, and Mays in 2008.<sup>8,9</sup> Pilot testing was also performed in the current study to evaluate the content validity and to inspect as well as acknowledge any probable concerns with respect to readability, clarity, and grammatical structuring of every item being assessed. Around 30 nurses participated in the pilot testing. Individuals involved in the pilot testing were nurses representing a broad spectrum of practice areas. Internal consistency scores of the pilot survey yielded values of Cronbach's alpha of 0.87 (0.79 for the knowledge/skills subscale, 0.85 for the practice subscale, and 0.79 for the attitudes subscale).

### Data analysis

Data was entered in a computerized system and analysed by SPSS (the statistical package of the social sciences) version 25. Descriptive (i.e., frequencies, percentages, means, and standard deviations) statistics was used for the analysing the data. Proportions (%) and frequencies (n) was reported for categorical variables. Scoring was performed for the relevant instruments. A bivariate correlation analysis was conducted to examine the correlation between the variables under study.

### Ethical considerations

Ethical approval was acquired from Ethical Review Board of the Ministry of Health and Prevention, Dubai (MOHAP/DXB-REC/ D.D.D /No.132 2021). Use and implementation of these surveys was also approved by the Dubai Scientific Research Ethics Committee (Ref#: DSREC-12/2021\_07), and Department of Health (Ref#: DOH/CVDC/2021/1743). Anonymity and confidentiality of the data was also maintained. A written informed consent was obtained from all participants before initiating the survey and the study was conducted in accordance with the Declaration of Helsinki. An informed consent form was reviewed and signed by the respondents during the commencement of the online survey before completing the questionnaire assuring that the collected data would only be used for scientific purpose. The respondents were also given an option to withdraw from the study without giving any justifications.

## RESULTS

A total of 1,602 nurses, representing a response rate of 95.9%, actively participated in the study. The average age

of the respondents was 38.7 years, with a standard deviation (SD) of 7.99 (age range =20-60 years).

**Table 1: Sociodemographic and professional characteristics of the sample (n=1602).**

| Variables                                 | N (%)       |
|-------------------------------------------|-------------|
| <b>Age (years)</b>                        |             |
| 20-30                                     | 205 (12.8)  |
| 31-40                                     | 839 (52.4)  |
| 41-50                                     | 394 (24.6)  |
| 51-60                                     | 158 (9.9)   |
| >60                                       | 6 (0.4)     |
| <b>Gender</b>                             |             |
| Female                                    | 1347 (84.1) |
| Male                                      | 255 (15.9)  |
| <b>Emirates (residence)</b>               |             |
| Abu Dhabi                                 | 361 (22.5)  |
| Ajman                                     | 55 (3.4)    |
| Dubai                                     | 236 (14.7)  |
| Fujairah                                  | 251 (15.7)  |
| Ras Al Khaimah                            | 263 (16.4)  |
| Sharjah                                   | 348 (21.7)  |
| Umm Al Quwain                             | 88 (5.5)    |
| <b>Years of nursing experience</b>        |             |
| 0-5                                       | 149 (9.3)   |
| 11-15                                     | 452 (28.2)  |
| 16-20                                     | 272 (17.0)  |
| 21+                                       | 334 (20.8)  |
| 6-10                                      | 395 (24.7)  |
| <b>Highest degree earned</b>              |             |
| Associates Degree/Diploma                 | 252 (15.7)  |
| Bachelor of Science in Nursing (BSN)      | 1112 (69.4) |
| Bachelors (non-nursing)                   | 30 (1.9)    |
| Doctorate                                 | 5 (0.3)     |
| Master of Science in Nursing              | 135 (8.4)   |
| Masters (non-nursing)                     | 57 (3.6)    |
| Other (please indicate)                   | 11 (0.7)    |
| <b>Current position</b>                   |             |
| Management                                | 200 (12.5)  |
| Staff nurse                               | 1402 (87.5) |
| <b>Primary role in healthcare</b>         |             |
| Clinical administrator                    | 106(6.6)    |
| Clinician/practitioner nurse              | 374 (23.3)  |
| Educator (academic and staff development) | 99 (6.2)    |
| Staff nurse                               | 634 (39.6)  |
| Registered nurse                          | 210 (13.1)  |
| Others                                    | 179 (11.2)  |

Among the participants, the majority were staff nurses (634 or 39.6%), and a significant number of nurses (452 or 28.2%) had 11-15 years of nursing experience. Females constituted the majority of the participants, accounting for 84.1% of the sample. In terms of educational background, over half of the respondents (n=1112; 69.4%) held a bachelor's degree (BSN) in nursing. Additionally, 15.7% held a nursing diploma, 0.3% possessed a doctorate degree,

and 8.4% held a master's degree in nursing. The respondents' demographic characteristics are shown in Table 1.

**Table 2: Nurses experience and knowledge level in regards to EBP.**

| Variables                                                                                                                                                              | N (%)      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| <b>Rate your EBP knowledge</b>                                                                                                                                         |            |
| Advanced level                                                                                                                                                         | 251 (15.7) |
| Intermediate level                                                                                                                                                     | 792 (49.4) |
| Beginning level                                                                                                                                                        | 497 (31.0) |
| No knowledge                                                                                                                                                           | 62 (3.9)   |
| <b>How did you hear about EBP?</b>                                                                                                                                     |            |
| Formal training                                                                                                                                                        | 439 (27.4) |
| Multiple circumstances                                                                                                                                                 | 602 (37.6) |
| On-site training                                                                                                                                                       | 224 (14.0) |
| Own interest                                                                                                                                                           | 214 (13.4) |
| Specialised training                                                                                                                                                   | 123 (7.7)  |
| <b>To what extent do you believe that EBP is practiced in your organization?</b>                                                                                       |            |
| None at All                                                                                                                                                            | 19 (1.2)   |
| A Little                                                                                                                                                               | 123 (7.7)  |
| Somewhat                                                                                                                                                               | 252 (15.7) |
| Moderately                                                                                                                                                             | 594 (37.1) |
| Very much                                                                                                                                                              | 614 (38.3) |
| <b>Previous participation in EBP courses</b>                                                                                                                           |            |
| No                                                                                                                                                                     | 970 (60.5) |
| Yes                                                                                                                                                                    | 632 (39.5) |
| <b>What is your experience with EBP (e.g., committee work in an institution, continuing education program on EBP, formal coursework on EBP, taught an EBP course)?</b> |            |
| Advanced level                                                                                                                                                         | 85 (5.3)   |
| Intermediate level                                                                                                                                                     | 540 (33.7) |
| Beginning level                                                                                                                                                        | 592 (37.0) |
| No experience                                                                                                                                                          | 385 (24.0) |

The nurses experience and knowledge level in regards to EBP is depicted in (Table 2). The nurses rated their EBP knowledge in the first inquiry. The results demonstrate that majority of the nurses 792 (49.4%) had intermediate knowledge levels followed by 497 (31.0%) having beginning level, and 251 (15.7%) having Advanced knowledge level. Most of the nurses heard about EBP 602 (37.6%) in multiple circumstances. Around 614 (38.3%) nurses indicated that EBP is practiced in their organization at a complex level. The overall score and item scores on the Evidence-Based Practice Questionnaire (EBPQ) Scale is mentioned in (Table 3). For practice scale, "sharing information with colleagues" scored the highest ( $M=4.24$ ,  $SD=1.8$ ), whereas items related to knowledge about EBP ("Sharing of ideas and information with colleagues" and "ability to review your own practice") scored highest ( $M=4.82$ ,  $SD=1.5$  and  $M=4.80$ ,  $SD=1.4$ ). The mean EBPQ score was 4.43 out of 7. The total EBPQ score is 106.3 out of 168. Attitudes towards EBP showed a total score of knowledge ( $63.06 \pm 17.325$ ) followed by practice ( $23.52 \pm 9.385$ ) and attitudes ( $19.72 \pm 5.592$ ).

The overall score and item scores on the evidence-based practice implementation scale is shown in Table 4. The overall mean score on the EBP Implementation Scale was 27.4. For nurses, "I accessed the Cochrane database of systematic reviews" (item 12) ( $M=1.32$ ,  $SD=1.1$ ) and "I generated a PICO question about my clinical practice" (item 3) ( $M=1.39$ ,  $SD=1.0$ ) scored lowest. On the other hand, "I promoted the use of EBP to my colleagues." (Item 18) ( $M=1.63$ ,  $SD=1.1$ ) and "I Used evidence to change my practice" (item 1) ( $M=1.82$ ,  $SD=1.03$ ) showed elevated average scores in comparison with other implementation activities. The internal reliability of the EBP implementation Scale also showed an excellent Cronbach's  $\alpha$  score of 0.92. The total score of EBP implementation scale was ( $27.4544 \pm 16.99$ ). The percentages and item mean scores on the evidence-based practice implementation short scale is depicted in (Table 5). Majority of the participants strongly agree that they used to improve patient outcomes in their healthcare setting 1307 (81.6%), 79% of the nurses implement the steps of the EBP process in their practice, while, 81.6% promoted the use of EBP in their healthcare setting to improve outcomes.

A bivariate correlation analysis was performed to examine the relationship between EBP knowledge, practice, and attitudes mean scores, nurses' demographics and professional characteristics (Table 6). There was a significant negative weak correlation between nurses' age and practice mean scores ( $r_s = -0.068$ ,  $p = 0.007$ ). Older nurses had better EBP practice mean scores compared with younger nurses. There was a significant negative weak correlation between gender and practice ( $r_s = -0.065$ ,  $p = 0.009$ ), and knowledge mean scores ( $r_s = -0.053$ ,  $p = 0.034$ ). There was a significant negative weak correlation between emirates and practice ( $r_s = -0.105$ ,  $p = 0.001$ ), attitude ( $r_s = -0.116$ ,  $p = 0.001$ ) and knowledge mean scores ( $r_s = -0.120$ ,  $p = 0.001$ ). There was a significant weak correlation between origin with practice ( $r_s = -0.053$ ,  $p = 0.035$ ), & knowledge mean scores ( $r_s = 0.019$ ,  $p = 0.436$ ). There was a significant weak correlation between Level of Education and practice ( $r_s = 0.163$ ,  $p = 0.001$ ), attitudes ( $r_s = 0.101$ ,  $p = 0.001$ ) and knowledge mean scores ( $r_s = 0.130$ ,  $p = 0.001$ ). There was a significant positive correlation between years of experience and attitude mean scores ( $r_s = 0.065$ ,  $p = 0.009$ ) indicating that Nurses with more years of experience are likely to exhibit greater confidence and tend to have better attitudes towards Evidence-Based Practice (EBP).

## DISCUSSION

This project offers valuable data that tends to add to the existing literature on the EBP nurse knowledge, attitudes, and practices, along with yielding data for strategic planning for the nurse leaders. At different UAE facilities, nurses almost totally had positive attitudes toward questioning, new evidence, and altering personal practice. Subsequently, views of respondents in terms of EBP as fundamental to practice bodes well for promoting EBP.



**Table 3: Mean of total and items scores/ Standard deviations of the EBP Implementation Scale (n=1602).**

| Items                                                                                                                 | Range | Mean  | SD     |
|-----------------------------------------------------------------------------------------------------------------------|-------|-------|--------|
| <b>Practice of EBP</b>                                                                                                |       |       |        |
| How often have you formulated a clearly answerable question as the beginning of the process towards filling this gap? | 1- 7  | 3.91  | 1.696  |
| How often have you tracked down the relevant evidence once you have formulated the question?                          | 1- 7  | 3.86  | 1.712  |
| How often have you critically appraised, against set criteria, any literature you have discovered?                    | 1- 7  | 3.60  | 1.746  |
| How often have you integrated the evidence you have found with your expertise?                                        | 1- 7  | 3.86  | 1.729  |
| How often have you evaluated the outcomes of your practice?                                                           | 1- 7  | 4.05  | 1.741  |
| How often have you shared this information with colleagues?                                                           | 1- 7  | 4.24  | 1.778  |
| Range 6-42; Total Average Score                                                                                       |       | 23.52 | 9.385  |
| <b>Attitudes Toward EBP</b>                                                                                           |       |       |        |
| My workload is too great for me to keep up to date with all the new evidence                                          | 1- 7  | 4.56  | 1.656  |
| I resent having my clinical practice questioned                                                                       | 1- 7  | 4.82  | 1.729  |
| Evidence based practice is a waste of time                                                                            | 1- 7  | 5.25  | 1.850  |
| I stick to tried and trusted methods rather than changing to anything new                                             | 1- 7  | 5.09  | 1.617  |
| Range 4-28; Total Average Score                                                                                       |       | 19.72 | 5.592  |
| <b>Knowledge of EBP</b>                                                                                               |       |       |        |
| <b>Research skills</b>                                                                                                |       |       |        |
| IT skills                                                                                                             | 1- 7  | 4.15  | 1.466  |
| Monitoring and reviewing of practice skills                                                                           | 1- 7  | 4.54  | 1.357  |
| Converting your information needs into a research question                                                            | 1- 7  | 4.68  | 1.390  |
| Awareness of major information types and sources                                                                      | 1- 7  | 4.22  | 1.440  |
| Ability to identify gaps in your professional practice                                                                | 1- 7  | 4.35  | 1.401  |
| Ability to identify gaps in your professional practice                                                                | 1- 7  | 4.56  | 1.369  |
| Knowledge of how to retrieve evidence                                                                                 | 1- 7  | 4.40  | 1.423  |
| Ability to analyse critically evidence against set standards                                                          | 1- 7  | 4.39  | 1.403  |
| Ability to determine how valid (close to the truth) the material is                                                   | 1- 7  | 4.43  | 1.378  |
| Ability to determine how useful (clinically applicable) the material is                                               | 1- 7  | 4.50  | 1.388  |
| Ability to apply information to individual cases                                                                      | 1- 7  | 4.51  | 1.384  |
| Sharing of ideas and information with colleagues                                                                      | 1- 7  | 4.82  | 1.472  |
| Dissemination of new ideas about care to colleagues                                                                   | 1- 7  | 4.70  | 1.452  |
| Ability to review your own practice                                                                                   | 1- 7  | 4.80  | 1.418  |
| Range 14-98; Total Average Score                                                                                      |       | 63.06 | 17.325 |

The study results reveal that organizations within the nursing profession are perceived to be actively implementing Evidence-Based Practice (EBP), especially among nurses with a high self-rated EBP knowledge level. However, a small percentage (3.9%, n=62) of corresponding nurses reported having no knowledge of EBP. Surprisingly, a significant number of nurses (60.5%, n=970) mentioned that they did not participate in EBP training.

It is highly likely that the nurses' experience in EBP played a crucial role in their self-rated EBP knowledge, as 24% (n= 385) of the corresponding nurses reported having no experience in EBP.

Overall, the EBP level of the nursing staff was at a medium level, which is found to be considerably higher than the levels reported in the previously conducted studies.<sup>10</sup> Furthermore, the nurse staff had positive attitudes towards EBP, and were relatively moderate in EBP knowledge and

skills implementation. These results are consistent with the study conducted in China and Saudi Arabia.<sup>11,12</sup> The study conducted in Saudi Arabia, reported the attitudes towards evidence-based practice had the highest mean followed by evidence-based practice knowledge and implementation means. The study suggests that main task for promoting the EBP development is to improve the skills and knowledge of the nurse staff. Another study by Alqahtani et al underscored the importance of creating a supportive culture within healthcare systems that fosters the implementation of evidence-based practice (EBP) in order to enhance nurses' competencies in EBP and ultimately improve patient outcomes.<sup>13</sup> On the other hand, a study conducted by Abu Hasheesh and AbuRuz in 2017 in Al-Madinah Al-Munawarah city, Saudi Arabia, reported that nurses' knowledge of evidence-based practice (EBP) had the highest mean score (4.66±1.16), followed by their utilization of EBP (4.09±1.31), and then their attitudes toward EBP (3.81±1.13).<sup>14</sup> In our study, moderate level of EBP skills and knowledge was primarily reflected in aspects such as the ability to evaluate as well as analyse the

quality of evidence (documents) based on recent literature evaluation standards, scientific research ability, and the aptitude to convert problems found in practice into research problems. Furthermore, the nurses who took part in the EBP project and training in the past with higher scientific achievement tend to have stronger capability to implement EBP practice behaviours.

**Table 4: Standard deviations and item mean scores on the evidence-based practice implementation scale.**

| Implementation of EBP                                                                                      | Mean    | SD       |
|------------------------------------------------------------------------------------------------------------|---------|----------|
| Used evidence to change my practice                                                                        | 1.8196  | 1.03193  |
| Critically appraised evidence from a research study.                                                       | 1.5424  | 1.05371  |
| Generated a PICO question about my practice.                                                               | 1.3933  | 1.05568  |
| Informally discussed evidence from a research study with a colleague.                                      | 1.5680  | 1.04223  |
| Collected data on a clinical issue.                                                                        | 1.5456  | 1.07064  |
| Shared evidence from a study or studies in the form of a report or presentation to more than 2 colleagues. | 1.4507  | 1.07919  |
| Evaluated the outcomes of practice change                                                                  | 1.5587  | 1.06238  |
| Shared an evidence-based guideline with a colleague                                                        | 1.5880  | 1.07265  |
| Shared evidence from a research study with a patient/family member                                         | 1.4164  | 1.07707  |
| Shared evidence from a research study with a multi-disciplinary team member.                               | 1.4395  | 1.06931  |
| Read and critically appraised a clinical research study.                                                   | 1.4800  | 1.06733  |
| Accessed the Cochrane database of systematic reviews.                                                      | 1.3171  | 1.11234  |
| Accessed an evidence-based guideline                                                                       | 1.5593  | 1.08791  |
| Used an evidence-based guideline or systematic review to change clinical practice where I work.            | 1.5443  | 1.06484  |
| Evaluated a care initiative by collecting patient outcome data.                                            | 1.5456  | 1.09772  |
| Shared the outcome data collected with colleagues.                                                         | 1.5106  | 1.09804  |
| Changed practice based on patient outcome data.                                                            | 1.5468  | 1.08622  |
| Promoted the use of EBP to my colleagues.                                                                  | 1.6286  | 1.10363  |
| Range 0-72; Total Average Score                                                                            | 27.4544 | 16.98912 |

These findings were similar to the results of Hu et al showing that EBP training experience, EBP skills, and contribution experience were the primary aspects that impacts the EBP behaviour of nursing teachers.<sup>15</sup> Thus, training with respect to the evidence-based skills is an effective way to improve the skills and knowledge of the EBP along with the implementation behaviour among nurses which can promote the clinical EBP development. To summarize, the nurses are encouraged to enhance the habit of reading literature, improve literature retrieval ability and actively participate in evidence-based scientific research training or projects. This will advance their skills and knowledge in EBP. Two of the studies conducted in the past demonstrated the modern landscape of healthcare research which are specifically supportive for the EBP. The nurses tend to have access to several different kinds of EBP models that can aid in directing them through the process.<sup>16,17</sup> Some of the models guides individual utilization of the evidence in practice, whereas, others mainly focus on the teamwork so as to make institutional changes. Some of the institutions tend to adopt already existing and published models whereas, other develop their own.<sup>18,19</sup>

The second development with a positive impact on Evidence based practice was an increase in the well-established evidence-based clinical guidelines, systematic reviews or protocols that can be utilized across a diversity of settings. Some of the examples comprises of meta-analyses, systematic literature reviews, practice bundles, clinical practice guidelines from professional organizations, or meta-syntheses. This study can serve as a foundation for further EBP studies among nurses in the United Arab Emirates. Hence, the results of the study have academic, clinical and research implications. Around 60.5% of the nurses reported having no previous participation in EBP courses. This finding is crucial in that it calls for the education and professional development community to update nursing programs curriculums incorporating topics such as EBP and critical appraisals. Findings of the study identified the level of attitudes, knowledge, and practices of EBP in a UAE PHC's and hospital. These findings also provide insights to several different stakeholders, policy makers and hospital managers regarding the EBP practice. Stakeholders can utilize this information to offer the required trainings, resources and guidelines for EBP practices among nurses.

Collaboration between the nursing researchers from academia and practicing nurses is essential to improve EBP practice and knowledge. Improved educational methods in EBP shall be undertaken along with the provision of adequate EBP infrastructure. The early adopters and innovator nurses should be mobilised to influence the laggards and late majorities of nurses in their adoption of EBP. A new role for nurses such as "EBP champion" may help in guiding colleagues in utilizing the research process as well as where to discover and implement evidence in practice. The findings of this study

also highlight the urgent need to raise awareness about EBP among the nurses. Their capability and competencies

to integrate EBP into their daily clinical practice must be increased by means of scientific and empirical trainings.

**Table 5: Percentages and item mean scores on the evidence-based practice implementation short scale.**

| Implementation of EBP                                                         | Strongly agree +agree | Neutral    | Strongly disagree +disagree | Mean±SD     |
|-------------------------------------------------------------------------------|-----------------------|------------|-----------------------------|-------------|
| <b>I use evidence to improve patient outcomes in my healthcare setting.</b>   | 1307 (81.6)           | 235 (14.7) | 60 (3.7)                    | 1.2216±0.50 |
| <b>I implement the steps of the EBP process in my practice.</b>               | 1265 (79)             | 274 (17.1) | 63 (3.9)                    | 1.2497±0.52 |
| <b>I promote the use of EBP in my healthcare setting to improve outcomes.</b> | 1308 (81.6)           | 246 (15.4) | 48 (3)                      | 1.2135±0.48 |

**Table 6: Correlations between the nurses' demographic variables and their scores on the EBPQ by subscale (n=1602).**

| Variables                  | Practice       |         | Attitudes      |         | Knowledge      |         |
|----------------------------|----------------|---------|----------------|---------|----------------|---------|
|                            | R <sup>2</sup> | P value | R <sup>2</sup> | P value | R <sup>2</sup> | P value |
| <b>Age (years)</b>         | -0.068         | 0.007   | 0.020          | 0.435   | 0.020          | 0.413   |
| <b>Gender</b>              | -0.065         | 0.009   | -0.27          | 0.288   | -0.053         | 0.034   |
| <b>Emirates</b>            | -0.105         | 0.001   | -0.116         | 0.001   | -0.120         | 0.001   |
| <b>Origin</b>              | -0.053         | 0.035   | 0.037          | 0.137   | 0.019          | 0.436   |
| <b>Level of Education</b>  | 0.163          | 0.001   | 0.101          | 0.001   | 0.130          | 0.001   |
| <b>Years of experience</b> | -0.015         | 0.548   | 0.065          | 0.009   | 0.047          | 0.057   |

This study had certain limitations. First, this study is cross-sectional in nature. As such, the ability to infer cause and effect conclusions between study variables are hindered. Second, this study relied on self-reported data using the questionnaires. Likewise, such a survey might be subject to misinterpretation of the questions by the respondents, recall bias that could lead to an underestimation of the true figures, untruthful answers, and missing data. However, considering the fact of the limited literature from UAE on this subject, we believe that the findings from this study will be helpful in providing positive guidance and comparison on Nursing EBP practice in future. In the future, the implementation of qualitative studies could be valuable for exploring and comprehending the perspectives of the student population, while also offering recommendations to narrow the gap between education and practice.

## CONCLUSION

This study provides a comprehensive assessment of the state of evidence-based practice in various hospitals and primary healthcare centres in the United Arab Emirates. It reveals that while nurses exhibit positive attitudes towards EBP, they generally do not implement it consistently in their daily clinical practice. To address this gap, the study emphasizes the need to develop mentoring strategies and training programs that foster an EBP culture. Such an approach would ensure a safe clinical environment, effective care delivery, stakeholder satisfaction, and optimal resource utilization. The study's findings indicate that nurses' attitudes towards EBP were generally positive,

with the highest mean score among the measured variables, followed by knowledge and practice. However, the implementation of EBP and the level of knowledge were comparatively moderate. Furthermore, senior nurses displayed better EBP practice scores than their younger counterparts, likely due to their greater experience and confidence in utilizing EBP. These findings serve as a crucial baseline assessment for future comparative studies and evaluations. It also provides a foundation for implementing strategies and initiatives to promote EBP utilization among nurses in various healthcare settings across the UAE. Future policy changes and educational initiatives should prioritize the promotion of EBP in primary care nursing, focusing on the key aspects identified in this study, such as enhancing critical appraisal skills, addressing difficulties in evaluating reports and research articles, and alleviating time constraints and workload pressures. The study underscores the importance of promoting the adoption of EBP implementation and providing training in the identified predictors, including self-efficacy in EBP skills and knowledge. These factors are essential for advancing EBP in the nursing practice, and their integration should be considered mandatory in future initiatives and policies. Overall, the study significantly advances knowledge and understanding in the field of EBP among nurses in the UAE by providing a comprehensive assessment, highlighting the attitude-implementation gap, identifying predictors of implementation, and offering insights for future interventions. It serves as a foundational study that can inform further research, policy development, and educational initiatives in promoting evidence-based nursing practice in the UAE and beyond.

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