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Original Article

# Competency level in evidence-based practice among students of nursing programs in Colombia

Nivel de Competencia en práctica basada en la evidencia en estudiantes de programas de enfermería de Colombia

Nível de competência na prática baseada em evidências em estudantes de cursos de enfermagem na Colômbia

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## Author Contributions

**ICPCH.** She contributed to the initial conceptualization of the study. She was responsible for establishing the methodology, conducting the formal analysis, supervising, drafting the manuscript, managing the project, collecting data, analyzing results, writing, editing, and revising the article for publication. She was also responsible for data visualization. **OJVE.** Contributed to the initial conceptualization of the study, was responsible for establishing the methodology, formal analysis, supervision, drafting the manuscript, project administration, data collection, analysis of results, writing, editing, and revising the article for publication, and data visualization. **DAF.** Was responsible for establishing the methodology and formal analysis, supervising and drafting the manuscript, data collection, analysis of results, software management, formal analysis, writing, editing, revising the article for publication, and data visualization. **LMPG.** He contributed to the initial conceptualization of the study. He was responsible for establishing the methodology, formal analysis, supervision, manuscript drafting, data collection, analysis of results, writing, editing, revising the article for publication, and data visualization. **MPUM.** Contributed to the initial conceptualization of the study and was responsible for establishing the methodology, formal analysis, supervision,

## ABSTRACT

**Introduction.** Evidence-based practice in nursing seeks to strengthen decision-making, decrease practice variability, and improve patient outcomes. **Objective.** To determine the level of competence in evidence-based practice among nursing students in Colombian programs. **Methodology.** A descriptive cross-sectional study was conducted with 1,021 final-year students from 19 nursing programs in Colombia. The Evidence-Based Practice Competency Questionnaire (CACH-PBE) developed by María Ruzafa Martínez and colleagues was used to evaluate competencies in knowledge, attitudes, and skills in Evidence-Based Practice (EBP), and a sociodemographic and educational characterization of the participants was conducted. **Results.** Eighty-three percent of the participants were women, and 65.3% had no previous training in EBP. The mean global competency score in evidence-based practice was 3.81. The highest score was in the attitude domain, with a mean of 4.1. The skill and knowledge domains reported a mean of 3.66 and 3.34, respectively. **Discussion.** In general, the studies that have addressed this topic show that nursing program students achieve an intermediate level of competencies in using EBP and that training directed explicitly towards this methodology favors the achievement of competencies for its use in professional practice. **Conclusions.** Students have a high level of attitude and an intermediate level of skills and knowledge for using EBP.

### Keywords:

Students, Nursing; Evidence-Based Practice; Competency-Based Education; Knowledge; Attitude; Clinical Competence.

## RESUMEN

**Introducción.** La práctica basada en evidencia en enfermería busca fortalecer la toma de decisiones, disminuir la variabilidad de la práctica y mejorar los resultados en los pacientes. **Objetivo.** Determinar el nivel de competencia en práctica basada en la evidencia en estudiantes de enfermería de programas de Colombia. **Metodología.** Estudio descriptivo de corte transversal realizado en 1,021 estudiantes de último año de 19 programas de Enfermería de Colombia. Se utilizó el cuestionario de *Competencias en Práctica Basada en la Evidencia* (CACH-PBE) elaborado por María Ruzafa Martínez y colaboradores para la evaluación de las competencias frente a los conocimientos, actitudes y habilidades en Práctica Basada en Evidencia – PBE, y se hizo la caracterización sociodemográfica y de formación de los participantes. **Resultados.** El 83% de los participantes son mujeres, el 65.3% no cuenta con formación previa en PBE. La puntuación media de la competencia global en práctica basada en la evidencia fue de 3.81. La puntuación más alta se dio en el dominio de actitud con una media de 4.1. Los dominios de habilidad y conocimientos reportaron una media de 3.66 y 3.34 respectivamente. **Discusión.** En general los estudios que han abordado esta temática muestran que los estudiantes de programas de enfermería logran un nivel intermedio en competencias frente al uso de la PBE y que la formación dirigida específicamente frente a esta metodología favorece el logro de las competencias para su uso en la práctica profesional. **Conclusiones.** Los estudiantes tienen un nivel alto en actitud y un nivel intermedio en habilidades y conocimientos para el uso de la PBE.

### Palabras clave:

Estudiantes de Enfermería; Práctica Clínica Basada en Evidencia; Educación basada en Competencias; Conocimiento; Actitud; Competencia Clínica

## RESUMO

**Introdução.** A prática baseada em evidências em enfermagem busca fortalecer a tomada de decisões, reduzir a variabilidade da prática e melhorar os resultados para os pacientes. **Objetivo.** Determinar o nível de competência na prática baseada em evidências em estudantes de cursos

*writing the manuscript, data collection, analysis of results, writing, editing, revising the article for publication, and data visualization. F.A.C.F. She was responsible for establishing the methodology, formal analysis, supervision, writing the manuscript, data collection, analysis of results, writing, editing, revising the article for publication, and data visualization.*

de enfermagem na Colômbia. **Metodologia.** Estudo descritivo transversal realizado com 1.021 estudantes do último ano de 19 cursos de enfermagem na Colômbia. Foi utilizado o questionário de Competências em *Prática Baseada em Evidências* (CACH-PBE), desenvolvido por Maria Ruzafa Martínez e colaboradores para avaliar as competências em relação aos conhecimentos, atitudes e habilidades em Prática Baseada em Evidências – PBE, e foi realizada a caracterização sociodemográfica e formação dos participantes. **Resultados.** 83% dos participantes são mulheres, 65.3% não possuem formação prévia em PBE. A pontuação média de competência geral na prática baseada em evidências foi de 3.81. A maior pontuação foi no domínio atitude com média de 4.1. Os domínios habilidade e conhecimento reportaram média de 3.66 e 3.34 respectivamente. **Discussão.** Em geral, os estudos que têm abordado essa questão mostram que os alunos dos cursos de enfermagem atingem um nível intermediário de competências no uso da PBE e que a formação especificamente voltada para essa metodologia favorece a obtenção de competências para seu uso na prática profissional. **Conclusões.** Os alunos apresentam alto nível de atitude e nível intermediário de habilidades e conhecimentos para a utilização da PBE.

**Palavras-chave:**

Estudantes de enfermagem; Prática Clínica Baseada em Evidências; Educação Baseada em Competências; Conhecimento; Atitude; Competência Clínica.

**Introduction**

According to Ureña and colleagues: “Evidence-Based Nursing (EBN) is based on the Evidence-Based Medicine (EBM) model and the contributions of Florence Nightingale (1820-1910) in considering the use of statistical results to improve patient care (1).

Additionally, Silvia Galleguillos et al. (2) quoting Beyea y Slattery (3), describe EBN as a new research paradigm that originated in the 1970s and, in its evolution, has become known as Evidence-Based Practice (EBP).

Evidence-Based Practice (EBP) is not just a concept, but a practical problem-solving method for clinicians. It equips them with the tools to make informed decisions about the best evidence to address health issues in individual patients or groups (4).

Likewise, it is considered a tool that allows the professional to use the best available evidence and integrate it into the clinical experience to solve problems in the care practice. (5,6)

EBP favors providing quality health services, reducing costs, and improving the quality of care. All this is because it helps to develop decision-making skills based on scientific knowledge and systematized clinical experience (7). In this sense, EBP also contributes to applying research in practice and reduces clinical variability (8). In practice, its application requires nurses to possess research knowledge, technological skills, analytical skills, and critical judgment (4,9-11), competencies described as insufficient in practicing nurses. This inadequacy becomes a barrier to adopting, implementing, and recognizing EBP facilitators in care settings (12,13).

According to the Tunning project, competencies represent a combination of knowledge, understanding, ability and skill (14). From the research perspective, these competencies include the ability to solve health problems using research in nursing practice. Likewise, the ability to design and manage research projects related to nursing care and health (15). These competencies are not unattainable; they are within reach, and with the right guidance and effort, they can be acquired. These competencies are not unattainable, but they are within your reach, and with the right guidance and effort, you can acquire them.

Ruzafa et al (16), based on a review of the literature, established the dimensions of knowledge, attitude, and ability as those that allow the evaluation of competencies about EBP and determined knowledge as the understanding of conceptual and methodological aspects of EBP. They defined *attitude* as the disposition, recognition, and liking of this methodology and skills as the ability to implement the EBP methodology.

Along the same line, Alatawi et al. (17) point out that knowledge, skills, experience, and a positive attitude toward using EBP are relevant aspects to ensure decision-making based on scientific evidence. In addition, they mention that the understanding of the concept and method, the experience of professionals in the implementation, and the disposition and negative beliefs toward research are aspects that interfere with the practice of EBP.

It is from the teaching and application of this method that nurses in training develop confidence and acquire the skills for the appropriation of EBP as a means to respond to problems in the practice of care (18). The teaching of EBP prepares the student in his or her role as a professional and brings him or her closer to integrating theory and scientific evidence (18,19). Likewise, it has a vital role

in transforming nursing practice because it promotes a practice based on scientific knowledge and not only on tradition and clinical experience. Countries such as the United States, Canada, Spain, Australia, and Taiwan have made progress in this area by introducing EBP teaching in nursing curricula. With this, they seek to develop in students and future professionals the competencies that will lead them to critical judgment and constant evaluation of the practice of care, to the formulation of practice questions, to the search for and evaluation of scientific evidence to answer these questions and, therefore, to the transformation of current nursing care (16,19-21).

Due to the relevance of EBP in nursing, there has been interest in evaluating and understanding the competencies, attitudes, and skills attained by students in these programs during their professional training, with the purpose of integrating and applying this method in practical and daily scenarios. Likewise, teaching strategies for learning and applying EBP in different scenarios and levels of professional training have been addressed, given the importance of EBP in decision-making, care management, and disciplinary transformation (22,24).

In the international context, some countries have explored the skills and knowledge of nursing students on EBP. In general, these investigations describe a higher level of knowledge and skills as the student has advanced in the training process. In this sense, the students' attitude or disposition for using EBP about knowledge and skills are highlighted with higher scores (23–27) (24–26).

In Cúcuta, Colombia, Ureña et al. (1) made an approach in recognizing EBP competencies in nursing program students and found a high score in the attitude towards using this methodology but a medium level in general competencies on EBP. Similarly, in 2020 in Cali, Colombia, Parra et al. (27) evaluated the level of EBP competency in 207 nursing students, reporting an overall competency score of 3.4, reaching an intermediate level. The dimension scores were 3.7 for attitude, 3.0 for skills, and 3.1 for EBP knowledge, the latter being the highest in students' last academic semester.

Given the importance of EBP in professional practice and the commitment of the programs to favor the learning and development of skills of future nurses, for the application of this methodology from their training and during their professional performance, the International Network of Evidence-Based Nursing - Colombia Node, wanted to take a global look at the teaching of EBP in Colombia and determine the level of competencies in EBP in students of 19 nursing programs through a national multicenter study.

## Methodology

### *Study design*

This is a quantitative multicenter descriptive observational study, a comprehensive research endeavor conducted in 19 faculties and schools of nursing in Colombia over a substantial period from June 2020 to March 2022.

### *Study population*

The population that participated in the research comprised final-year students from 19 nursing schools and programs in Colombia, members of the International Network of Evidence-Based Nursing (REIDEBE) Colombia Node. The selection criteria were the faculties and schools of nursing that had a current qualified registration granted by the Colombian Ministry of National Education (MEN), students over 18 years of age who had taken at least one subject related to research methodology, who were in the last year of their nursing program and who agreed to participate in the research were included.

### *Collection instruments*

The instrument used in this research was the Competence on Evidence-Based Practice (CACH-PBE) questionnaire, created in Spain by Ruzafa et al. (16) and culturally adapted for Colombia by Ureña et al. (1). Both authors granted permission for its use.

The instrument culturally adapted by Ureña et al. consists of 25 items grouped into three dimensions: attitude, skills, and knowledge about EBP. It uses a Likert-type scale with values from 1 to 5 to evaluate the level in each item and dimension, with 1 being the lowest level and 5 the highest level (all questions were adjusted according to the user's manual in the case of inverse questions). In addition, it contains a section of 8 questions related to self-perceived global competence in EBP measured on a scale of 0 to 10, where 0 is the lowest score and ten the highest (16).

The reliability of the questionnaire is determined by internal consistency with Cronbach's alpha of 0.88, construct, and discriminant validity. The attitude dimension reports a Cronbach's alpha of 0.940, the skills dimension a Cronbach's alpha of 0.756, and the knowledge dimension a Cronbach's alpha of 0.800 (1).

A sociodemographic data collection form developed by the researchers was used, which included information on age, sex, socioeconomic level, academic semester, previous technical studies, and previous training in EBP. Data collection occurred between June 2020 and March 2022 and was conducted by nursing schools and faculties

through the Google Forms platform. The information was centralized by one of the researchers who stored the information in the Excel program and monitored and tracked the information and data quality during the collection period.

### Data analysis

A univariate analysis was performed where measures of central tendency, dispersion and position were calculated for quantitative variables. In the case of qualitative variables, frequency tables, and percentage distribution measures were calculated. The information was then analyzed using the CACH-PBE user's manual, calculating 95% confidence intervals. In the bivariate analysis, mean difference tests (t-student) or medians (Mann Whitney U) were performed according to the normality distribution of the variables. In the case of more than two categories, analysis was performed with Kruskal Wallis and for the post hoc analysis with the Dwass Steel Critchlow Flighe test. Finally, a correlation analysis was performed with the Spearman test; all hypothesis tests had a significance level of 0.05. Data analysis was performed using the R statistical software version 4.3.

### Ethical aspects

The research was conducted under the guidelines of Resolution 8430 of 1993 of the Colombian Ministry of Health and Social Protection (28), where it was considered to be of minimal risk. The 19 nursing schools and faculties had the approval of the institutional ethics and research

committees for their participation. The students agreed to participate in the research after signing an informed consent form and preserving the principles of confidentiality, respect, and goodwill. Within each academic unit, the results were returned in written form to provide feedback on the knowledge, attitude, and skill competencies of EBP.

### Results

We included 1,021 students from 19 faculties and schools of nursing in Colombia that were grouped into three zones according to the geographic location by departments: Northern Zone: 400 students (39.2%) conformed by the departments of Norte de Santander, Santander, Cordoba, and Bolivar. Central Zone: 310 students (30.4%) comprising the Cundinamarca department and Bogotá. Western Zone: 311 students (30.5%) comprising the Cauca, Valle del Cauca and Chocó departments.

The average age of the students varied in the central zone with 23.1 years SD (standard deviation) ± 3.73, the northern zone with 23.6 years SD ± 4.17, and the western zone with 24.9 years SD ± 4.28. With a statistically significant difference between the age in the west and the center and north. Both p values (<0.001). A wide age dispersion was observed in all areas of the country. Most of the study population was female (83%). The most frequent socioeconomic stratum was two (38.4%). The semester with the highest participation of students was eighth (41.1%), corresponding to the program's fourth year. Sixty-eight percent of the participants had previous training as nursing technicians (Table 1).

**Table 1.** Description of the sociodemographic and educational characteristics of students in nursing programs by region of Colombia (n=1,021).

Explanatory Variables	Central		North		West		Total		
	n:310	%	n:400	%	n:311	%	n:1021	%	
Sex	Female	259	84.1	332	83.2	256	82.3	847	83
	Male	51	16.6	68	17	55	17.7	174	17
Socioeconomic stratum	42.8%	38.8%	38.8%	38.8%	38.8%	38.8%	38.8%	38.8%	38.8%
	One	21	6.6	147	36.6	81	26	249	24.4
	Two	136	44	148	37.1	108	34.7	392	38.4
	Three	139	45	80	20	87	28	306	30
	Four	14	4.4	22	5.5	24	7.7	60	5.9
	Five	0	0	3	0.8	10	3.2	13	1.3
	Six	0	0	0	0	1	0.3	1	0.1
Technical Study	Si	95	30.6	114	28.5	109	35.0	703	68.9
	No	215	69.3	286	71.5	202	64.9	318	31.1
EBP * Training	Si	92	29.6	189	47.2	73	23.4	354	34.7
	No	218	70.3	211	52.7	238	76.5	667	65.3

EBP\*: Evidence-based practice  
Source: prepared by authors.

From the characterization of the programs, these are developed between 8 to 10 semesters, more frequently the 8-semester programs with 47.3%, followed by the 10-semester programs with 36.8%. Regarding the number of research-related subjects offered in the curricula, 26.3% of the programs develop between 1 to 3 subjects, 42.1% between 4 to 6, and 31.5% between 7 to 10.

Regarding the dimensions of attitude (4.15) and ability (3.71) in PBE, the northern zone presented the highest

score. While in the knowledge dimension, the central zone showed the highest level (3.38). However, it can be observed that the means in the three dimensions are very similar to each other (Table 2). It is also striking that at the average level, the population has a higher score in attitude than in skills and knowledge. As for the overall scale score, the average for the country was 3.8 out of 5. Regarding the regions, the northern zone obtained the highest average with the most negligible dispersion in all dimensions (Table 2).

**Table 2.** Level of EBP competencies according to the questionnaire CACH- PBE (n=1,021)

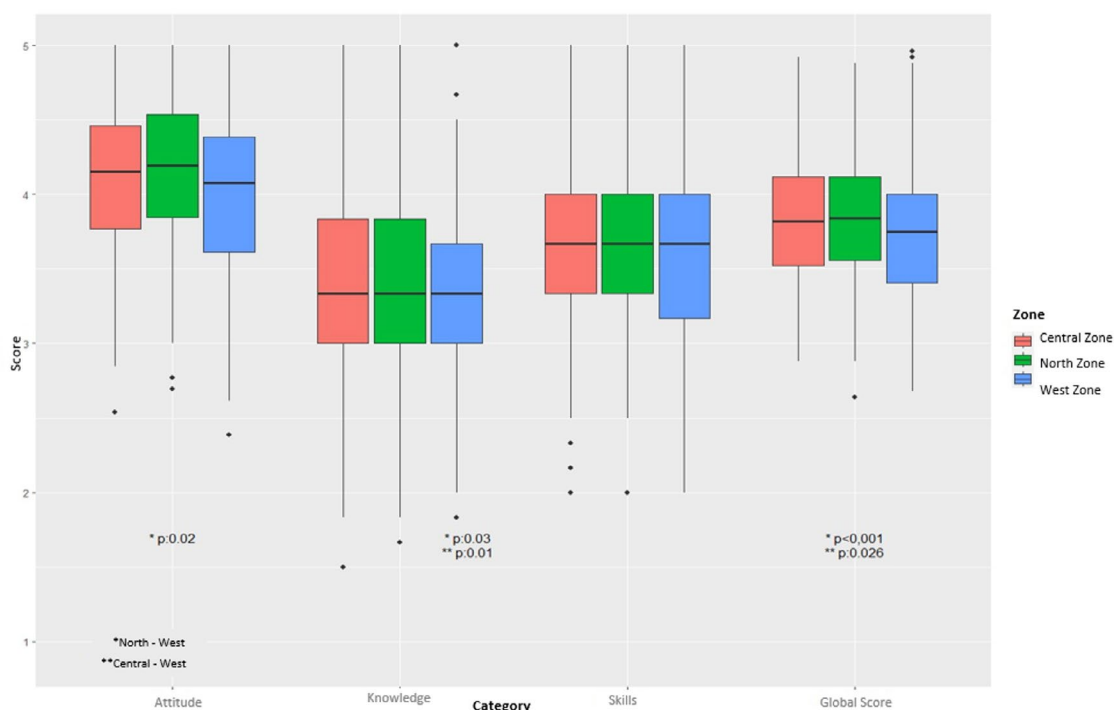
Zone	n	Global Competence			Attitude			Skills			Knowledge		
		A	IC* 95 %	SD	A	IC *95 %	SD	A	IC 95 %	SD	A	IC 95 %	SD
Central	310	3.82	(3.78 – 3.86)	0.38	4.11	(4.07-4.16)	0.43	3.63	(3.57-3.69)	0.5	3.38	(3.31-3.45)	0.6
North	400	3.86	(3.82 – 3.90)	0.39	4.15	(4.11-4.20)	0.46	3.71	(3.66-3.77)	0.5	3.36	(3.31-3.42)	0.6
West	311	3.74	(3.70 – 3.79)	0.4	4.03	(3.97-4.08)	0.5	3.62	(3.56-3.68)	0.6	3.26	(3.20-3.32)	0.5
Total	1,021	3.8	(3.79 – 3.84)	0.4	4.1	(4.08-4.13)	0.47	3.66	(3.63-3.69)	0.6	3.34	(3.30-3.37)	0.6

SD\* = Standard Deviation. CI\*= confidence interval. A\*= Average

Source: prepared by authors.

Subsequently, we explored whether there was a difference in the results in the level of competencies in EBP and the global level between the regions, using the Kruskal Wallis test with a post hoc analysis with the Dwass Steel

Critchlow Fligner test (Figure 1). It was found that there were differences in the medians of the global score, attitude, and knowledge, with the western zone differing from the other zones.



**Figure 1.** Boxplot of scale scores and students' zone in Colombian nursing programs (n=1,021).

\*P= p Value

Source: prepared by authors.

Similarly, an analysis matrix was used to explore the relationships between the overall score and the knowledge, skills, and attitudes questions. Positive relationships

were determined between all the questions, and strong relationships were established between skills and knowledge of biostatistics and informatics (Figure 2).

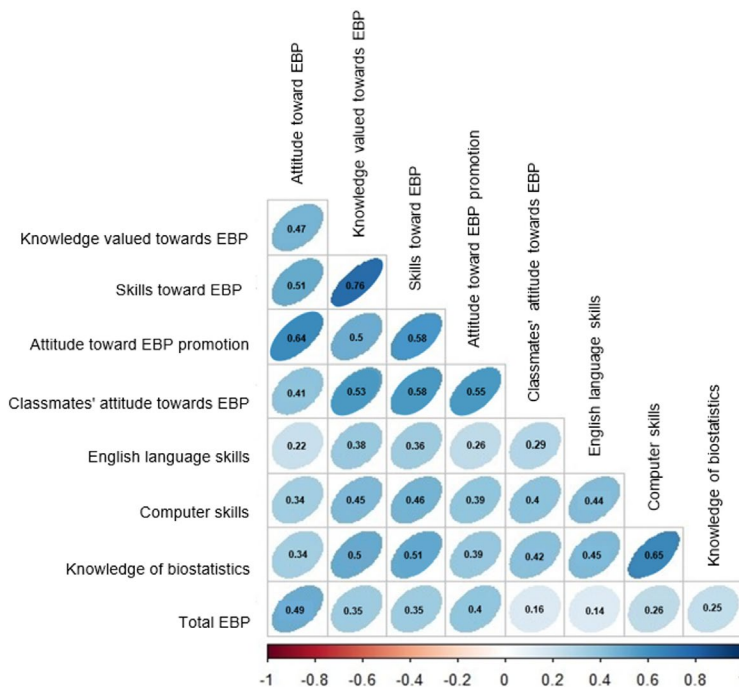


Figure 2. Correlation matrix of knowledge, attitudes, and skills in EBP (n=1,021).

Source: prepared by authors.

## Discussion

According to the sociodemographic characteristics of the population, it is important to emphasize that nursing education continues to have significant female participation with the number of female students exceeding 80% of the total study population. These details are consistent with those reported by Sánchez et al. (29) in their study conducted at 3 universities in Ibero-American countries (Colombia, Chile, and Spain), where the percentage of female students was 77%, 79%, and 75%, respectively, for each country. Likewise, to the data reported in the study by Ashktorab et al. (24) conducted in Iran, where 77.6% of the evaluated students were women, and in the study by Myakava et al. (30) in Brazil, which showed 79.2% female participation.

It is important to highlight that 62% of the participants belong to lower socioeconomic strata (strata 2 and 3), and 68% have technical nursing studies. These results are consistent with those described by Parra et al. (27), where socioeconomic strata 2 and 3 predominated. Regarding technical nursing studies, these results differ from the studies of Ureña et al. (1) and Sánchez et al. (29), who

reported that 13.1% and 11.1% of nursing students had realized previous studies to their professional studies.

Previous training in EBP was present in only 34.7% of the students, which included short courses, workshops, diplomas, or updating sessions on EBP. These dates exceed the results of the study by Gómez et al. (31), where only 16.7% of students had received previous training in EBP.

The overall score in *self-perceived global competence* in EBP was 3.8 out of a maximum of 5, with students from programs in the northern region achieving the highest score at 3.86. The dimension with the highest score was *attitude towards EBP*, scoring 4.1, which encompasses aspects related to affinity, liking, and positive attitude towards EBP. These results exceed those obtained by Ureña et al. (1), where the overall score in *self-perceived* in EBP was 3.58, but they are lower than those described by Ruzafa et al. (16), who reported a score of 4.35 for their fourth-year students.

On the other hand, concerning the *attitude towards EBP* dimension, it is important to highlight that the score obtained in this study significantly surpassed the one reported by Ureña et al. (1), where a score of 3.82 out of

5 was described. However, the results are similar because attitude towards EBP remains the dimension with the highest score compared to other dimensions. Similarly, these results can be compared with those obtained by Myakava et al. (30), who applied the EBP questionnaire (EBPQ) that includes the evaluation of the attitude domain towards EBP, where their score presented the highest mean in relation to the knowledge and skills domains.

Regarding the *skills* domain in EBP, which evaluates capacities for implementing this method (formulating clinical questions, searching for evidence, and critically evaluating evidence), this research showed an intermediate level score of 3.66 out of 5. Students from programs in the northern region scored the highest with 3.71. These results are similar to those described by Gómez et al. (29), who, through the EBPQ-19 questionnaire applied to 132 nursing students, identified medium-high scores of 3.96 on a 5-point scale for EBP skills. Highlighting lower averages in students' skills related to research and critical analysis of evidence.

It is important to emphasize that the deficit in skills among nursing students for using of this method persists into their professional practice.

Authors such as Archila et al. and Ihda et al. (13,32), describe that the skills shortage in EBP is one of the most commonly cited barriers by nursing professionals when attempting to apply this method in their practice. This underscores the importance for nursing education programs to integrate EBP into their curricula. Doing so can establish learning environments that focus on the application of evidence in practice, thereby developing and strengthening skills, attitudes, and knowledge in EBP (32).

On the other hand, the lowest level of competence was reported in the domain of knowledge in EBP with a score of 3.34 out of 5 points. This level addresses the student's knowledge of research methods, construction of search equations, understanding and analysis of association measures, identification of study types, levels of evidence, among others. These results differ from those described by Ruzafa et al. (16) and Myakava et al. (30), who reported high and medium-high levels of knowledge in EBP, for students in the fourth year of the nursing academic program. However, the results are similar to those reported by Iradukunda et al. (26) in their study conducted at Rwanda University in East Africa, where 29% of participants identified lack of knowledge as one of the barriers to the application of EBP, despite having received prior training in EBP. The students in the multicenter study did not have prior training in EBP, and despite the heterogeneous nature of the programs regarding the number of research courses offered, they achieved an intermediate level in this competence.

According to the above, Sánchez et al. (29) conclude in their research that learning about research methods in students is associated with the level of knowledge and overall competence in EBP. Similarly, Ihda et al. (32) point out that knowledge is important for the practice of EBP; however, they emphasize the need to align this theoretical knowledge to put it into practice. In the same vein, Myakava et al. (30) recognize the importance of integrating EBP into the curriculum from the beginning of the academic program to develop in students the necessary knowledge, skills, and attitudes for the application of this method, as well as to strengthen critical thinking as the foundation of EBP.

A relevant aspect found in this research is related to the scores obtained on the scales, where the regions of the country reported the following aspects: the western region showed a statistical difference concerning various aspects of EBP, compared to the central and northern regions. Although there are no other studies that contrast these results and their differences, scientific evidence should continue to be tracked down to indicate hypotheses in prospective research and to address possible differentiating factors in the different areas of the country.

## Conclusions

Obtaining a global level of competencies in EBP among students from 19 nursing programs in Colombia allows us to understand generally how the use of this methodology has been integrated into professional training and, simultaneously, to recognize those elements that should be strengthened to ensure that students implement EBP during their training process and in their professional practice.

Most of the students have yet to gain previous training in EBP, but they take at least one subject related to research. From there, there may be a need for more clarity between the theoretical knowledge that strengthens research competencies and using this knowledge in applying EBP.

On the other hand, students present a high level in attitude towards EBP, a positive factor in the Colombian EBP culture. In contrast, the skill and knowledge domains showed intermediate levels related to the disaggregation of knowledge in research and the implementation of these elements when solving questions of professional praxis.

This description guides academic programs in Colombia to focus attention on the aspects that students should develop and strengthen in order to integrate EBP as a natural exercise in nursing practice. Likewise, to generate improvement plans that focus on the development of critical thinking, research competencies, integration of research into practice, and decision-making based on

relevant evidence, which helps to overcome the academy the barriers described in the clinical area, such as: little training in EBP, lack of time, language, lack of motivation and interest in acquiring new learning and rejection of change.

Finally, it would be interesting to analyze the nursing programs in Colombia that have not been explored, as well as to investigate the dynamics and successful experiences that are unknown and that can be a guiding framework to advance the training of nursing professionals in EBP.

## Conflicts of interest

The authors declare that they have no conflicts of interest.

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## Ethical responsibilities

**Protection of people:** This study is considered risk-free due to its nature. It was approved by the Institutional Ethics Committee.

**Confidentiality of data:** The authors declare they have followed their work center's protocols on the publication of patient data.

**Right to privacy and informed consent:** The authors have obtained the informed consent of patients and/or subjects mentioned in the article. This document is in the possession of the corresponding author referred to in the article.

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