

## Traducción, adaptación cultural y validación preliminar de instrumentos para educadores de enfermería portugueses sobre práctica basada en la evidencia<sup>1</sup>

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### RESUMEN

El objetivo de este estudio es traducir y adaptar culturalmente al portugués europeo “EBP Beliefs Scale for Educators” (EBPB-E), “EBP Implementation Scale for Educators” (EBPI-E) y “Organizational Culture & Readiness for School-wide Integration of Evidence-based Practice Survey” para docentes (OCRSIEP-E); y presentar datos preliminares de validación. El estudio se realizó en dos fases: traducción y adaptación transcultural; y validación preliminar en docentes de enfermería de nueve escuelas de enfermería de Portugal. Las versiones pre-finales de los instrumentos se consideraron de fácil comprensión. Pero, los participantes sugirieron incluir la posibilidad de respuesta "no sé" y aumentar el período de recuerdo en el EBPI-E. 68 educadores participaron en la fase II. El  $\alpha$  para EBPB-E, EBPI-E y OCRSIEP-E fue 0,88, 0,95 y 0,94 y las correlaciones elemento-total corregidas entre los ítems y la puntuación total variaron de 0,20 a 0,75, 0,59 a 0,84 y -0,06 a 0,78, respectivamente. Los hallazgos preliminares mostraron una fuerte consistencia interna. Se concluye que se necesitan otros estudios de validación con muestras más robustas para probar la confiabilidad y la validez de los instrumentos.

**Palabras Clave:** Estudios-de-validación; Práctica-clínica-basada-en-la-evidencia; Educación-en-enfermería; docentes.

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## Translation, cross-cultural adaptation and preliminary validation of instruments for Portuguese nursing educators regarding evidence based practice<sup>1</sup>

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### ABSTRACT

The objective of this study is to translate and culturally adapt to European Portuguese “EBP Beliefs Scale for Educators” (EBPB-E), “EBP Implementation Scale for Educators” (EBPI-E) and “Organizational Culture & Readiness for School-wide Integration of Evidence-based Practice Survey” for Educators (OCRSIEP-E); and to provide preliminary validation data. The study was carried out in two phases: translation and transcultural adaptation; and preliminary validation in nursing educators of nine nursing schools in Portugal. Pre-final versions of the instruments were considered easy to understand. But, the participants suggested including the possibility of “I don't know” response and increasing the recall period in the EBPI-E. 68 educators participated in phase II. The  $\alpha$  for EBPB-E, EBPI-E and OCRSIEP-E was 0.88, 0.95 and 0.94 and the corrected element-total correlations between the items and the total score ranged from 0.20 to 0.75, 0.59 to 0.84 and -0.06 to 0.78, respectively. Preliminary findings showed a strong internal consistency. It is concluded that other validation studies with more robust samples are needed to prove the reliability and validity of the instruments.

**Keywords:** Validation-studies; Evidence-based-practice; Education-nursing; Professor.

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## Tradução, adaptação transcultural e validação preliminar de instrumentos para docentes de enfermagem portugueses sobre prática baseada na evidência<sup>1</sup>

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### RESUMO

O objetivo deste estudo é traduzir e adaptar culturalmente o português europeu “Escala de Crenças EBP para Educadores” (EBPB-E), “Escala de Implementação EBP para Educadores” (EBPI-E) e “Cultura Organizacional e Prontidão para Integração em toda a Escola de Pesquisa Prática Baseada em Evidências” para professores (OCRSIEP-E); e fornecer dados preliminares de validação. O estudo foi realizado em duas fases: tradução e adaptação transcultural; e validação preliminar em professores de enfermagem de nove escolas de enfermagem em Portugal. As versões pré-finais dos instrumentos foram consideradas fáceis de entender. Porém, os participantes sugeriram incluir a possibilidade de resposta "não sei" e aumentar o período de recall no EBPI-E. 68 educadores participaram da fase II. O  $\alpha$  para EBPB-E, EBPI-E e OCRSIEP-E foi de 0,88, 0,95 e 0,94 e as correlações elemento-total corrigidas entre os itens e a pontuação total variaram de 0,20 a 0,75, 0,59 a 0,84 e -0,06 a 0,78, respectivamente. Os resultados preliminares mostraram uma forte consistência interna. Conclui-se que outros estudos de validação com amostras mais robustas são necessários para comprovar a confiabilidade e validade dos instrumentos.

**Palavras-chave:** Educação-em-enfermagem; Estudos-de-validação; Prática-clínica-baseada-em-evidências; professores.

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## INTRODUCTION

Evidence-Based Practice (EBP) can be defined as a “clinical decision making that considers the best available evidence; the context in which the care is delivered; client preference; and the professional judgment of the health professional.”<sup>1, p. 2</sup> The EBP is not a new concept, however in the last decades it reached a great emphasis due to its recognition in the promotion of high-value health care, improvement of patient experience and health outcomes, and reduction of health care costs<sup>2</sup>. As a result, the EBP implementation in clinical contexts has been recommended by several organizations, such as the World Health Organization<sup>3, 4</sup>, the International Council of Nurses<sup>5</sup>, the Institute of Medicine<sup>6</sup>, the Directorate-General of Health with Portuguese National Health Plan 2012-2016<sup>7</sup>, and the National Council of Nursing<sup>8</sup>. Nevertheless, the use of research into practice by nurses remains under the desirable<sup>9-11</sup>.

In 2008, Melnyk and colleagues<sup>12</sup> argued that to promote the translation of evidence into clinical practice it is mandatory that on the one hand the clinical nurses must acquire EBP Knowledge and skills and develop strong beliefs regarding the EBP value; and, on the other hand, the educators must teach the EBP process to their students to infuse EBP skills in the future nurses. Indeed, the educators and the academic institutions play a fundamental role in narrowing the gap between the research and practice<sup>13-15</sup>. In a recent paper, Melnyk<sup>16</sup> reinforces this preponderant role of academic institutions and nursing educators in providing EBP competencies to their students. Already in 2015, Kalb and colleagues<sup>17</sup> stated that it was necessary to strengthen the educators' capacity to prepare their students to use EBP in clinical practice.

Nevertheless, there are several barriers to the EBP implementation in education, such as faculty aging<sup>18,19</sup>; lack of EBP knowledge, EBP understanding, and confidence in teaching EBP<sup>20,21</sup>; lack of time, resources and support to promote and teaching EBP<sup>20,21</sup>; and inconsistency between academic and clinical teaching contexts<sup>21</sup>.

Whereas, despite these barriers, it is urgent to incorporate EBP competencies in nursing education programs. Strong EBP beliefs and confidence in the ability to implement EBP of educators as well as an organizational culture that supports the EBP use are key factors to successfully integrate EBP in educational programs. Thus, it is important to understand the nursing educators' beliefs regarding EBP, their degree of EBP implementation and the readiness for school-wide integration of EBP.

Within the Portuguese context, there are no instruments available to characterize and understand today's Portuguese reality of nursing education institutions about the readiness of EBP integration; nurse educators' EBP beliefs and the extent of their EBP implementation. To have these instruments is of major importance to characterize and understand the Portuguese current reality and, therefore, to plan an appropriate integration of EBP in nursing schools.

As such, the objective of this study was to translate and cross-cultural adapt to European Portuguese the instruments “EBP Beliefs Scale for Educators” (EBPB-E), “EBP Implementation Scale for Educators” (EBPI-E) and “Organizational Culture & Readiness for School-wide Integration of Evidence-based Practice Survey” for educators (OCRSIEP-E). Moreover, this study intended to provide some preliminary validation data of these European Portuguese versions.



## MATERIALS AND METHODS

This study was conducted in two phases from 2017–2018. The phase I consisted of translation and cross-cultural adaptation of the EBPB-E, EBPI-E, and OCRSIEP-E. Phase II consisted of the preliminary validation of these versions in Portuguese nursing educators.

### Instruments

The instruments EBPB-E, EBPI-E, and OCRSIEP-E were developed by Fineout-Overholt and Melnyk.

The EBPB-E instrument assesses health profession educators' beliefs regarding EBP and the confidence in their capacity to teach and implement EBP. It is a 22-item instrument with a 5-point Likert scale (1= Strongly Disagree to 5= Strongly Agree). Two of the 22 items are reverse-scored items (Item 12 = “I believe that EBP takes too much time.” and Item 14 = “I believe EBP is difficult.”). The total score ranges from 22 to 110 meaning that higher scores signify stronger EBP beliefs regarding EBP and the confidence in the capacity of health profession educators to teach and implement EBP. A score higher than 88 indicates a strong belief in and confidence about teaching EBP. This scale has reliability with internal consistency  $>.85^{22}$ .

The EBPI-E is a self-report instrument with 18 items that assess the EBP implementation of the health profession educators considering the engagement in expected behaviors of evidence-based educators in the last eight weeks. The total score of EBPI-E ranged from 18 to 90. Each item is scored with a 5-point scale (0 = 0 times; 1 = 1-3 times; 2 = 4-5 times, 3 = 6-8 times, 4 = more than 8 times). A total score below 72 indicates that educators are not implementing EBP within the educational learning environment<sup>22</sup>.

The OCRSIEP-E is a self-report instrument with 25 items. It measures the readiness for school-wide integration of EBP and factors that influence the EBP implementation within an academic setting. Each item is scored with a 5-point scale (1= none at all to 5= very much) and the OCRSIEP-E total score ranges from 25-125. “Scores greater than 75 demonstrate moderate movement toward a culture of EBP, but not yet sustainable; scores  $<75$  indicate an opportunity for growth within the educational setting to move toward a culture of EBP; scores  $100<$  indicate essential movement toward a sustainable culture of school-wide EBP”<sup>22, p.1</sup>.

All the instruments described in this section has consistently performed reliability with internal consistency  $>.85^{22}$ .

### Phase I – Translation and Cross-Cultural Adaptation

To preserve the content validity of the instrument, the translation and cross-cultural adaptation of the EBPB-E, EBPI-E, and OCRSIEP-E into European Portuguese were performed following the guidelines provided by Beaton et al<sup>23</sup>. for the cross-cultural adaptation of self-report measures. These guidelines recommended 5 stages, as outlined below.

**Stage I – Initial translation:** two bilingual translators, whose first language is the European Portuguese, produced two versions (including item content, response options, and instructions) of the instruments in an



independent way. One of the translators was familiar with the concepts used in the questionnaires. Another one was a naive translator, which means that she was not aware of the concepts being measured.

**Stage II – Synthesis of the translations:** the two translators prepared one common translation (T-12) based on the original questionnaires and on the first (T1) and second (T2) translators’ versions.

**Stage III – Back translation:** to ensure that the translated versions reflected adequately the original versions of the three instruments, two translators (native English speakers and without knowledge of the original version of the instruments) performed, independently, the back translations (BT1 and BT2). Both translators were not aware of the concepts being measured.

**Stage IV – Expert committee:** 7 experts (health professionals, persons with experience in validation studies, language professionals, and translators) analyze all the instrument versions and developed the prefinal versions of each one. Whenever required, one of the original authors of the instruments was contacted to clarify some issues in order to make a final decision. In this stage, the expert committee achieved equivalence between the original and target versions in four areas (semantic equivalence, idiomatic equivalence, experiential equivalence, and conceptual equivalence).

**Stage V – Test of the prefinal versions:** the prefinal version of the Portuguese translation of each instrument was tested in a sample of nursing educators/faculties. Each participant completes the instruments and a brief questionnaire (presented in Figure 1) regarding the comprehensibility of each item.

**Figure 1.** A brief questionnaire applied to each participant in the test of the prefinal version of each instrument.

<p>In your opinion: Do you consider the items statements are written clearly? Yes                      No</p> <p>If not, which are not clear and why?</p>
<p>If you did not rate one or more items, please list them and identify the reason(s) using the following statements:</p> <ul style="list-style-type: none"> <li>- I did not classify the item(s) number _____ because I have no knowledge that allows me to classify.</li> <li>- I did not rate the item(s) number _____ because the statement is not clear.</li> <li>- I did not rate the item(s) number _____ because _____</li> </ul>
<p>If you wish, please leave any additional comments:</p>



## **Phase II – Preliminary Validation**

Educators of nine nursing schools in Portugal were included. The three main Portuguese nursing education institutions were selected. These three institutions are not integrated into a polytechnic institute or university. The remaining six institutions were randomly selected (one institution from Polytechnic and one from university in each Continental Portugal region – north, center, and south). Ten socio-demographic questions and the three Advancing Research & Clinical practice through close Collaboration & Education (ARCC-E) EBP in Education questionnaires (total 65 items) were included in the online survey.

## **Statistical analysis**

The Statistical Package for the Social Science Software (version 24.0; SPSS Inc., Chicago, IL, USA) was used to perform all the statistical analyses. A descriptive analysis was performed regarding the socio-demographic data to characterize the sample. The internal consistency of the European Portuguese version of the EBPB-E, EBPI-E and OCRSIEP-E instruments was assessed with Cronbach's alpha coefficient, corrected item-total correlation and with the means by item.

## **Ethical Consideration**

The original authors of the instruments were contacted and have consented the translation, cross-cultural adaptation, and validation of the instruments to the European Portuguese. The study was approved by the Ethical Committee of the Faculty of Medicine of the University of Coimbra (Reference: CE-037/2017). Moreover, all the institutions in which the study was carried out provided written approval. Informed consent was obtained from participants and all the collected data were processed in a confidential way.

## **RESULTS**

### **Phase I – Translation and Cross-Cultural Adaptation**

The stage I, II and III of the translation and cross-cultural adaptation phase proceeded smoothly. However, at stage IV, the expert panel through consensus meetings suggested some changes to clarify and adapt the instruments to the Portuguese context.

The term “patients” was translated for “utentes”, which is more appropriate within the Portuguese context when we want to mention a person who is a user of health services regardless of whether the person is ill or not.

The expert panel decided to translate the expression “evidence-based guidelines” to “diretrizes/orientações (guidelines) baseadas em evidência”. In this case, the term “guidelines” was maintained between brackets, because some Portuguese educators more readily recognize this foreignism.

It was very difficult to find an adequate translation of the English expression “a time-efficient way”. After some discussion of the expert panel, it decided to use the expression “adequadamente e em tempo útil”, because this expression gives an indication of the efficiency in terms of time and adequacy.



To improve the understanding of the phrase “critically appraising evidence”, it was used the translation “avaliação da qualidade metodológica” plus the phrase “critically appraising” between brackets once it was an English expression readily recognize in Portugal.

Regarding the EBPI-E instrument, the item 1 (“Used evidence to change my teaching...”) was clarified using additional information between brackets [Utilizei evidência para mudar o meu ensino (processo, conteúdos, etc)]. The items 12 and 13 were adapted to accept other systematic reviews (item 12) and guidelines (item 13) databases beyond the Cochrane database of systematic reviews and the National Guidelines Clearinghouse. The item 12 were adapted from “Accessed the Cochrane database of systematic reviews...” to “Acedi a base(s) de dados de revisões sistemáticas (por exemplo, Cochrane database of systematic reviews)” and the item 13 from “Accessed the National Guidelines Clearinghouse...” to “Acedi a base(s) de dados de Diretrizes/orientações (guidelines) (por exemplo, National Guidelines Clearinghouse)”.

Concerning the OCRSIEP-E, the expert panel decided to add the following note for the first time the term “mentor” appears to clarify its meaning: Mentors de PBE: pessoa confiável com conhecimentos e treino avançado em PBE que orienta, promove a autoconfiança e infunde valores no aprendiz.

Furthermore, some terms/expressions were adapted to the Portuguese nursing education context, such as “community partners” (instituições parceiras onde decorrem os ensinamentos clínicos/prática clínica), “clinical faculty” (assistentes convidados/auxiliares pedagógicos), “junior faculty” (professores adjuntos), and “senior faculty” (professores coordenadores/professores coordenadores principais). Item 17 was divided into 3 subitems, besides the adaptation of some expressions (from “College administration” to “Direção da escola” and from “University administration” to “Direção da universidade/instituto politécnico”), the expert panel agreed on the inclusion of a note in sub item 17.3; because there are nursing schools in Portugal that are not integrated in universities or polytechnics and, considering this, the participants included in this type of schools should select the same answer to item 17.2 and 17.3. The note added was “Nas escolas não integradas em universidades ou institutos politécnicos a resposta a esta pergunta deverá ser a mesma que a da pergunta anterior”.

After these modifications, the expert committee produced and agreed on the prefinal versions of the Portuguese translation.

Twenty-one Portuguese nursing educators, five males and 16 females aged between 30 and 62 years, participated in the stage V. They completed a questionnaire (already presented in Figure 1), by each instrument, regarding the comprehensibility of each item. In general, these educators considered that the items were understood, but they suggested two important modifications. They suggested the inclusion of another answer option – I do not have enough knowledge to allow me to answer [Não tenho conhecimento suficiente que me permita responder] – and they recommended to change the recall period of the EBPI-E from 8 weeks to one year. These suggestions were analyzed and included in the final versions of the instruments. The answer option “I do not have enough knowledge to allow me to answer” was made available for the participants, but this answer option was not scored and participants that use this option to at least one item were removed from the analysis.





## Phase II – Preliminary Validation

A total of 68 educators with an average age of 52.87 years (SD = 7.45; range: 29 – 64) answered the online questionnaire. Table 1 shows the socio-demographic characterization of the total sample. A large majority of the sample was female (n = 52, 76.5%). More than half of the participants have a Ph.D. (n = 46, 67.6%) and 44 of the 68 educators participate in some form of EBP training (n = 44, 64.7%). The majority of the participants were from the main Portuguese nursing education institutions - not integrated into a polytechnic institute or university (n = 38, 55.88%).

**Table 1. Socio-demographic characterization of the sample (n = 68, data collection in 2018)**

<b>Age in years, mean ± SD (Min – Max)</b>	52.87 ± 7.45 (29 – 64)
<b>Female, n (%)</b>	52 (76.5)
<b>Male, n (%)</b>	16 (23.5)
<b>Education</b>	
<b>Graduation, n (%)</b>	2 (2.9%)
<b>Master, n (%)</b>	19 (27.9%)
<b>Ph.D., n (%)</b>	46 (67.6%)
<b>Aggregation, n (%)</b>	1 (1.5%)
<b>EBP training</b>	
<b>Yes, n (%)</b>	44 (64.7%)
<b>No, n (%)</b>	24 (35.3%)
<b>Nursing School</b>	
<b>Not integrated, n (%)</b>	38 (55.88%)
<b>Integrated into University, n (%)</b>	18 (26.47%)
<b>Integrated into Polytechnic Institute, n (%)</b>	12 (17.65%)

SD = Standard deviation; *Min* = Minimum; *Max* = Maximum

## Preliminary Validation of the EBPB-E

For the internal consistency analysis of the EBPB-E, responses from 50 of the 68 educators who did not choose the answer option *I do not have enough knowledge to allow me to answer* in one or more items were included in the preliminary analysis. These 50 educators had an average age of 53.16 years (SD = 6.62; range: 29 – 64). A large majority of this sample was female (n = 36, 72.0%), with more than half of the participants having Ph.D. preparation (n = 36, 72.0%) and participates in some form of EBP training (n = 37, 74.0%). The majority of these samples were from the main Portuguese nursing education institutions - not integrated into a polytechnic institute or university (n = 28, 56.0%).

The 18 educators, of the 68, who chose the answer option *I do not have enough knowledge to allow me to answer* in one or more items, were excluded from this analysis. The average age of this group was 52.06 years (SD = 9.58; range: 32 – 63). A large majority of these educators was female (n = 16, 88.9%), more than half have Ph.D.

(n = 10, 55.6%) and are from the main Portuguese nursing education institutions - not integrated into a polytechnic institute or university (n = 10, 55.6%). However, the majority of these educators did not report participating in some form of EBP training (n = 11, 61.1%).

The item means the EBPB-E range between 3.22 (item 14) and 4.82 (item 5). The EBPB-E had high strong internal consistency ( $\alpha = 0.88$ ) and the corrected item-total correlations ranged between 0.20 and 0.75, representing a moderate to a strong correlation between the items and total score (Table 2).

**Table 2. Item Mean, Standard deviation of the item, Corrected Item-Total Correlation and Cronbach's Alpha if Item Deleted of the EBPB-E (n = 50, data collection in 2018)**

Items	Item Mean	Standard deviation of the item	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Item 1	4.74	.443	.294	.882
Item 2	4.38	.697	.569	.875
Item 3	4.02	.622	.532	.876
Item 4	4.60	.571	.538	.877
Item 5	4.82	.388	.340	.881
Item 6	4.12	.773	.433	.879
Item 7	4.14	.606	.748	.871
Item 8	3.78	.545	.525	.877
Item 9	3.64	.693	.490	.877
Item 10	4.50	.580	.203	.885
Item 11	3.80	.728	.535	.876
Item 12	3.40	.969	.433	.881
Item 13	3.78	.764	.688	.871
Item 14	3.22	1.016	.209	.891
Item 15	3.78	.648	.526	.877
Item 16	3.60	.756	.664	.872
Item 17	4.06	.740	.230	.885
Item 18	3.80	.728	.704	.871
Item 19	4.48	.544	.355	.881
Item 20	3.92	.634	.749	.870
Item 21	4.34	.688	.654	.873
Item 22	4.00	.756	.300	.883

### *Preliminary Validation of the EBPI-E*

For the internal consistency analysis of the EBPI-E, responses from 55 of the 68 educators who did not choose the answer option *I do not have enough knowledge to allow me to answer* in one or more items were included in the preliminary analysis. These 55 educators had an average age of 52.15 years (SD = 7.83; range: 29 – 63). A large majority of these educators was female (n = 41, 74.5%). More than half of this sample have Ph.D. (n = 37, 67.3%) and reported participating in some form of EBP training (n = 40, 72.7%). The majority of the participants are from the main Portuguese nursing education institutions - not integrated into polytechnic institute or university (n = 36, 65.5%).

The 13 educators who chose the answer option *I do not have enough knowledge to allow me to answer* in one or more items were excluded from this analysis. The average age of this group was 55.92 years (SD = 4.68; range: 48 – 64), with a large majority of the sample female (n = 11, 84.6%) and Ph.D.-prepared (n = 9, 69.2%). Nevertheless, the majority of this sample did not participate in some form of EBP training (n = 9, 69.2%). Two participants (15.4%) are from the main Portuguese nursing education institutions - not integrated into polytechnic institute or university; five participants (38.5%) are from nursing schools integrated into Polytechnic institutes, and six participants (46.2%) are from nursing schools integrated into universities.

The item means of the EBPI-E range between 1.38 (item 15) and 3.11 (item 12). The EBPI-E presents an alpha Cronbach of 0.95 and the corrected item-total correlations ranged between 0.59 and 0.84, representing a moderate to a strong correlation between the items and total score (Table 3).

**Table 3. Corrected Item-Total Correlation and Cronbach Alpha if Item Deleted of the EBPI-E (n = 55, data collection in 2018)**

Item	Item Mean	Standard deviation of the item	Corrected Item-Total Correlation	Cronbach Alpha if Item Deleted
Item 1	2.93	1.260	.594	.954
Item 2	2.40	1.422	.835	.950
Item 3	2.49	1.399	.795	.951
Item 4	2.75	1.294	.737	.952
Item 5	2.58	1.329	.748	.951
Item 6	2.29	1.524	.737	.952
Item 7	1.51	1.345	.649	.953
Item 8	2.35	1.456	.792	.951
Item 9	3.00	1.291	.802	.951
Item 10	1.73	1.533	.694	.952
Item 11	2.31	1.464	.768	.951
Item 12	3.11	1.272	.699	.952
Item 13	2.36	1.568	.685	.953
Item 14	1.49	1.386	.642	.953
Item 15	1.38	1.284	.617	.953
Item 16	1.60	1.486	.683	.952
Item 17	1.85	1.367	.733	.952
Item 18	2.07	1.476	.697	.952

#### *Preliminary Validation of the OCRSIEP-E*

For the internal consistency analysis of the OCRSIEP-E, responses from 34 of the 68 educators who did not choose the answer option *I do not have enough knowledge to allow me to answer* in one or more items were included in the preliminary analysis. These 34 educators had an average age of 53.74 years (SD = 4.45; range: 43 – 61). The majority of this sample was female (n = 22, 64.7%), have Ph.D. (n = 27, 79.4%), participate in some form of EBP training (n = 26, 76.5%) and are from the main Portuguese nursing education institutions - not integrated into polytechnic institute or university (n = 20, 58.9%).



The 34 educators who chose the answer option *I do not have enough knowledge to allow me to answer* in one or more items were excluded from this analysis. The average age of this group was 52.00 years (SD = 9.56; range: 29 – 64). The majority of this sample was female (n = 30, 88.2%), have Ph.D. (n = 19, 55.9%), participate in some form of EBP training (n = 18, 52.9%) and are from the main Portuguese nursing education institutions - not integrated into polytechnic institute or university (n = 18, 52.9%). The item means of the OCRSIEP-E range between 2.50 (item 13) and 4.50 (item 10). The OCRSIEP-E had high strong internal consistency ( $\alpha = 0.94$ ) and the corrected item-total correlations ranged between -0.06 and 0.78, representing a low to moderate correlation between the items and total score, including one negative correlation (Table 4).

**Table 4. Corrected Item-Total Correlation and Cronbach Alpha if Item Deleted of the OCRSIEP-E (n = 34, data collection in 2018)**

Item	Item Mean	Standard deviation of the item	Corrected Item-Total Correlation	Cronbach Alpha if Item Deleted
Item 1	3.26	1.214	.705	.933
Item 2	3.21	1.095	.751	.933
Item 3	3.38	1.074	.719	.933
Item 4	2.65	1.098	.759	.933
Item 5	3.09	1.288	.513	.936
Item 6	3.29	1.115	.668	.934
Item 7	3.32	1.173	.656	.934
Item 8	3.21	1.038	.411	.937
Item 9	3.21	1.008	.730	.933
Item 10	4.50	.707	.404	.937
Item 11	3.97	.717	.454	.937
Item 12	3.24	1.327	.421	.938
Item 13	2.50	1.308	.635	.934
Item 14	2.68	1.065	.448	.937
Item 15	3.29	1.244	.650	.934
Item 16	2.97	1.141	.786	.932
Item 17	2.65	1.125	.732	.933
Item 18	3.26	1.136	.778	.932
Item 19	3.18	1.141	.761	.932
Item 20	2.97	1.193	.670	.934
Item 21	2.85	.892	.637	.935
Item 22	3.74	1.024	.266	.939
Item 23	3.85	1.048	-.058	.943
Item 24	3.41	1.131	.663	.934
Item 25	2.91	1.164	.660	.934

## DISCUSSION

The EBPB-E, EBPI-E, and OCRSIEP-E are the first instruments translated for the European Portuguese to assess nursing educators' beliefs regarding EBP, their degree of EBP implementation and the readiness for school-wide integration of EBP. Overall, the translation and cross-cultural adaptation of the three instruments was uneventful. The European Portuguese versions of the three instruments showed high strong internal consistency and low to a strong correlation between the items and total score, exception made for the item 23 of the European Portuguese version of the OCRSIEP-E that shown a negative correlation with the total score. This negative correlation might



occur because of a cultural issue. In Portugal, there are three different kinds of public nursing educational institutions: a) schools integrated into universities (SIU); b) schools integrated into polytechnic (SIP); and c) schools that are independent and not integrated into universities nor polytechnic (IND; each with self-administration). In the SIU and SIP schools, the decisions can be generated by all three options – educators, college administration (board of the school), or university/polytechnic administration. However, in the IND schools, decisions can be generated only two of the options: educators/faculties or college administration (board of the school) as there is no university/polytechnic administration. Consequently, we added the following note to item 23: “In schools not integrated into universities or polytechnic institutes the answer to this question should be the same as in the previous question”. Despite this negative correlation, the value of the overall information from the EBPB-E, EBPI-E, and OCRSIEP-E, precludes a focus on this one item.

Moreover, the acceptance of the adaptations of the original scales by the expert panel, specifically the inclusion of another answer option, *I do not have enough knowledge to allow me to answer*, and the change of the EBPI-E recall period from 8 weeks to one year, in the Stage V (Test of the prefinal versions) of the Translation and Cross-Cultural Adaptation phase need to be discussed.

Considering that the participants of pre-test suggested inclusion of “*I do not have enough knowledge to allow me to answer*” as an answer option and, additionally, we are aware that some potential participants do not have enough knowledge that allows them to answer to certain items, we decided to provide this as a possible of answer in all instruments. Indeed, we reflect that if this answer option were not provided to the participants, many of them could be a force to guess the answer and, so, lead to data contamination. It should be noted that the “*I do not have enough knowledge to allow me to answer*” options in each scale were not scored, and participants that used this option to at least one item were removed from the analysis. That said, this answer option was useful for providing a method for ensuring that only those participants perceived they had the knowledge required to answer the questions were included in the analysis. The enriched data in this descriptive study in the specific context of Portugal was beneficial

Additionally, we analyzed the proposed change to the EBPI-E recall period from 8 weeks to one year by Stage V participants. The expert panel argued that 8 weeks was a limited timeframe because, in the specific nursing educational context of Portugal, there are some periods of the academic year with more intensification of educational activities than other periods (such as holidays, exams seasons). According to this, if we consider only a period of 8 weeks, for example immediately after the holidays, the data will not accurately represent the degree of EBP implementation by educators. For that reason, we change the EBPI-E recall period for one year. However, some literature showed that the data accuracy decreases as the recall period increases<sup>24, 25</sup>, because long recall periods encourage participants to guess and estimate the answer<sup>26, 27</sup>. Thus, a year of recall period could be too long for recall to be reliable and, consequently, the participants may only provide social acceptability responses. Moreover, the reason to extend the recall period may be put into question, because nowadays nursing educators should engage in EBP activities throughout the year regardless of the academic cycles. If educators are not engaged in EBPI activities within 8 weeks, then their engagement in these activities likely is not driven by their foundational integration of EBP into how they approach problem-solving and can be representative of artificially using EBP only when they are actively teaching students. Therefore, this recommendation puts in question the validity of the EBPI-E as it was not designed for such long recall.



## Limitations

The small sample size was a limitation of this study. In fact, according to Streiner and Norman<sup>28</sup> for a Cronbach's alpha of 0.70 (confidence interval=±0.10) the sample size must be 300 participants. Moreover, to perform exploratory and confirmatory factor analysis, the sample size must be based on a ratio of 10 participants by each item.<sup>29</sup> Therefore, to perform these analyses it is needed at least 250 participants, since of the three instruments the one with more items has 25 items. Furthermore, extending the recall time frame of the EBPI-E may have affected the validity of the instrument.

## CONCLUSION

The European Portuguese versions of the EBPB-E, EBPI-E and OCRSIEP-E instruments presented in this paper are the first instruments translated for European Portuguese to assess nursing educators' beliefs about and confidence in their ability to practice EBP in education, their degree of EBP implementation in education and their perception of organizational culture and readiness for school-wide integration of EBP. The European Portuguese versions of the EBPB-E, EBPI-E, and OCRSIEP-E showed strong internal consistency.

More research studies with larger samples are needed to further establish the psychometric properties of the European Portuguese versions of the instruments.

## CONFLICT OF INTEREST

The authors declare no conflict of interest.

## BIBLIOGRAPHIC REFERENCES

1. Pearson A, Jordan Z, Munn Z. Translational science and evidence-based healthcare: a clarification and reconceptualization of how knowledge is generated and used in healthcare. *Nursing Research and Practice*. 2012. 1-6. DOI: <http://dx.doi.org/10.1155/2012/792519>
2. Melnyk BM, Gallagher-Ford L, Long LE, Fineout-Overholt E. The establishment of evidence-based practice competencies for practicing registered nurses and advanced practice nurses in real-world clinical settings: proficiencies to improve healthcare quality, reliability, patient outcomes, and costs. *Worldviews on Evidence-Based Nursing*. 2014; 11(1): 5-15. DOI: <https://doi.org/10.1111/wvn.12021>
3. World Health Organization. World report on knowledge for better health: strengthening health systems. 2004. Available from: [https://www.who.int/rpc/meetings/en/world\\_report\\_on\\_knowledge\\_for\\_better\\_health2.pdf](https://www.who.int/rpc/meetings/en/world_report_on_knowledge_for_better_health2.pdf)
4. World Health Organization. European strategic directions for strengthening nursing and midwifery towards Health 2020 goals. Copenhagen, Denmark: 2015. Available from:



[http://www.euro.who.int/\\_data/assets/pdf\\_file/0004/274306/European-strategic-directions-strengthening-nursing-midwifery-Health2020\\_en-REV1.pdf?ua=1](http://www.euro.who.int/_data/assets/pdf_file/0004/274306/European-strategic-directions-strengthening-nursing-midwifery-Health2020_en-REV1.pdf?ua=1)

5. International Council of Nurses. Closing The Gap: From Evidence to Action. Geneva, Switzerland: 2012. Available from: <https://www.nursingworld.org/~4aff6a/globalassets/practiceandpolicy/innovation--evidence/ind-kit-2012-for-nnas.pdf>
6. Institute of Medicine. Leadership Commitments to Improve Value in Health Care: Finding Common Ground: Workshop Summary. Washington, DC: 2009. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK52851/>
7. Directorate-General of Health, Ministry of Health. National Health Plan 2012-2016. Lisbon, Portugal: 2012. Available from: <http://pns.dgs.pt/pns-versao-completa/>
8. Ordem dos Enfermeiros. Tomada de Posição sobre Investigação em Enfermagem. Lisboa, Portugal: 2006 Available from: [http://www.ordemenfermeiros.pt/tomadasposicao/Documents/TomadaPosicao\\_26Abr2006.pdf](http://www.ordemenfermeiros.pt/tomadasposicao/Documents/TomadaPosicao_26Abr2006.pdf)
9. Duncombe D. A multi-institutional study of the perceived barriers and facilitators to implementing evidence-based practice. Journal of Clinical Nursing. 2018; 27(5-6): 1216-26. DOI: <https://doi.org/10.1111/jocn.14168>
10. Fink R, Thompson CJ, Bonnes D. Overcoming barriers and promoting the use of research in practice. The J Nurs Adm. 2005; 35(3): 121-9. DOI: [10.1097/00005110-200503000-00005](https://doi.org/10.1097/00005110-200503000-00005)
11. Melnyk BM, Fineout-Overholt E, Gallagher-Ford L, Kaplan L. The state of evidence-based practice in US nurses: critical implications for nurse leaders and educators. The Journal of nursing administration. 2012;42(9):410-7. DOI: <https://doi.org/10.1097/NNA.0b013e3182664e0a>
12. Melnyk BM, Fineout-Overholt E, Feinstein NF, Sadler LS, Green-Hernandez C. Nurse practitioner educators' perceived knowledge, beliefs, and teaching strategies regarding evidence-based practice: implications for accelerating the integration of evidence-based practice into graduate programs. Journal of professional nursing: official journal of the American Association of Colleges of Nursing. 2008; 24(1): 7-13. DOI: <https://doi.org/10.1016/j.profnurs.2007.06.023>
13. Asokan G. Evidence-based practice curriculum in allied health professions for teaching-research-practice nexus. Journal of Evidence-Based Medicine. 2012; 5(4): 226-31. DOI: <https://doi.org/10.1111/jebm.12000>
14. Black AT, Balneaves LG, Garossino C, Puyat JH, Qian H. Promoting evidence-based practice through a research training program for point-of-care clinicians. The Journal of nursing administration. 2015; 45(1): 14. DOI: <https://doi.org/10.1097/NNA.0000000000000151>



15. Mohsen MM, Safaan NA, Okby OM. Nurses' Perceptions and Barriers for Adoption of Evidence Based Practice in Primary Care: Bridging the Gap. *American Journal of Nursing Research*. 2016; 4(2): 25-33. DOI: <https://doi.org/10.12691/ajnr-4-2-1>
16. Melnyk BM. Breaking Down Silos and Making Use of the Evidence-Based Practice Competencies in Healthcare and Academic Programs: An Urgent Call to Action. *Worldviews on Evidence-Based Nursing*. 2018; 15(1): 3-4. DOI: <https://doi.org/10.1111/wvn.12271>
17. Kalb KA, O'Conner-Von SK, Brockway C, Rierson CL, Sendelbach S. Evidence-Based Teaching Practice in Nursing Education: Faculty Perspectives and Practices. *Nursing education perspectives*. 2015; 36(4): 212-9. DOI: <https://doi.org/10.5480/14-1472>
18. Kaufman KA. Findings from the 2009 faculty census. *Nursing Education Perspective*. 2010; 31(6):404–405. Available from: [https://journals.lww.com/neonline/Citation/2010/11000/Findings\\_from\\_the\\_2009\\_Faculty\\_Census\\_Study.21.aspx](https://journals.lww.com/neonline/Citation/2010/11000/Findings_from_the_2009_Faculty_Census_Study.21.aspx)
19. PORDATA. Índice de envelhecimento dos docentes do ensino superior: total, por subsistema e por tipo de ensino. Available from: <https://www.pordata.pt/DB/Portugal/Ambiente+de+Consulta/Tabela>
20. Stichler JF, Fields W, Kim SC, Brown CE. Faculty Knowledge, Attitudes, and Perceived Barriers to Teaching Evidence-Based Nursing. *Journal of Professional Nursing*. 2011; 27(2): 92-100. DOI: <https://doi.org/10.1016/j.profnurs.2010.09.012>
21. Upton P, Scurlock-Evans L, Williamson K, Rouse J, Upton D. The evidence-based practice profiles of academic and clinical staff involved in pre-registration nursing students' education: A cross sectional survey of US and UK staff. *Nurse education today*. 2015; 35(1): 80-5. DOI: <https://doi.org/10.1016/j.nedt.2014.06.006>
22. Fineout-Overholt, E. (2018). *ARCC-E EBP in Education Scales: Scoring & Interpretation Monograph*. Hallsville, TX: Dr. EFO.
23. Beaton DE, Bombardier C, Guillemin F, Ferraz MB. Guidelines for the process of cross-cultural adaptation of self-report measures. *Spine*. 2000; 25(24): 3186-91. DOI: <https://doi.org/10.1097/00007632-200012150-00014>
24. Clarke PM, Fiebig DG, Gerdtham UG. Optimal recall length in survey design. *Journal of health economics*. 2008; 27(5): 1275-84. DOI: <https://doi.org/10.1016/j.jhealeco.2008.05.012>
25. Stull DE, Leidy NK, Parasuraman B, Chassany O. Optimal recall periods for patient-reported outcomes: challenges and potential solutions. *Current medical research and opinion*. 2009; 25(4): 929-42. DOI: <https://doi.org/10.1185/03007990902774765>





26. Brown NR. Encoding, representing, and estimating event frequencies: A multiple strategy perspective. ETC Frequency processing and cognition. New York, NY, US: Oxford University Press; 2002. p. 37-53. <https://doi.org/10.1093/acprof:oso/9780198508632.003.0003>
27. Blair E, Burton S. Cognitive Processes Used by Survey Respondents to Answer Behavioral Frequency Questions. Journal of Consumer Research. 1987; 14(2): 280-8. <https://www.jstor.org/journal/jconsrese?refreqid=excelsior%3Ae32091a65e9b0bd41d8aa8a2f44299c6>
28. Streiner, D. L., Norman, G. R. Health measurement scales: a practical guide to their development and use. 2008. New York, USA: Oxford University Press. [https://naziracalleja.weebly.com/uploads/5/6/2/7/56279085/streiner\\_norman\\_y\\_cairney\\_health\\_measurement\\_scales\\_a\\_practical\\_guide\\_to\\_their\\_development\\_and\\_use.pdf](https://naziracalleja.weebly.com/uploads/5/6/2/7/56279085/streiner_norman_y_cairney_health_measurement_scales_a_practical_guide_to_their_development_and_use.pdf)
29. DeVellis, R. F. Scale development: Theory and applications (Vol. 26). 2016. Chapel Hill, USA: Sage publications. [https://books.google.co.cr/books?hl=es&lr=&id=231ZDwAAQBAJ&oi=fnd&pg=PT15&dq=DeVellis,+R.+F.+Scale+development:+Theory+and+applications+\(Vol.+26\).+2016.+Chapel+Hill,+USA:+Sage+publications.&ots=hE4VCtA7Mx&sig=2gqGXqKuebHZo-ucuEzXfHo-jjI#v=onepage&q&f=false](https://books.google.co.cr/books?hl=es&lr=&id=231ZDwAAQBAJ&oi=fnd&pg=PT15&dq=DeVellis,+R.+F.+Scale+development:+Theory+and+applications+(Vol.+26).+2016.+Chapel+Hill,+USA:+Sage+publications.&ots=hE4VCtA7Mx&sig=2gqGXqKuebHZo-ucuEzXfHo-jjI#v=onepage&q&f=false)

