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Original research

KNOWLEDGE, SKILLS, AND ATTITUDES OF NURSING STUDENTS ON EVIDENCE - BASED PRACTICE

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ABSTRACT

Background: *Evidence - based practice (EBP) has not only emerged as a trend but has also established itself as a standard in nursing professional practice. Consequently, it is imperative that undergraduate nursing students are proficient in EBP before graduation. This study aims to evaluate nursing students' competencies (knowledge, skills, and attitudes) in EBP.*

Methods: *230 nursing students participated in the cross - sectional study. Data were collected using the "Evidence-Based Practice Competencies Questionnaire" (EBP - COQ), which was translated into Vietnamese.*

Results: *The average score of nursing students on the EBP - COQ was 3.56 ± 0.39. Among the components, attitude had the highest score, with 3.77 ± 0.45, followed by knowledge with a score of 3.38 ± 0.53, and skills with the lowest score of 3.27 ± 0.52.*

Conclusions: *The competency of nursing students regarding EBP was found to be good. The results of the study provide valuable insights that can assist nursing educators in guiding their teaching of EBP for nursing students.*

Keywords: *Evidence - based practice, Competency, Nursing students.*

I. BACKGROUND

Evidence - based practice has become a trend and a standard in nursing professional practice [1]. The competency to conduct scientific research and apply evidence in clinical practice is a fundamental standard of competence for Vietnamese nurses established by the Ministry of Health [1]. According to the International Council of Nurses, evidence - based practice (EBP) in nursing is defined as "a problem - solving approach for clinical decision-making that incorporates the search for the best and most recent evidence, clinical expertise, and assessment, valuing user preference within the context of care" [2]. Evidence - based decision - making expedites the translation of research knowledge into real - world clinical settings. This not only enhances nurses' knowledge but also improves patient care outcomes, reduces healthcare costs, and empowers them [3]. Therefore, nursing clinical decision - making must be grounded in the best and most up - to - date research evidence available.

It is encouraging to see the recognition of the importance of instilling EBP competencies in nursing students from the undergraduate level. Indeed, fostering knowledge, skills, and positive attitudes towards EBP early in their education sets a solid foundation for future nursing practice. The seven - step process provides a structured framework for integrating EBP into clinical practice, starting from cultivating an inquiring attitude to disseminating the decision's results [4]. Each step plays a crucial role in ensuring that decisions are informed by the best available evidence, clinical expertise, and patient preferences. By mastering each step of this process, nursing students develop the ability to critically appraise research evidence and learn how to effectively apply it to real - world clinical scenarios. This proficiency is essential for enhancing patient care outcomes and ensuring that nursing practice remains evidence-based and patient - centered. Furthermore, integrating EBP

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into nursing education helps students understand the importance of lifelong learning and staying updated with the latest research findings. This is important in a rapidly evolving healthcare landscape where EBP continually evolves. Overall, by emphasizing EBP in nursing education, institutions can prepare future nurses to be competent, confident, and effective practitioners who contribute to improved patient outcomes and advancements in healthcare delivery.

The assessment of the perception of students on their own knowledge of EBP will contribute to the comprehension of how this methodology is being taught, learned, and practiced by students. Moreover, the research - EBP module at the University of Medicine and Pharmacy at Ho Chi Minh City is scheduled during the second semester for second - year nursing students. This presents an opportune moment to reassess students' understanding and application of EBP in clinical settings. Furthermore, while research on EBP in Vietnam predominantly focuses on practicing nurses in hospital settings, there is a noticeable scarcity of studies involving nursing students. Therefore, this study aims at evaluating the knowledge, skills, and attitudes of nursing students about EBP.

II. METHODS

2.1. Study participant

Second - year, third - year, and fourth-year nursing students who enrolled at the University of Medicine and Pharmacy at Ho Chi Minh City during the 2022 - 2023 academic year were invited to participate in the study. Students who were suspended, on reserve status, dropped out, or unable to maintain continuous attendance during the specified academic year were excluded. Data collection took place from April 24, 2023, to July 3, 2023.

2.2. Method

A cross - sectional study was carried out. For a known population size, Slovin's formula was used: n = N / (1+Ne2). Where: n = the number of samples, N = the total population, and e = margin of error. In this study, N = 509 is the total number of students over the 3 academic years at the research site and 95% confidence level, the sample size was 230.

The online survey questionnaire was distributed to potential participants via their university email addresses.

The questionnaire comprises two parts:

The first part was the self - developed demographic data which provided about the personal characteristics of research participants, along with details regarding their scientific research experience, English proficiency.

The second part was the Evidence-Based Practice Competence Questionnaire (EBP-COQ), with a total of 25 items. There were three subscales, including knowledge about EBP (6 items), skills in EBP (6 items), and attitude towards EBP (13 items) [7]. Each item is rated on a 5 - point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Mean scores are calculated separately for each subscale (knowledge, skills, attitudes) and for overall competency in evidence - based practice. Negative items on the scale are scored in reverse. Higher scores indicate greater EBP competency, EBP knowledge and skills, and positive attitudes.

The original EBP - COQ scale was translated into Vietnamese following World Health Organization guidelines. The translation process involved two nursing faculties independently translating the questionnaire from English to Vietnamese language. Subsequently, the research team and these faculties had a discussion to reach a consensus on the Vietnamese version. After that, the blind back-translation from Vietnamese to English was performed by two other nursing faculty members. The two back - translations were approved by the original questionnaire author.

In this study, the internal consistency reliability coefficient of the EBP - COQ Vietnam version for the total scale was 0.86. Cronbach's alpha coefficients for knowledge, skill, and attitude subcale were 0.67, 0.66, and 0.85 respectively.

2.3. Data analysis

The collected data were analyzed using SPSS 22.0 software. Binary, ordinal, and nominal variables were described using frequency and percentage statistics, and quantitative variables were described using mean and standard deviation.

2.4. Ethical aspect of the research

Ethical approval for the study was obtained from the Ethics Research Committee of the University of Medicine and Pharmacy at Ho Chi Minh City (Ethical approval No: 905/DHYD-HDYD, issued on November 22, 2022).

III. RESULTS

3.1. Demographic characteristics

A total of 230 nursing students completed the questionnaire, resulting in a response rate of 45%. Participants' average age was 21.2 ± 0.97 years old. The majority of participants were female (89.1%), of Kinh ethnicity (85.7%), and reported being non - religious (80.8%). Further details regarding the characteristics of the study subjects are outlined in Table 1.

Table 1: Participants' demographic characteristics (n = 230)

Characteristics	Frequency (Percentage) n (%)
Years of study	
The second year	64 (27.8)
The third year	78 (33.9)
The fourth year	88 (38.3)
Participation in extracurricular courses on scientific research	
Yes	176 (76.5)
No	54 (23.5)
Participation in research activities	
Yes	158 (68.7)
Principal investigator	22 (13.9)
Researcher	41 (25.9)
Data collection	62 (39.2)
Data analysis	52 (32.9)
Literature review	104 (65.8)
No	72 (31.3)
Level of application of EBP	
None	5 (2.2)
Seldom	26 (11.3)
Sometimes	129 (56.1)
Usually/Always	70 (30.4)
Confidence level of English language	
Not confident	131 (57.0)
Normal	90 (39.1)
Confident	9 (3.9)
Scores for research - EBP module (mean ± SD): 7.4 ± 0.79	

Nearly 60% of nursing students reported a lack of confidence in their English proficiency. Around 70% of students were engaged in extracurricular courses and scientific research activities. The proportion of students applying EBP is quite high, with 86% accounting for it.

3.2. Nursing students' knowledge, skills, and attitudes toward Evidence - Based Practice (EBP)

In this study, participants reported their knowledge, skill, and attitudes, using a 5-point Likert scale, where 1 represented poor and 5 represented excellent. The total scale score of the EBP-COQ was 88.9 ± 9.74, with a mean score of 3.56 ± 0.39. Among the subscales, attitude had the highest score, with 49.03 ± 5.88 and a mean score of 3.77 ± 0.45. This was followed by knowledge, which had a score of 20.27 ± 3.21 and a mean score of 3.38 ± 0.53, and skill had the lowest score of 19.6 ± 3.12, with a mean score of 3.27 ± 0.52. More detailed mean scores of all items are presented in Table 2.

Table 2: The mean scores of Knowledge, Skills, and Attitudes (n = 230)

Item		Mean score ± SD
Knowledge about EBP	1. Know how to make clinical questions organized in the PICO format.	3.37 ± 0.9
	2. Know the principal sources that offer the information revised and cataloged behind the evidence point of view.	3.79 ± 0.85
	3. Know the most important characteristics of the principal investigation designs.	3.28 ± 0.89

Item		Mean score ± SD
	4. Know the different evidence levels of the study designs in research.	3.47 ± 0.81
	5. Know the different recommendation grades about the adoption of a determined procedure or health intervention.	2.98 ± 0.91
	6. Know the principal measures of association and potential impact that allow the evaluation of the magnitude of the analyzed effect in investigation studies.	3.38 ± 0.88
Skills in EBP	1. Able to make a clinical question to start the search of the best scientific evidence	3.5 ± 0.78
	2. Able to search for scientific evidence in a structured and systematic way in the main health sciences databases	3.29 ± 0.96
	3. Able to search for the scientific evidence in the most important systematic reviews and clinical practice guidelines databases.	3.21 ± 0.93
	4. Able to evaluate critically the quality of a scientific article	3.13 ± 0.81
	5. Able to analyze if the obtained results of a scientific study are valid.	3.10 ± 0.85
	6. Able to analyze the practical utility of a scientific study	3.37 ± 0.80
Attitude toward EBP	1. The EBP helps to make decisions in clinical practice.	4.12 ± 0.58
	2. Confident that able to critically evaluate a scientific article's quality.	3.02 ± 0.82
	3. The practice of EBP will help to better define the nurse role.	4.10 ± 0.62
	4. The nursing contract should include time to read scientific papers and make critical appraisals of them.	3.46 ± 0.76
	5. The widespread EBP implementation will allow for an increase in nursing autonomy from other professions.	4.0 ± 0.68
	6. Please if the PBE will be in practice.	4.02 ± 0.69
	7. The application of EBP improves patient´s healthcare outcomes.	4.14 ± 0.69
	8. In the future, wish to contribute to apply the EBP	4.06 ± 0.74
	9. Not like reading scientific articles.	3.49 ± 0.94
	10. The patient care will experiment with minor changes with the EBP application.	3.4 ± 0.98
	11. The EBP is a theoretical movement that take in practice.	3.16 ± 0.92
	12. If I have the opportunity, attend an EBP course.	3.98 ± 0.75
	13. Have better access to published nursing scientific evidences	3.77 ± 0.45

Most of the items regarding attitude subscale have higher average scores than in the knowledge and skill ones. Specifically, nearly half of the items in the attitude section (6 out of 13 items) have scores above 4. The highest attitude scores were found in implementing EBP to improve patients' health outcomes (4.14), and the belief that the EBP helps make decisions in clinical practice (4.12). However, the lowest score for attitude was their confidence in their ability to assess the quality of a scientific article (3.02). In terms of knowledge in EBP, the highest mean score was obtained for the principal sources of evidence (3.79), while the lowest mean score was recorded for the item concerning recommendation grades of evidence (2.98). In terms of skills, the highest score was attributed to the ability to formulate a clinical question, with a score of 3.5 points, while the lowest score pertained to the ability to analyze the obtained research results, with 3.1 points.

III. DISCUSSION

In this study, the total EBP-COQ score of nursing students indicated that their EBP competency was good [5]. The average total EBP-COQ score of the nursing students was 3.56 ± 0.39 out of a maximum of 5. This finding is either similar to or not significantly different from results reported in previous studies. Specifically, it aligns closely with scores of 3.67 reported by Duong Thi Ngoc Bich at Duy Tan University in Vietnam, 3.59 by Yildiz and Güngörmüş, 3.52 by Ayten Yilmaz Yavuz in three government universities located in the north of Turkey, and 3.45 by Lina Marcela Parra González in Colombia [6-9]. This result underscores the widespread utilization of evidence-based practice competencies by nursing students in patient care practice, not only in Vietnam but also on a global scale. Noticeably, the findings showed a higher score of competence compared to those studies conducted by Aslan and Pekince (3.35) and Ateşeyan and Güngörmüş (3.39) [10, 11]. This variability may stem from differences in the years of the studies and the diverse sources from which the sample groups obtained information on EBP.

In our study, the "attitude toward EBP" subscale achieved the highest score of 49.03 ± 5.88, with a mean score of 3.77 ± 0.45. This is consistent with findings from most previous studies, where scores for attitude were higher than those for skills and knowledge [6, 8, 11, 12]. This underscores the significance of nursing students displaying a positive attitude toward EBP, as it facilitates and supports the implementation of changes derived from it. When considering the 13 items in the attitude subscale, there are 6 items with the highest average score. These 6 items revolve around the following 3 main themes. The first is promoting the role of nurses, as shown in 2 items defining the role of nurses (4.1) and increasing the autonomy of nurses (4.0). Next is efficiency in care practice, expressed in two items that help make clinical decisions (4.12) and improve patient health (4.14). Finally, the desire to contribute to applying the EBP (4.0) and will be pleased if the PBE is in practice (4.02). The results partly reflect the increased awareness of the importance of EBPs in patient care. The desire of students to reinforce the position of the nursing profession and to make a contribution based on EBP has fostered a favorable attitude towards EBP.

It's likely that EBP will become more effectively applied as knowledge and skill become increasingly consolidated. This is partly reflected in the results of nursing students' knowledge and skills in our study. We found that the knowledge and skills of nursing students on EBP were rated as average [5].

In our study, the mean scores on the sub-dimensions of knowledge in the EBP - COQ were 3.38 ± 0.53. Interestingly, there are similarities in the knowledge scores between our study and Duong Thi Ngoc Bich's study conducted in Vietnam, where it was 3.31 [13]. However, our result is higher than that of Ayten Yilmaz Yavuz; Lina Marcela Parra González; Aslan, and Pekince, whose scores ranged from 2.99 to 3.1 [9, 11, 14]. On the contrary, our scores are lower than those found in Jeong's study, which was 3.6, and Chrisnawati's study, which was 3.59 [5, 12].

Regarding the skill scores, our study showed mean scores of 3.38 ± 0.53. Similar to the knowledge score, the skill score was also lower than that in Jeong and Chrisnawati's studies, which were 4.0 and 3.37 respectively. Compared to domestic research, our skill score is also approximately 0.4 points lower than Duong Thi Ngoc Bich's study (3.71).

Our result is higher than that of Ayten Yilmaz Yavuz and Lina Marcela Parra González, which were 3.19 and 3.06 respectively. However, our result is similar to Aslan and Pekince's study (3.28).

The knowledge and skill scores imply the varying proficiency levels of nursing students. These diversities could stem from various factors, such as discrepancies in students' prior knowledge and skills upon entering university, the differences in the implementation of EBP curricula, as well as disparities in the resources and facilities available across years. These factors collectively influence the ability of nursing students to grasp and apply EBP principles effectively. Therefore, addressing these factors comprehensively could contribute to a more consistent and improved level of knowledge among nursing students in EBP. This might involve standardizing EBP curricula, providing additional support and resources for students with varying levels of prior knowledge, and ensuring equitable access to necessary facilities and materials. By addressing these underlying factors, educational institutions can better prepare nursing students to become competent practitioners of EBP.

The mean score of the knowledge, skills and atitudes toward EBP in our study compared to previous studies is also relatively good, which is consistent with the self-reported rate of EBP application in clinical practice of 86.5%. This suggests that not only do nursing students have positive attitudes toward EBP, but they also possess a solid foundation of knowledge and skills necessary for its application in clinical settings. This alignment between knowledge, skills, attitude and self - reported application rates bodes well for integrating and adopting EBP in nursing practice.

When considering the 12 items in the knowledge and skills subscales, we discovered that the average scores in the items related to the ability to evaluate the quality of articles and the recommended level of evidence among students were the lowest. The advanced knowledge and skills often take time for nursing students to learn. The research - EBP module is typically taught for students from the second semester of the second year. Therefore, clinical instructors teaching subsequent patient care modules need to incorporate evidence - based exercises into the curriculum to improve the skills. Additionally, since most scientific articles are referenced in English, the possibility of nursing students having poor English proficiency poses as another obstacle. This is reflected in the self - reported results of English proficiency at an unconfident level of nearly 60%. Consequently, students need to enhance their English proficiency to effectively access and evaluate scientific articles, enabling them to select evidence when applying EBP. In summary, addressing these challenges through targeted educational interventions and language support can significantly enhance nursing students' abilities to evaluate the quality of evidence and effectively apply EBP in clinical practice.

The study results furnish nursing educators with competency levels in EBP among students, serving as a foundation for refining curriculum and devising strategies to bolster this competency among students. Furthermore, Vietnam presently lacks extensive studies assessing the EBP competencies of nursing students. This research serves as a foundation for future developmental studies in this area. However, the following limitations should be considered. Firstly, this study relied on self - report surveys, which could introduce a degree of social desirability bias. In other words, students may have answered questions in a manner they believed would be viewed favorably, potentially without a precise comprehension of EBP. Secondly, the current study focused solely on nursing students. Thus, future research endeavors could broaden to encompass anesthesiology students and midwives. Additionally, expanding the scope across multiple universities would provide a more comprehensive understanding of EBP competencies among students. Finally, it's worth noting that the survey achieved a response rate of 45%, which was relatively low, suggesting a potential for sampling bias. As noted by Malik et al., it's plausible that responders were more inclined towards evidence - based practice (EBP) and possessed greater knowledge and a positive attitude towards it [15]. Consequently, the findings may not be fully representative of the population.

IV. CONCLUSION

The study found that nursing students' competency regarding EBP was good. Among the

subscales, attitude had the highest score, indicating that students exhibited positive attitudes towards EBP. However, the remaining two subscales, knowledge and skills, were ranked at an average level. EBP relies on building knowledge, skills, and fostering positive attitudes that facilitate the discovery and application of accurate evidence. In nursing, it's crucial to deliver care based on the best available evidence. Therefore, this study partially evaluates students' competency for EBP. This understanding can significantly contribute to guiding educational efforts in the early stages of nurse training.

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