

# Use of evidence-based practice by Nursing teachers: a survey study

## Uso da prática baseada em evidências por docentes de Enfermagem: estudo do tipo survey

Sirlene Luz Penha<sup>1</sup>  
ORCID: 0000-0003-2427-2935

Kelli Borges dos Santos<sup>2</sup>  
ORCID: 0000-0001-8423-9147

Caroline Campos Fonseca<sup>2</sup>  
ORCID: 0000-0002-0745-8597

Cláudia Maria Messias<sup>3</sup>  
ORCID: 0000-0002-1423-0214

Vilanice Alves de Araújo Püschel<sup>3</sup>  
ORCID: 0000-0001-6375-3876

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

<sup>2</sup>Universidade Federal de Juiz de Fora,  
Juiz de Fora, MG, Brazil

<sup>3</sup>Universidade Federal Fluminense,  
Niterói, RJ, Brazil

### Editors:

Ana Carla Dantas Cavalcanti  
ORCID: 0000-0003-3531-4694

Paula Vanessa Peclat Flores  
ORCID: 0000-0002-9726-5229

Adriano Menis Ferreira  
ORCID: 0000-0002-4054-768X

### Corresponding author:

Kelli Borges dos Santos  
E-mail: kelli.bsantos@gmail.com

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### ABSTRACT

**Objective:** To identify the use of evidence-based practice (PBE) by nursing teachers of higher education institutions in Brazil. **Method:** Descriptive study of quantitative approach. The data collection took place electronically using the instrument "Evidence-Based Practice Questionnaire", sent to the contact list of professors of undergraduate nursing institutions from different Brazilian states. **Results:** 117 professors from 17 states of Brazil participated in the study, with a response rate of 21.3%. Of the 86.3% of the respondents reported approaching PBE in nursing education, acting as a nurse previously (91.4%), and having a doctorate as a maximum level of education (57.2%). In the domains of attitudes, knowledge, and skill about PBE, a high score above 80% was obtained. **Conclusion:** the participants approach PBE in the teaching in which they work; they present positive attitudes and knowledge related to PBE according to the scores used.

**Descriptors:** Evidence-Based Practice; Nursing; Teaching.

### RESUMO

**Objetivo:** Identificar o uso da prática baseada em evidências (PBE) por docentes de enfermagem de Instituições de Ensino Superior no Brasil. **Método:** Estudo descritivo de abordagem quantitativa. A coleta de dados se deu por meio eletrônico utilizando instrumento "Evidence-Based Practice Questionnaire", sendo enviado para a lista de contatos de docentes de instituições de graduação de enfermagem de diferentes estados brasileiros. **Resultados:** Participaram do estudo 117 docentes de 17 estados do Brasil, com taxa de resposta de 21,3%. Dos 86,3% dos respondentes informaram abordar a PBE no ensino de enfermagem, atuaram como enfermeiro previamente (91,4%) e possuem como nível máximo de escolaridade o doutorado (57,2%). Nos domínios atitudes, conhecimento e habilidade sobre a PBE obteve-se escore elevado acima de 80%. **Conclusão:** os participantes abordam a PBE no ensino em que atuam; apresentam atitudes positivas e conhecimento relacionado à PBE de acordo com os escores utilizados.

**Descritores:** Prática Clínica Baseada em Evidências; Enfermagem; Ensino.

### INTRODUCTION

Every year, many investments are made in research in the health area, resulting in an increasing increase in knowledge in the scientific literature in this area. Evidence-based practice (PBE) is a topic that has shown a significant increase in recent years to integrate research into clinical practice<sup>(1)</sup>. Efforts in this direction are the result of interests arising from the health field, as well as from research centers and educational institutions<sup>(2)</sup>. According to Sackett et al.<sup>(3)</sup>, evidence-based practice is defined as "an approach that integrates the best external evidence to individual clinical experience and patient choice"<sup>(3)</sup>. Considering these aspects, it should be used to substantiate nurses' decision-making, and it is indispensable in professional practice. Thus, implementing scientific knowledge in clinical practice, that is, translating scientific evidence to

care practice, aims to achieve the best care for the patient with cost reduction and improve the quality of care<sup>(4)</sup>.

PBE started in the field of Medicine in 1980 through Evidence-Based Medicine and expanded in the following decades to other areas of health, including Nursing. It emerged and expanded as a latent need to improve and reduce the gaps between scientific research and professional practice<sup>(5)</sup>. In nursing, implementing PBE contributes to changing the care profile from one based on empirical knowledge and traditions to one based on scientific knowledge. Such transformation makes it possible to improve the quality of care provided and, consequently, the improvement of nursing care<sup>(6)</sup>.

Despite the advancement of research in Latin America and the Caribbean compared to Anglo-Saxon countries, PBE in nursing still needs to be more widespread among teachers, professionals, and students<sup>(7-8)</sup>. Its implementation in nursing care requires nurses' ability to interpret and integrate evidence from literature with practice through patient data and clinical observations. It is known that some barriers prevent its execution in the services, such as the lack of preparation of the nurse, the non-perception of the research as an integral part of his daily life, and the lack of time and organizational support<sup>(9-11)</sup>. The study points out that the use of PBE in nursing practice is a reality it is necessary to plan changes in the educational sphere, in the training of professionals since graduation and their specializations; organizational, with the provision of time and technologies by health services; and individual, with a change in the posture and perspectives of health professionals<sup>(10)</sup>. Thus, the present study aimed to identify the use of evidence-based practice by nursing professors of Brazilian public higher education institutions.

## METHOD

### Research design

This is a survey, exploratory and descriptive study, with a quantitative approach, carried out by electronic means. It was developed with professors of undergraduate nursing courses in Brazilian public Higher Education Institutions (HEIs). The results are presented in tables containing the mean of the maximum score obtained according to the evidence-based practice questionnaire<sup>(12)</sup> and the mean of the scores obtained about the score on the Likert scale. The STROBE Checklist<sup>(13)</sup> was used to guide the research's development.

### Selection criteria

The sample was determined due to convenience, that is, it was composed of professors interested in participating in the research. The convenience sample aims to obtain a sample of convenient and non-probabilistic individuals<sup>(14)</sup>. As inclusion criteria, it was necessary to be a graduate professor in Nursing of public HEIs in any part of the national territory.

An invitation was sent to participate in the research through the electronic addresses of the professors and graduation coordination, which were obtained at the IES websites. They were also sent an invitation through telephone contact among teachers through indication (snowball strategy) and direct mail via social media (WhatsApp).

Therefore, one professor and those who refused to respond during the data collection period were excluded from the sample where telephone contacts or emails were not found.

After the questionnaire was sent, e-mails were sent monthly to remind the professors to answer the questionnaire. The acceptance period for answers was established from January 2019 to January 2020.

### Data collection

The data collection instrument used was the "Evidence-Based Practice Questionnaire" (EBPQ)<sup>(12)</sup>, translated and validated into Brazilian Portuguese, with the authors' authorization for its use.

The instrument has 24 evaluation items: 6 items related to the frequency of use of PBE, 4 related to attitudes, and 14 related to knowledge and skills scored on a Likert scale, admitting from one to seven possibilities of response. The analysis of the main components comprises three areas: 1- Evidence-Based Nursing Practice that evaluates the use of PBE to fill a gap or lack of knowledge, understand the frequency that sought, evaluated, and integrated the evidence, as well as shared this knowledge among colleagues, ranging from 1 (never) to 7 (often), integrating six items or 42 points. The 2 domain is related to evidence-based practice attitudes, consisting of four questions, adding a total of 28 points, and finally, the number 3 domain evaluates knowledge and skills related to evidence-based practice, evaluating individual characteristics and capabilities that enable an effective PBE, it varies between 1 (bad) and 7 (optimal) totaling 14 items or 98 points.

In summary, the 1 domain (use of PBE) contains 6 items, totaling 42 points; the 2 domain (atti-

tudes related to PBE) contains 4 items, totaling 28 points, and the 3 domain (Knowledge and Skills related to PBE) contains 14 items, totaling 98 points. The domains, with 168 points, were evaluated according to the average frequency of attitudes, skills, and knowledge about the PBE scored on the Likert scale, reflecting the professors' positive attitudes. Thus, the higher the score, the more positive the respondent's attitude is. In addition to the EBPAQ, questions related to the characterization of the participants of the research were asked regarding sociodemographic aspects (sex and age); if previously acted as a nurse; maximum training; current area of activity; form of updating; time of training, professional experience and area of activity in teaching (discipline that teaches classes).

### Data analysis

The collected data were automatically sent to Excel spreadsheet and then analyzed in a statistical program R version 4.0.0.

Frequency tables were performed for categorical data. For the numerical variables, means and median were evaluated. For the analysis of the questionnaire, the standards established by the authors were adopted and evaluated through the score obtained in each domain described. For bivariate analysis, a chi-square test will be performed for categorical variables and a Student T test for quantitative variables. A significance level of 5% was adopted ( $p < 0.05$ ). Pearson's method was adopted for correlation<sup>(14)</sup>.

### Ethical aspects

The study was approved by the Research Ethics Committees (RECs) of the School of Nursing of the University of São Paulo (USP) (CAAE: 03746918.0.0000.5392) and registered under number 3.167,042.

All professors were invited by e-mail to participate in the research, and those who agree

ed electronically signed the Free and Informed Consent Form. The research standards regarding ethical aspects were complied with in Resolution 466 of December 12, 2012, on guidelines and standards of research involving human beings<sup>(15)</sup>.

### RESULTS

Questionnaires were sent to a total of 547 electronic addresses (e-mails) of nursing professors of public HEIs of the 26 states and the Federal District, with a return of 117 responses from 17 states of Brazil, including the Federal District (DF). No responses were obtained from the following states: Acre, Alagoas, Amazonas, Goiás, Mato Grosso do Sul, Rio Grande do Norte, Rondônia, Roraima, Sergipe and Tocantins. The response rate was 21.3%.

Among the respondents, 112 (95.7%) reported having acted as care nurses before their career in teaching, and 101 (86.3%) reported addressing evidence-based practice in undergraduate nursing education. The mean age of the participants was 46.7 years (maximum 67 and minimum 24 years;  $SD \pm 10.10$ ). The average training time was 22.8 years (maximum 44 and minimum 3 years;  $SD \pm 10.28$ ). The average teaching time was 14.45 (minimum less than 1 year and maximum 44 years;  $SD \pm 9.82$ ), with a median of 13 years (0;44;). A total of 57.2% (=n 67) hold a doctorate.

Based on the questionnaire, the participants answered that the source of information update is primarily scientific articles (99.1%), followed by recommendations from the Ministry of Health (85.4%) and congresses (72.6%). Books and other updating forms were the most frequently searched sources (59.8% and 11.9%, respectively).

Regarding attitudes and knowledge about PBE, the respondents were close to the maximum score in each item, as seen in Table 1.

**Table 1** – Description of the domains for evaluation Evidence-Based Practice (PBE). São Paulo, SP, Brazil, 2019

Domain Evaluated	Average	± SD	Median	(min; max)
Domain 1: Use of PBE	34.52	± 5.25	35	17; 42
Domain 2: Attitudes related to PBE	23.83	± 3.56	25	11; 28
Domain 3: Knowledge and skill about PBE	79.25	± 9.95	80	48; 98
Total Sum	137.38	±15.2	138	94; 168

\*Answers submitted on a Likert scale from 1 (never) to 7 (often). SD = standard deviation; Min.= minimum; Max. =maximum.

In the maximum score of the domain 1 the average was 34.52 out of a total of 42 points representing 80.9%, in the domain 2, the average was 23.83 the maximum score is 28, corresponding to 85.1%. The Domain 3 that had a maximum score of 98, and the average answers reached 79.25, that is, 80.9%. Thus, the three domains analyzed in the study reached an average score

of 137.3 out of the total of 168, 81.7% representing a significantly positive frequency. In a specific analysis of the 1 domain, corresponding to the use of PBE, Table 2 presents the items related to their attendance by the professors. It is possible to observe that the professors in their teaching practice seek evidence to remedy their doubts, associating them with their clinical practice.

**Table 2** – Use of PBE by professors (n=117) according to the answers of the item of domain 1. São Paulo, SP, Brazil, 2019

Domain Items 1*	Mean*± SD	Median (min; max)
1. How often do you have questions about your clinical practice/work?	5.51 ± 1.53	6 (1; 7)
2. How often did you seek evidences to answer your question?	6.17 ± 1.03	6 (2; 7)
3. How often did you critically evaluate all the literature found based on some established criteria?	5.43 ± 1.37	5 (1; 7)
4. How often did you combine the evidence found with your clinical experience?	6.10 ± 1.16	7 (2; 7)
5. How often have you evaluated the results of your practice?	5.72 ± 1.31	6 (2; 7)
6. How often did you share this knowledge with colleagues?	5.59 ± 1.37	6 (1; 7)

\* Responses to Domain 1 items. \*\* Mean responses scored on the Likert scale, from 1 (never) to 7 frequently. SD = standard deviation; Min. Minimum =; Max. =Maximum.

Table 3 depicts the descriptions of attitudes related to PBE, as evaluated in domain 2. It is possible to observe that the participants scored

a lower average, when compared to the others, of 5.12 (73%) of a total of 7, referring to the workload and the use of new evidences.

**Table 3** – Attitudes related to PBE according to the responses (n=117) of the item in the domain 2. São Paulo, SP, Brazil, 2019

Variables*	Mean*± SD Median (min; max)	Variables*
My workload is too big for me to keep me up to date with all the new evidence.	5.12 ± 1.34 4 (1; 7)	New evidence is so important that I set time for it on my work schedule.
I feel uncomfortable when my practice is questioned.	5.98 ± 1.30 6 (1; 7)	I welcome the questions about my practice openly.
Evidence-based practices are waste of time.	6.49 ± 1.28 7 (4; 7)	Evidence-based practices are fundamental to professional practice.
I maintain the use of tested and reliable methods instead of switching to something new.	6.25 ± 1.00 5 (1; 7)	My practice has changed due to the evidences I have found.

\* Responses to Domain 1 items. \*\* Mean responses scored on the Likert scale, from 1 (never) to 7 frequently. SD = standard deviation; Min. =minimum=; Max. =maximum.

The knowledge and skills of professors to develop the PBE are presented in Table 4. It is possible to

observe a mean of ≤ 5.5 in research skills, informatics and in monitoring and reviewing practices.

**Table 4** – Knowledge and skills of professors (n=117) for the PBE according to the evaluation of the domain 3. São Paulo, SP, Brazil 2019

<b>Variables*</b>	<b>Mean*± SD</b>	<b>Median (min; max)</b>
<b>Knowledge:</b>		
Knowledge of identifying the main types and sources of information	5.56 ± 0.92	6 (5; 7)
Knowledge on how to raise evidence	5.53 ± 1.05	6 (3; 7)
<b>Skills:</b>		
Ability to review your own practice	6.12 ± 0.85	6 (4; 7)
Ability to apply knowledge to individual cases	5.78 ± 0.96	6 (3; 7)
Dissemination of new ideas about care among colleagues	5.76 ± 1.11	6 (2; 7)
Ability to identify gaps in professional practice	5.74 ± 0.88	6 (3; 7)
Sharing your ideas and knowledge with co-workers	5.73 ± 1.09	6 (2; 7)
Ability to determine how valid the material is	5.69 ± 0.88	6 (3; 7)
Ability to determine how clinically applicable the material is	5.67 ± 0.96	6 (3; 7)
Ability to convert your knowledge needs into a research matter	5.65 ± 1.09	6 (3; 7)
Ability to critically analyze evidences against established standards	5.64 ± 0.97	6 (3; 7)
Skill in research	5.52 ± 0.91	6 (3; 7)
Skill in informatics	5.45 ± 1.04	6 (3; 7)
Skills of monitoring and review of practices	5.40 ± 0.98	5 (2; 7)

\* Responses to Domain 1 items. \*\* Mean responses scored on the Likert scale, from 1 (never) to 7 frequently. SD = standard deviation; Min. =minimum=; Max. =maximum.

When stratified by sex or by area of activity in teaching (according to the discipline he or she teaches), no statistical difference was observed between the groups ( $p > 0.05$  in all dimensions evaluated).

Observing a mean of  $\leq 5.5$  in research skills, informatics, and monitoring and reviewing practices is possible. The longer the training time and the working time as a professor, the higher the

score in the domain 3 related to knowledge and skill on the PBE ( $p:0.012$  and  $p:0.049$ , respectively). The same was observed in the total score of the instrument ( $p:0.003$  and  $p:0.032$ ).

The participants' self-perception of PBE in their teaching practice was also evaluated. It was observed that teachers understand the importance of PBE and use it as support in everyday teaching. Table 5 describes the results.

**Table 5** – Self-perception on Evidence-Based Practice in taught teaching (n=117). São Paulo, SP, Brazil, 2019

Self-perception of the interviewee	Mean*	± SD	Median	(Min; Max)
I believe that evidence-based practice (PBE) does not apply to the content I use in teaching.	2.96	± 2.22	2	1; 7
I understand the term Evidence-Based Practice (PBE) and I use in my daily life for teaching in undergraduate nursing.	6.00	± 1.18	6	2; 7

Self-perception of the interviewee	Mean*	± SD	Median	(Min; Max)
Before giving a theoretical or practical content I usually update on the subject	6.54	± 0.76	7	3; 7
I believe that evidence-based practice (PBE) does not apply to the content I use in teaching.	2.96	± 2.22	2	1; 7
I understand the term Evidence-Based Practice (PBE) and I use in my daily life for teaching in undergraduate nursing.	6.00	± 1.18	6	2; 7
Before giving a theoretical or practical content I usually update on the subject	6.54	± 0.76	7	3; 7

\* Means of the responses scored on the Likert scale, from 1 (never) to 7 frequently. SD = standard deviation; Min. =minimum=; Max. =maximum.

## DISCUSSION

As expected, survey studies have a low response rate, with an average of 20% responses. We reached a 21.3% response in the present study, similar to studies with this data collection methodology<sup>(16)</sup>.

The number of respondents who reported using PBE in teaching was considered high, corresponding to 86.3%. This finding corroborates the assertion that in 2000, the undergraduate nursing curricula did not consider the teaching of PBE. However, due to numerous governmental organizations stimulating evidence-based practice teaching, studies have emerged demonstrating the teaching of PBE in graduation and, in some circumstances, its superiority over traditional teaching<sup>(17-18)</sup>.

A recent study states that including PBE in the Nursing and Medicine curriculum is crucial so students can develop self-confidence, knowledge, and preparation for clinical practice, improving care and safety in patient care<sup>(17)</sup>.

Several methods were pointed out among the strategies teachers use for updating, such as congresses, systematic reviews, recommendations of the Ministry of Health and current books, and scientific articles, which are the most excellent updating strategies. Thus, since scientific articles are the most frequent updating strategy, it is imagined that the teaching practice among the respondents is to search for technical, reflective, critical, and updated training<sup>(19)</sup>.

The results about the frequency with which teachers use PBE to identify and respond to knowledge gaps, seek evidence in the literature, evaluate results, and share knowledge among colleagues, with a median of 5.7 on the Likert scale, leads us to infer that such teachers are based on knowledge produced for teaching and nursing care.

Orta and collaborators affirm that, despite the benefits of using PBE, nurses and professors present difficulties in both knowledge and attitudes and ability to teach about PBE<sup>(20)</sup>. The authors claim that professors emphasize teaching the research method rather than allowing students to connect scientific knowledge to clinical practice<sup>(21)</sup>.

In the present study, the positive skills of teachers to review their practices, apply knowledge to individual cases, identify gaps, and share information among colleagues. However, it is possible to identify fewer positive skills on the part of teachers regarding the use of informatics and monitoring and review of practices<sup>(21)</sup>. Thus, when analyzed from a current perspective, a barrier is that internet use is increasingly frequent, and studies<sup>(21-22)</sup> portray it as an essential tool to facilitate the search for evidence.. In addition, participants need more ability to develop research and knowledge on how to raise evidence. Another study, however, carried out only with nurses, identified some deficit in knowledge or ability to apply the PBE<sup>(22)</sup>.

Although the score reached regarding knowledge and ability to identify the main types and sources of information existing is 5.56, studies show that this is one of the main barriers to implementing PBE. The integrative review identified that the stage of identifying the best evidence to be applied in practice and how to make the transition process between theoretical and practical knowledge is one of the most significant barriers, as evidenced in another primary study<sup>(22)</sup>.

Another integrative review<sup>(21)</sup> that shows the barriers to the implementation of PBE, it was identified that the stage of knowing how to identify the best evidence to be applied in practice and how to make the transition process between theoretical and practical knowledge is one

of the most significant barriers, which is also evidenced in another primary study<sup>(22)</sup>.

Another study<sup>(2)</sup> also points out that professionals find it challenging to search for scientific evidence, have few basic skills in formulating research questions, and need help understanding the statistical terms used and critically evaluating the literature<sup>(24)</sup>. However, this barrier was not identified in the present study. Professors of public HEIs are constantly developing research in their respective areas of knowledge and, consequently, exhibit smaller gaps in knowledge, skills, and attitudes about the knowledge produced. The research question formulation has yet to be identified as a problem.

The present study did not evaluate whether the teacher can critically evaluate a scientific article, only if the same is considered able to do it. This ability to critically analyze evidence against established standards reached 5.64. Critically analyzing evidence is paramount to substantiate/discern the best evidence and assist decision-making in nurse practice. Selecting and reading scientific articles is not enough to determine the change in clinical practice; however, evaluating the quality of the article is a fundamental step in identifying whether a practice should be changed from new evidence. Professors who develop themselves and stimulate critical thinking in students conduct better results in practice<sup>(25)</sup> skill, which is essential for the critical analysis of a scientific article. Most of the evaluated (57.2%) have a doctorate; that is, they should be trained for research and consequently have developed the ability to perform the critical evaluation of the scientific article.

Regarding the attitudes of defining a time to update new evidence, participants scored an average of 5.12. The workload of professors and lack of time among nursing professionals were considered barriers to PBE<sup>(21-22)</sup>. However, professors presented positive attitudes when their practice was questioned, recognized that PBE is necessary, and changed their practices due to new evidence.

When analyzing variables such as sex, time of graduation, area of activity, and the correlation with the domains of EB PQ, only statistical difference was observed about the time of graduation, suggesting that the longer the time of graduation and work, the greater the use, the attitude, the knowledge, and skill of the PBE described by the respondent.

One study found higher EB PQ scores among nurses with master's or doctorate degrees, nur-

ses who were also educators, and lower scores among the instrument domains for nurses with only one undergraduate degree<sup>(26)</sup>. In another study, the authors identified that the level of master's and doctoral training improves the disposition of the use of PBE in the care practice<sup>(27)</sup>. The realization of the PBE requires both teaching/research and professional development through pedagogical preparation, developing constant skills among those who need to teach and those who apply PBE, without separating research from professional practice and the institutional context. Combining these factors is challenging for constructing evidence-based quality teaching<sup>(19)</sup>.

Therefore, inserting the PBE since the students' graduation is relevant and contributes to the graduation of professionals better prepared to consume and implement scientific evidence in professional practice. In this perspective, professors need to be involved in the real scenarios of assistance so that the teaching of the PBE is carried out in a responsible and committed way to integrate theory with practice, research, and clinical assistance. Students will be able to articulate their knowledge to solve real health problems, with professionals who work in care contributing to an interprofessional education<sup>(25)</sup>.

When students are inserted into the care reality, they may develop questions arising from clinical practice/care or doubt in the classroom, the search for the best available evidence, the evaluation of the evidence, and the attempt to implement/transform the reality that is, using the PBE allows different teaching methodologies, thinking and acting, in addition to the early stimulation of students with care practices and use of research to improve customer care<sup>(23)</sup>.

Therefore, it is essential to integrate discussions and actions in the nursing teaching scenario based on the concepts of PBE to build a teaching practice mediating stimuli to the critical-reflective graduation of the student<sup>(18)</sup>. Therefore, it is necessary to develop prospective studies that evaluate the impact of incorporating PBE in curricular disciplines and activities that approach the world of work to measure the impact of this nurse training on the quality of care in the health field. As limitations of the study, we consider the low number of questionnaire responses, although adequate according to studies that evaluate survey responses in which the response rate may vary between 20 and 80%<sup>(28)</sup> and have no response from teachers from most of the northern states of Brazil and some northeastern states.

## CONCLUSION

Most of the teachers interviewed consider using the PBE in the higher education scenario in which the same operates and presents skills, attitudes, and knowledge related to PBE. In a self-perception, the professors understand that PBE is essential for the development of undergraduate education since the same supports care practices based on scientific evidence.

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Most respondents acted as nurses before teaching, and most have a doctorate.

Studies that evaluate knowledge about the use of PBE may be complementary to the present study in the validation of the findings.

## CONFLICT OF INTERESTS

The authors have declared that there is no conflict of interests.



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**AUTHORSHIP CONTRIBUTIONS**

Project design: Penha SL, Santos KB dos, Fonseca CC, Messias CM, Püschel VA de

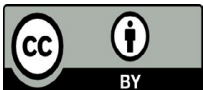
Data collection: Penha SL, Santos KB dos, Fonseca CC, Messias CM, Püschel VA de

Data analysis and interpretation: Penha SL, Santos KB dos, Fonseca CC, Messias CM, Püschel VA de

Writing and/or critical review of the intellectual content: Penha SL, Santos KB dos, Fonseca CC, Messias CM, Püschel VA de

Final approval of the version to be published: Penha SL, Santos KB dos, Fonseca CC, Messias CM, Püschel VA de

Responsibility for the text in ensuring the accuracy and completeness of any part of the paper: Penha SL, Santos KB dos, Fonseca CC, Messias CM, Püschel VA de



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