






## Knowledge, skills, and attitudes of nursing students on evidence-based practice

Conhecimentos, habilidades e atitudes de estudantes de enfermagem sobre a prática baseada em evidências

Conocimientos, habilidades y actitudes de los estudiantes de enfermería sobre la práctica basada en la evidencia

### How to cite this article:

Myakava LHK, Santos MA, Püschel VAA. Knowledge, skills, and attitudes of nursing students on evidence-based practice. Rev Esc Enferm USP. 2021;55:e20200428. doi: <https://doi.org/10.1590/1980-220X-REEUSP-2020-0428>

-  Lucas Hideki Kato Myakava<sup>1</sup>  
 Mariana Alvina dos Santos<sup>2</sup>  
 Vilanice Alves de Araújo Püschel<sup>3,4</sup>

<sup>1</sup> Universidade de São Paulo, Escola de Enfermagem, São Paulo, SP, Brazil.

<sup>2</sup> Universidade Federal de Mato Grosso do Sul, Campus Três Lagoas, Três Lagoas, MS, Brazil.

<sup>3</sup> Universidade de São Paulo, Escola de Enfermagem, Departamento de Enfermagem Médico-Cirúrgica, São Paulo, SP, Brazil.

<sup>4</sup> Centro Brasileiro para o Cuidado à Saúde Baseado em Evidências: Centro de Excelência do JBI (JBI Brasil), São Paulo, SP, Brazil.

### ABSTRACT

**Objective:** To identify knowledge, skills, and attitudes on Evidence-Based Practice of nursing students in the School of Nursing of Universidade de São Paulo and to explore the relationship between knowledge, skills, and attitudes and associated variables. **Method:** This is an exploratory, descriptive, analytical study conducted with 125 nursing undergraduate students. The data were obtained through application of the Evidence-Based Practice Questionnaire. **Results:** The mean score for the questionnaire was 4.73 (SD = 0.79), with a higher score in the Attitudes domain. There was a significant statistical correlation between questionnaire score and course year ( $p < 0.001$ ). **Conclusion:** There is a gap in the knowledge and skills associated to Evidence-Based Practice among nursing students. Effective strategies for teaching this subject in the nursing undergraduate course must be developed.

### DESCRIPTORS

Evidence-Based Nursing; Health Knowledge, Attitudes, Practice; Students, Nursing; Education, Nursing.

### Corresponding author:

Lucas Hideki Kato Myakava  
Av. Dr. Enéas de Carvalho Aguiar  
419, Cerqueira César  
CEP 05403-000 – São Paulo, SP, Brazil  
[lucashkm@usp.br](mailto:lucashkm@usp.br)

Received: 09/30/2020  
Approved: 04/09/2021

## INTRODUCTION

Evidence-Based Practice (EBP) emerged in the 1980s, initially in the medical area, with the objective of improving quality of health care. It constituted a new paradigm for medicine, with the creation of new actions to guide medical practice, such as systematic observation of clinical experience, critical thinking focused on treatment efficiency and a correct interpretation of the literature<sup>(1)</sup>. From a historical perspective, Florence Nightingale is one of the pioneers in the use of evidence in nursing practice, using assessments to positively influence patients' results<sup>(2)</sup>.

According to the International Council of Nurses (ICN), 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"<sup>(3)</sup>. The implementation of EBP into clinical practice is currently described in seven steps: 0. Cultivate an inquiring attitude; 1. Formulate a question to be answered in a format that will produce the best and most relevant evidence; 2. Search for the best available evidence; 3. Critically assess the evidence according to its validity, impact, and applicability; 4. Integrate critical assessment with clinical expertise and user/family preferences and values; 5. Assess the results of the evidence-based decision; 6. Disseminate the decision's results<sup>(4)</sup>.

Clinical practice EBP is an increasingly necessary competence for providing quality healthcare, demanding knowledge, comprehension, and skills from nurses in the search for relevant evidence<sup>(5)</sup>. The Brazilian Curriculum Guidelines for Undergraduate Nursing (*Diretrizes Curriculares Nacionais de Graduação em Enfermagem* – DCNs) suggest that students be taught to assess, systematize, and search for more appropriate conducts, based on scientific evidence<sup>(6)</sup>. To this end, teaching EBP in Nursing Schools/Faculties is fundamental for the implementation of evidence into nursing clinical practice, as is the assessment of how efficiently it is taught<sup>(7)</sup>.

In the United States, studies before 2000 point out that nursing undergraduation curricula did not include EBP. Since then, studies about EBP in nursing education started to emerge due to several government organizations stimulating its teaching and, in some circumstances, advocating its superiority in relation to traditional education. It was also necessary to respond to labor demands, which requires change in the context of care through the best evidence<sup>(8)</sup>. In Brazil, a bibliometric study has shown that the expansion of the scientific production about EBP took place from 2009 onwards; however, its teaching was encouraged by the autonomous interest and motivation of groups of researchers<sup>(9)</sup>. In addition, there is an important delay between results production and their incorporation into practice<sup>(10)</sup>.

In Nursing curricula, EBP is considered a central component<sup>(11)</sup> and is approached since the 2000s, being strongly recommended in the United States<sup>(12)</sup>, in Europe<sup>(13)</sup>, in Australia<sup>(14)</sup> and in Canada<sup>(15)</sup>. In the United Kingdom, competence in EBP is mandatory for Nursing courses<sup>(16)</sup>. Norway has been changing its Nursing school curricula to

teach it<sup>(17)</sup>. In Brazil, it is still incipient, although it is recommended in the DCNs, in editorials<sup>(18–19)</sup> and in punctual initiatives<sup>(20)</sup>, denoting a need for its expansion.

Considering that the familiarity of nursing students with EBP and research development may provide higher self-confidence, knowledge, and improvement of clinical practice, and also that it is crucial for the improvement of care provided to patients and health care safety<sup>(21)</sup>, the question whether EBP is included in nursing undergraduate curricula in Brazil, particularly in the School of Nursing of USP (EEUSP), considered one of the best in Latin America, is posed. The assessment of the perception of students on their own knowledge on EBP will contribute to the comprehension of how this methodology is being taught, learned, and practiced by students. Therefore, this study aims at identifying knowledge, skills, and attitudes of nursing students of EEUSP about evidence-based practice and exploring the relations between knowledge, skills, and attitudes about EBP and associated variables.

## METHOD

### DESIGN OF STUDY

This is an exploratory, descriptive, and analytical study developed with nursing undergraduate students in EEUSP.

### POPULATION

All undergraduate nursing students enrolled in EEUSP in the second semester of 2019 who had joined it from 2016 to 2019 were invited to participate in this study.

First-year students, who had joined in 2020, were not included in this study due to their short permanence in the course.

### DATA COLLECTION

The data were collected from December 2019 to June 2020 through a self-administered questionnaire sent by email by the graduation service. The data collection was performed through an instrument made available in the Google Forms platform, an online form service. The form contained the instrument Evidence-based Practice Questionnaire (EBPQ)<sup>(22)</sup>, collecting sociodemographic data and academic background of the nursing students.

The EBPQ has 24 items with a score from one to seven. The scores can be assessed per domains or per individual item, being interpreted according to the arithmetic mean of answers in a Likert-type scale. The higher the score, the more positive are the attitudes regarding EBP. The items are characterized in three domains: 1. Evidence-based Nursing Practice: inquires the frequency of use of each EBP step through six questions (42 points); 2. Attitudes related to Evidence-Based Practice: the question is constituted of four pairs of statements about individual attitudes, including perception of barriers, as well as personal judgment about the value of EBP (28 points); 3. Knowledge and skills associated to Evidence-Based Practice: self-assessment of relevant skills for the implementation of EBP, which includes 14 items

about knowledge of research and informatics and skills of literature interpretation and application to individual cases (98 points).

This instrument was developed in the United Kingdom from an extensive literature review on the main factors that influence EBP and discussions with health professionals<sup>(22)</sup> and was subsequently translated and validated for Brazilian Portuguese by Rospendowski<sup>(23)</sup>. Cronbach's alpha was not calculated before the study was started, due to the understanding that the value would be useful for validating the scale and in calculations of its psychometric parameters. Thus, the previously performed validation was assumed. In addition to the instrument, this study included multiple-choice closed-ended questions on the resources used for knowledge update, reading habits, and the students' knowledge of foreign languages, since these competences are important for the implementation of EBP, in addition to contributing to result interpretation.

## DATA ANALYSIS AND TREATMENT

For data analysis, the statistical analysis program R 4.0.2. was used to obtain the frequencies of categorical variables (gender and course year), mean and median of the continuous variables (age) for univariate analysis. For bivariate analysis, Kruskal-Wallis, Wilcoxon-Mann-Whitney, and t tests were employed for categorical variables and one-way ANOVA were used. Pearson correlation coefficient was obtained for the variable age. A 95% confidence level was adopted.

## ETHICAL ASPECTS

Sample composition was by convenience, i.e., students who agreed to participate in the research were included. The questionnaire was sent to 297 students through the Graduation Service of EEUSP after approval by the Research Ethics Committee of EEUSP on opinion 3.723.978/19.

## RESULTS

Study participants amounted to 125 students (42.09%). Their characterization is presented in Table 1.

Table 2 describes the EBPQ scores by the domain in the sample. The total score was 4.73 (SD=0.79), with confidence interval between 4.59 and 4.87. The Domain Attitudes related to EBP presented the highest mean

**Table 1** – Characterization of Nursing undergraduate students of EEUSP participating in this study – São Paulo, SP, Brazil, 2020.

Variable	N (%)	95% CI**
<b>Course year*</b>		
1st	28 (24.40)	15.98–30.47
2nd	35 (28.00)	20.88–36.44
3rd	37 (29.60)	22.30–38.11
4th	25 (20.00)	13.93–27.86
<b>Gender</b>		
Female	99 (79.20)	71.27–85.39
Male	26 (20.80)	14.61–28.73
<b>Knows EBP</b>		
Yes	104 (83.20)	75.68–88.74
No	21 (16.80)	11.26–24.32
	<b>Mean(SD***)</b>	<b>Median</b>
Age	23.07 (3.35)	22.61
		<b>95% CI*</b>
		22.59–23.84

\*The nursing graduation of EEUSP lasts four years and is offered as a full-time course with a total workload of 4170 hours.

\*CI = Confidence Interval.

\*\*SD = Standard Deviation.

score, 5.33 (SD=0.75), followed by the Domain Evidence-Based Nursing Practice, 4.76 (DP=1.15) and the Domain Knowledge and skills associated to EPB, 4.55 (SD=0.86). A gradual increase in the score of EBPQ is observed as the graduation years increase, with a total mean score for the first year of 4.31 (SD=0.83), second year of 4.65 (SD=0.84), third year of 4.77 (SD=0.64), and fourth year of 5.25 (SD=0.58). Table 3 describes the scores of EBPQ per individual item.

Comparing the distribution of values of the domains among the four years of graduation, a statistical difference is observed in the total score, with  $p < 0.001$ , as well as the Domain Evidence-based nursing practice ( $p = 0.044$ ) and Knowledge and skills associated to EPB ( $p < 0.001$ ). The Domain Attitudes related to EPB had  $p = 0.223$ , which demonstrates no distribution of statistically different values. The analysis revealed that gender did not predict questionnaire score ( $p = 0.966$ ). In relation to student age, the Domain Knowledge and skills and the total score presented a significant p value, but with a negligible correlation coefficient ( $r$ ). (0.243 and 0.221, respectively), as shown in Table 4.

Table 5 describes the resources used by students to update their knowledge, the frequency of reading habits, and the level of knowledge of foreign languages in absolute numbers.

**Table 2** – Total score and comparison among scores for each domain per year – São Paulo, SP, Brazil, 2020.

Domains	Total		1st Year		2nd Year		3rd Year		4th Year	
	Mean (SD**)	95% CI*	Mean (SD)	95% CI	Mean (SD)	95% CI	Mean (SD)	95% CI	Mean (SD)	95% CI
Evidence-based nursing practice	4.76 (1.15)	4.55–4.95	4.24 (1.49)	3.62–4.72	4.77 (1.13)	4.36–5.10	4.86 (0.84)	4.57–5.11	5.21 (0.99)	4.76–5.53
Attitudes related to EBP	5.33 (0.75)	5.20–5.46	5.21 (0.79)	4.90–5.51	5.30 (0.75)	5.04–5.56	5.26 (0.69)	5.03–5.50	5.60 (0.74)	5.30–5.91
Knowledge and skills associated to EPB	4.55 (0.86)	4.39–4.70	4.09 (0.86)	3.76–4.42	4.41 (0.94)	4.09–4.74	4.60 (0.68)	4.37–4.82	5.16 (0.63)	4.90–5.42
Total EBPQ	4.73 (0.79)	4.59–4.87	4.31 (0.83)	3.99–4.64	4.65 (0.84)	4.36–4.94	4.77 (0.64)	4.56–4.99	5.25 (0.58)	5.01–5.49

\*CI = Confidence Interval; \*\*SD = Standard Deviation.

**Table 3** – Instrument score per item – São Paulo, SP, Brazil, 2020.

Domains	Mean (SD)	95% CI*
<b>Evidence-based nursing practice</b>		
1. Formulated a clearly answerable question	4.65 (1.49)	4.37–4.90
2. Searched for relevant evidence	5.14 (1.52)	4.85–5.38
3. Critically assessed, based on defined criteria	4.02 (1.68)	3.72–4.31
4. Integrated evidence	5.26 (1.54)	4.98–5.52
5. Assessed practice results	4.69 (1.63)	4.39–4.96
6. Shared this information with peers	4.76 (1.62)	4.47–5.03
<b>Attitudes related to EBP</b>		
7. I dedicate time to be up to date	3.90 (1.47)	3.64–4.16
8. I am open to questioning of my practice	5.61 (1.26)	5.38–5.82
9. EBP is fundamental for professional practice	6.66 (0.73)	6.51–6.77
10. I maintain tested and reliable methods	5.06 (1.39)	4.80–5.29
<b>Knowledge and skills associated to EBP</b>		
11. Research skills	4.50 (1.18)	4.29–4.70
12. Informatics skills	4.81 (1.44)	4.55–5.05
13. Skills in monitoring and practice review	3.98 (1.35)	3.74–4.21
14. Converting needs for information into a question	4.26 (1.43)	4.01–4.51
15. Knowledge of the main types and sources of information	4.28 (1.29)	4.05–4.50
16. Capacity for identifying gaps in professional practice	4.58 (1.33)	4.34–4.81
17. Knowledge on how to raise evidence	4.06 (1.39)	3.82–4.30
18. Capacity of critically assessing evidence	4.34 (1.33)	4.10–4.56
19. Capacity of determining how valid the material is	4.38 (1.38)	4.14–4.62
20. Capacity of determining how applicable the material is	4.22 (1.37)	3.97–4.45
21. Capacity of applying knowledge to individual cases	4.50 (1.32)	4.26–4.72
22. Sharing ideas and knowledge with peers	5.01 (1.29)	4.78–5.23
23. Disseminating new ideas among peers	5.08 (1.33)	4.84–5.30
24. Capacity of reassessing my own practice	5.38 (1.20)	5.16–5.58

\*CI = Confidence Interval.

## DISCUSSION

Evidence-based practice is anchored on the construction of knowledge that enables the search for accurate information. In Nursing, it is essential to exercise care based on the best available evidence. Thus, this study reinforces the importance of understanding how nursing students assess their knowledge, skills, and attitudes on EBP, so as to contribute to direct education in the nurse's early formation.

The results of the questionnaire show a higher perception of EBP as students advance in their years of graduation. There are not many studies in the literature involving the application of EBPQ to undergraduate students. The questionnaire score observed in the sample (4.73), in a scale from 1 to 7 was similar to that of a study with nursing students

**Table 4** – Predictors of EBP and descriptive measures – São Paulo, SP, Brazil, 2020.

Domains	Evidence-based nursing practice	Attitudes related to EBP	Knowledge and skills associated to EBP	Total
<b>Year (Mean and SD)*</b>				
1st	4.24 (1.49)	5.21 (0.79)	4.09 (0.86)	4.31 (0.83)
2nd	4.77 (1.13)	5.30 (0.75)	4.41 (0.94)	4.65 (0.84)
3rd	4.86 (0.84)	5.26 (0.69)	4.60 (0.68)	4.77 (0.64)
4th	5.21 (0.99)	5.60 (0.74)	5.16 (0.63)	5.25 (0.58)
p-value	0.044	0.223	<0.001	<0.001
<b>Gender (Mean and SD)**</b>				
Female	4.74 (1.21)	5.31 (0.73)	4.56 (0.87)	4.73 (0.81)
Male	4.86 (0.90)	5.39 (0.82)	4.48 (0.86)	4.72 (0.75)
p-value	0.944	0.666	0.657	0.966
<b>Age***</b>				
r	0.149	0.075	0.243	0.221
p-value	0.103	0.416	0.007	0.015

\*One-way ANOVA, except Kruskal-Wallis test for Domain Practice.

\*\*t-test, except Wilcoxon-Mann-Whitney for Domain Practice.

\*\*\*Pearson correlation analysis.

(4.69)<sup>(21)</sup> and to those of of nurses with no post-graduation (4.64)<sup>(23)</sup>. Studies show that higher education levels and academic preparation result in higher scores, especially for nurses with a Master or PhD<sup>(23–26)</sup>.

In the Nursing graduation of EEUSP, the involvement of academics in research activities through undergraduate research projects and participation in research groups provides a better preparation for research consumption. However, it is necessary to invest in teaching subjects with bibliographies providing evidence synthesis and infield practice activities based on the best available evidence, which is crucial to the advancement of EBP in the initial education of nurses. This education instrumentalizes and directs them to be nurses who consume and implement EBP.

In the score obtained for the analyzed domains, related to practice (4.76), attitudes (5.33) and knowledge and skills (4.55), the students had the highest score in the domain attitudes related to EBP, i.e., the individual activities, including the perception of barriers and personal judgment of the value of EBP, which was corroborated by other studies<sup>(23–24)</sup>, indicating the students' predisposition and acceptability of EBP in the process of providing care. The disposition for considering the best practice is understood as necessary to occur from the beginning of the undergraduate, and the University is responsible for providing this first contact with the theme and with the need for providing appropriate care to health users, which must be based on the best available evidence. To this end, integration of EBP into the curriculum is strongly recommended from early in the career.<sup>(5,21)</sup> Understanding the value of EBP is important for advancing the students' education<sup>(7)</sup>, which must be approached in the educational process, including knowledge, skills, and attitudes on the theme since the undergraduate course.

The students had the lowest scores in the domain knowledge and skills, which encompasses knowledge of research and informatics, skills of literature interpretation and



**Table 5** – Resources used for updating knowledge, reading habits, and knowledge of foreign languages by students – São Paulo, SP, Brazil, 2020.

Resources used for updating knowledge					
Variable	Scientific journal/ scientific articles	Manuals and recommendations by the Ministry of Health	Academic books	Participation in congress/ seminar/symposium	Systematic reviews
Answers	103	99	92	79	39
Percentage	82.40	79.20	73.60	63.20	31.20
Reading habits					
Variable	Academic books	Nonacademic books	Scientific journals	Magazines	News
Frequently	65	59	30	9	83
Rarely	57	60	62	57	40
Never	3	6	33	59	2
Level of knowledge of foreign languages					
Variable	English	Spanish	French	German	
Advanced	38	4	0	0	
Intermediate	53	25	2	2	
Basic	32	69	15	7	
No knowledge	2	27	108	116	

application to individual cases, which are fundamental for EBP. The results show a gap in such competences and diverge from other studies<sup>(21,26)</sup>. The process of EBP starts with critical thinking, which is developed through time, resulting from the theoretical and practical content acquired in nursing education<sup>(27)</sup>. In a study conducted in a nursing school in Seoul, South Korea, a significant correlation between the high score of EBPQ and Critical Thinking Disposition was verified and this was the strongest factor of influence, reinforcing the need for integration of education strategies which promote critical thinking for the improvement of EBP<sup>(21)</sup>.

The first steps in the process of EBP require that students search for evidence and interpret them, understanding them as an undergraduate level competence. Among the resources which are most often mentioned by students for updating academic information, scientific journals and articles present a higher frequency, representing 82.40%. However, some answers near that of other resources, such as manuals and recommendations by the Ministry of Health and academic books, are also observed. These resources are not less important and direct the clinical care practice guidelines, being constantly used.

The institution EEUSP integrates education, research, and extension, which justifies such finding, although a higher consumption of scientific articles and systematic reviews, which synthesize the best evidence, would be expected, given that EEUSP hosts The Brazilian Centre for Evidence-Based Healthcare: A JBI Centre of Excellence (JBI Brazil) in a partnership with USP's University Hospital (a privileged hospital for student education) and the University of Adelaide, Australia<sup>(28)</sup>.

The significant search for information made available by the Ministry of Health (79.20%) was also mentioned in a study with Primary Health Care professionals, in which the search for such scientific evidence may be related to easiness of research and the rigorous process of EBP<sup>(29)</sup>. Therefore,

the search for scientific evidence by students needs to be better taught, which requires higher investment by EEUSP.

A study<sup>(21)</sup> points out that generations which are familiar with information technology will have an advantage for EBP, given its importance for such practices. However, knowledge of research and informatics does not guarantee the discovery of the best available evidence and its critical assessment, since the evidence may be still difficult to find and understand<sup>(30)</sup>, and being put into practice correctly and accurately.

In an integrative review about the competences and barriers to EBP in nursing among assisting nurses in the hospital context, difficulties, and obstacles for the implementation of EBP were identified to be related to lack of knowledge about how to identify the best scientific evidence, the comprehension of research results, and their application to practice<sup>(31)</sup>. The results of this research corroborate such study, given that the questions with the smallest scores encompassed search, critical assessment, and application of evidence. If, on the one hand, students must be capable of assessing, systematizing, and searching for more appropriate conducts, on the other hand, authors<sup>(30)</sup> reinforce the importance of not only searching for synthesis of evidence obtained through systematic reviews, a summary of evidence and directives, but also of the transference of evidence, which is performed through education, active dissemination, and integration of evidence into information systems.

English and Spanish were the languages with the highest level of knowledge among students, with English being mentioned in a higher proportion than Spanish. Knowledge of foreign languages, mainly English, is an essential component in the diffusion of materials, given that health literature is found mostly in English<sup>(29)</sup>. The lack of knowledge of these languages is an important barrier to the consumption of nursing scientific production.

The last five steps of the EBP process involve the integration of found evidence with the tacit knowledge of

nurses, i.e., knowledge accumulated from their experiences<sup>(2)</sup>. Analyzing the domains practice, attitudes, knowledge, and skills and the predictors course year, gender, and age, the obtained data show that students in the last year have a higher score in the domain knowledge and skills and the domain practices, which is expected, given that, throughout the course, students of EEUSP acquire knowledge of the profession, with practice as a structuring axis of deliberate action of care action, according to principles made explicit in the Political-Pedagogical Project of the course<sup>(32)</sup>. Students are inserted into the context of practice from the first semester, enabling an exchange between academic knowledge and tacit knowledge and an approximation with the local reality<sup>(32)</sup>, which offers to the student new perceptions and practices to understand the context, the preferences of service users, the expertise of professionals, and the best available evidence, which are pillars of EBP.

Concerning the domain practices, which questions the frequency of use of each step of EBP, the correlation between the EBPQ score and the practice identified in this study was not observed by other studies involving students<sup>(21)</sup> and professionals<sup>(25,33)</sup>. The divergence in this correlation between the findings is understood to be due to the initiative of the student in applying their knowledge and skills to EBP practice. The articulation between theory and practice in the practice context involves a complex reality “with all of its tensions, contradictions, and unpredictability of situations which stem from the interaction among the subjects who are involved in this process”<sup>(34)</sup>, which may or may not potentialize the learning process. In this process, the student, as a subject of the teaching-learning process<sup>(32)</sup>, has, in the mediation of teachers, nurses, health professionals in general, and in the interaction with them and health service users, in the different contexts in which education takes place, the fundamental elements to integrate knowledge, skills, and attitudes

towards a practice that is indeed evidence-based, articulated to their experiences in the educational process.

Given the knowledge and skill gap observed among students, demonstrated by the low score in the domain and the difficulty of students in searching and interpreting scientific evidence, university education must take the important role of teaching and learning EBP. The university is challenged, therefore, to integrate EBP into teaching and into practice field areas and incorporate it culturally, so as to promote the knowledge and skills in student formation.

The limitations of this study include the small number of answers by students, the extensive data collection period, and its single setting, which precludes result generalization, particularly regarding differences observed in subsamples, with the necessity of developing a study with longitudinal design. Another limitation consisted in the use of EBPQ, which was developed for professionals who have already been inserted into the practice context. Considering that this questionnaire has an English version for students, its translation and validation for Brazilian Portuguese is recommended.

## CONCLUSION

This study has shown that undergraduate students of EEUSP presented a predisposition and acceptability of EBP in the process of providing care, with higher scores in knowledge, skills, and attitudes of EBP as they advanced in their years of graduation. The minor scores of the questionnaire were those of the domain knowledge and skills involving the search and interpretation of scientific evidence, classified as the biggest obstacle to the implementation of EBP among students. We recommend professors search for practical strategies for teaching EBP in the Nursing undergraduate course to reduce the gap between the produced knowledge and the implementation of the best scientific evidence-based practices, aiming at improving care and the health of the population.

## RESUMO

**Objetivo:** Identificar conhecimentos, habilidades e atitudes sobre a Prática Baseada em Evidências de estudantes de enfermagem da Escola de Enfermagem da Universidade de São Paulo e explorar as relações entre conhecimentos, habilidades e atitudes e variáveis associadas. **Método:** Trata-se de um estudo exploratório, descritivo e analítico, realizado com 125 alunos do bacharelado em enfermagem. Os dados foram obtidos pela aplicação do Questionário de Prática Baseada em Evidências. **Resultados:** A pontuação média do questionário foi de 4,73 (DP=0,79), com a maior pontuação no domínio Atitudes. Houve correlação estatística significativa entre a pontuação do questionário e o ano do curso ( $p < 0,001$ ). **Conclusão:** Há lacuna nos conhecimentos e habilidades associadas à Prática Baseada em Evidências entre os estudantes de enfermagem. É necessário desenvolver estratégias efetivas para o ensino da disciplina na graduação em Enfermagem.

## DESCRITORES

Enfermagem Baseada em Evidências; Conhecimentos, Atitudes e Prática em Saúde; Estudantes de Enfermagem; Educação em Enfermagem.

## RESUMEN

**Objetivo:** Identificar los conocimientos, habilidades y actitudes de los estudiantes de enfermería de la Escuela de Enfermería de la Universidade de São Paulo sobre la Práctica Basada en la Evidencia y explorar las relaciones entre conocimientos, habilidades y actitudes y las variables asociadas. **Método:** Se trata de un estudio exploratorio, descriptivo y analítico, realizado con 125 estudiantes del bachillerato en enfermería. Los datos se obtuvieron con la aplicación del Cuestionario de Práctica Basada en la Evidencia. **Resultados:** La puntuación media del cuestionario fue del 4,73 (SD=0,79) y el dominio de las Actitudes tuvo la puntuación más alta. Hubo una correlación estadísticamente significativa entre la puntuación del cuestionario y el año del curso ( $p < 0,001$ ). **Conclusión:** Existe una laguna en los conocimientos y habilidades asociados a la Práctica Basada en la Evidencia entre los estudiantes de enfermería. Es necesario desarrollar estrategias eficaces para la enseñanza de esta asignatura en los cursos de pregrado de Enfermería.

## DESCRIPTORES

Enfermería Basada en la Evidencia; Conocimientos, Actitudes y Práctica en Salud; Estudiantes de Enfermería; Educación en Enfermería.

## REFERENCES

1. Evidence-Based Medicine Working Group. Evidence-based medicine: a new approach to teaching the practice of medicine. *JAMA*. 1992;268(17):2420-5. <https://doi.org/10.1001/jama.1992.03490170092032>
2. Mackey A, Bassendowski S. The history of evidence-based practice in nursing education and practice. *J Prof Nurs*. 2017;33(1):51-5. <https://doi.org/10.1016/j.profnurs.2016.05.009>
3. International Council of Nurses. Closing the gap: from evidence to action. Geneva: ICN; 2012.
4. Melnyk BM, Fineout-Overholt E, Stillwell SB, Williamson KM. Evidence-based practice: step by step: the seven steps of evidence-based practice. *Am J Nurs*. 2010;110(1):51-3. <https://doi.org/10.1097/01.naj.0000366056.06605.d2>
5. Ryan EJ. Undergraduate nursing students' attitudes and use of research and evidence-based practice: an integrative literature review. *J Clin Nurs*. 2016;25(11-12):1548-56. <https://doi.org/10.1111/jocn.13229>
6. Brasil. Ministério da Educação; Conselho Nacional de Educação, Câmara de Educação Superior. Resolução CNE/ CES, n. 3, de 7 de novembro de 2001. Institui diretrizes curriculares nacionais do curso de Graduação em Enfermagem [Internet]. Brasília; 2001 [cited 2021 jan. 22]. Available from: <http://portal.mec.gov.br/cne/arquivos/pdf/CES03.pdf>
7. Ramis M-A, Chang A, Conway A, Lim D, Munday J, Nissen L. Theory-based strategies for teaching evidence-based practice to undergraduate health students: a systematic review. *BMC Med Educ*. 2019;19:267. <https://doi.org/10.1186/s12909-019-1698-4>
8. Nelson AM. Best practice in nursing: a concept analysis. *Int J Nurs Stud*. 2014;51(11):1507-16. <http://dx.doi.org/10.1016/j.ijnurstu.2014.05.003>
9. Camargo FC, Garcia LAA, Santos ÁDS, Iwamoto HH. Prática baseada em evidências: revisão bibliométrica das publicações nacionais em periódicos de enfermagem. *REFACS*. 2017;5(3):429.
10. Camargo FC, Iwamoto HH, Galvão CM, Pereira GA, Andrade RB, Masso GC. Competences and barriers for the evidence-based practice in nursing: an integrative review. *Rev Bras Enferm*. 2018;71(4):2030-8. <http://dx.doi.org/10.1590/0034-7167-2016-0617>
11. Ruzafa-Martínez M, López-Iborra L, Armero Barranco D, Ramos-Morcillo AJ. Effectiveness of an evidence-based practice (EBP) course on the EBP competence of undergraduate nursing students: a quasi-experimental study. *Nurse Educ Today*. 2016;38:82-7. <https://doi.org/10.1016/j.nedt.2015.12.012>
12. American Association of Colleges of Nursing. Hallmarks of the professional nursing practice environment. *J Prof Nurs*. 2002;18(5):295304. <https://doi.org/10.1053/jpnu.2002.129231>
13. Zabalegui A, Macia L, Márquez J, Ricomá R, Nuin C, Mariscal I, et al. Changes in nursing education in the European Union. *J Nurs Scholarsh*. 2006;38(2):1148. <https://doi.org/10.1111/j.1547-5069.2006.00087.x>
14. Waters D, Crisp J, Rychetnik L, Barratt A. The Australian experience of nurses' preparedness for evidence-based practice. *J Nurs Manag*. 2009;17(4):510-8. <https://doi.org/10.1111/j.1365-2834.2009.00997.x>
15. Cable-Williams B, Rush J, Mowry A, Macleod A, Gilmer C, Graham C, et al. An educational innovation to foster evidence-informed practice. *J Nurs Educ*. 2014;53(3):S55-8. <https://doi.org/10.3928/01484834-20140217-06>
16. Brooke J, Hvalič-Touzery S, Skela-Savič B. Student nurse perceptions on evidence-based practice and research: an exploratory research study involving students from the University of Greenwich, England and the Faculty of Health Care Jesenice, Slovenia. *Nurse Educ Today*. 2015;35(7):e6-11. <https://doi.org/10.1016/j.nedt.2015.02.026>
17. Horntvedt MET, Nordsteien A, Fermann T, Severinsson E. Strategies for teaching evidence-based practice in nursing education: a thematic literature review. *BMC Med Educ*. 2018;18:172. <https://doi.org/10.1186/s12909-018-1278-z>
18. Reichembach MT, Pontes L. Evidence-based nursing setting and image. *Rev Bras Enferm*. 2018;71(6):2858-9. <http://dx.doi.org/10.1590/0034-7167-2018710601>
19. Püschel VAA, Lockwood C. Translating knowledge: Joanna Briggs Institute's expertise [editorial]. *Rev Esc Enferm USP*. 2018;52:e03344. <http://dx.doi.org/10.1590/S1980-220X2018ed0103344>
20. Ferraz L, Schneider LR, Pereira RPG, Pereira AMRC. Ensino e aprendizagem da prática baseada em evidências nos cursos de enfermagem e medicina. *Rev Bras Estud Pedagog*. 2020;101. <http://dx.doi.org/10.24109/2176-6681.rbeb.101i257.4424>
21. Kim SS, Kim EJ, Lim JY, Kim GM, Baek HC. Korean nursing students' acquisition of evidence-based practice and critical thinking skills. *J Nurs Educ*. 2018;57(1):21-7. <https://doi.org/10.3928/01484834-20180102-05>
22. Upton D, Upton P. Development of an evidence-based practice questionnaire for nurses. *J Adv Nurs*. 2006;53(4):454-8. <https://doi.org/10.1111/j.1365-2648.2006.03739.x>
23. Rospendowski K, Alexandre NMC, Cornélio ME. Cultural adaptation to Brazil and psychometric performance of the "Evidence-Based Practice Questionnaire." *Acta Paul Enferm*. 2014;27(5):405-11. <https://doi.org/10.1590/1982-0194201400068>
24. Pérez-Campos MA, Sánchez-García I, Pancorbo-Hidalgo PL. Knowledge, attitude and use of evidence-based practice among nurses active on the Internet. *Invest Educ Enferm*. 2014;32(3):451-60.
25. Upton D, Upton P, Scurlock-Evans L. The reach, transferability, and impact of the Evidence-Based Practice Questionnaire: a methodological and narrative literature review. *Worldviews Evid Based Nurs*. 2014;11(1):46-54. <https://doi.org/10.1111/wvn.12019>
26. Rojjanasirirat W, Rice J. Evidence-based practice knowledge, attitudes, and practice of online graduate nursing students. *Nurse Educ Today*. 2017;53:48-53. <https://doi.org/10.1016/j.nedt.2017.04.005>

27. Carvalho DPSRP, Vitor AF, Cogo ALP, Bittencourt GKGD, Santos VEP, Ferreira Júnior MA. Critical thinking in nursing students from two Brazilian regions. *Rev Bras Enferm.* 2020;73(1):e20170742. <https://doi.org/10.1590/0034-7167-2017-0742>
28. Püschel VAA. ¿Como formar o enfermeiro para a prática baseada em evidências? *Rev Iberoam Educ Invest Enferm.* 2018;8(2):4-6.
29. Schneider LR, Pereira RPG, Ferraz L. A prática baseada em evidência no contexto da Atenção Primária à Saúde. *Saúde Debate.* 2018;42(118):594-605. <https://doi.org/10.1590/0103-1104201811804>
30. Püschel VA de A, Lockwood C. Translating knowledge: Joanna Briggs Institute's expertise. *Rev Esc Enferm USP.* 2018;52:e03344. <https://doi.org/10.1590/s1980-220x2018ed0103344>
31. Camargo FC, Iwamoto HH, Galvão CM, Pereira GA, Andrade RB, Masso GC. Competences and barriers for the evidence-based practice in nursing: an integrative review. *Rev Bras Enferm.* 2018;71(4):2030-8. <http://dx.doi.org/10.1590/0034-7167-2016-0617>
32. Universidade de São Paulo, Escola de Enfermagem. Projeto Político-Pedagógico do Bacharelado em Enfermagem [Internet]. São Paulo; 2020 [cited 2020 ago. 03]. Available from: <http://www.ee.usp.br/site/Index.php/paginas/mostrar/119/51>
33. Alqahtani N, Oh KM, Kitsantas P, Rodan M. Nurses' evidence-based practice knowledge, attitudes and implementation: A cross-sectional study. *J Clin Nurs.* 2020;29(1-2):274-83. <https://doi.org/10.1111/jocn.15097>
34. Messas JT, Leonello VM, Fernandes MFP, Gonçalves GCC, Bucchi SM, Mira VL. The educational environment of the undergraduate nursing course from the student perspective. *Rev Esc Enferm USP.* 2015;49(spec):106-14. <https://doi.org/10.1590/S0080-623420150000800015>

---

#### Financial support

Universidade de São Paulo

---



This is an open-access article distributed under the terms of the Creative Commons Attribution License.