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Original Article

Cross-cultural adaptation of the Capabilities of Nurse Educators questionnaire for use in Brazil*

Adaptação transcultural do instrumento *Capabilities of Nurse Educators questionnaire* para utilização no Brasil

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ABSTRACT

Objective: to cross-culturally adapt the Capabilities of Nurse Educators questionnaire to Portuguese. **Methods:** this methodological study followed the steps of translation and content validation by experts, conducted according to the guidelines of the International Society for Pharmacoeconomics and Outcomes Research. During the content validation phase, the questionnaire was administered to 10 expert nurses, and the Content Validity Index was used, which is considered adequate when greater than or equal to 90%. The Content Validity Ratio was also calculated, with values greater than or equal to 0.80 being considered acceptable. Additionally, the agreement among experts was measured using the first-order agreement coefficient. **Results:** the content validation process resulted in a content validity index above 90%, a content validity ratio above 0.80, and an agreement rate greater than 0.90. **Conclusion:** the instrument demonstrated adequate evidence in the content validation process (semantic, idiomatic, and conceptual), proving to be suitable for assessing the competencies of nurse educators in the Brazilian context. **Contributions to practice:** the instrument is able to identify strengths and skills that need to be developed in the practice of nurse educators in academic or healthcare settings.

Descriptors: Cross-Cultural Comparison**;** Education, Nursing; Translating; Nurses, Male; Validation Study.

RESUMO

Objetivo: adaptar transculturalmente o *Capabilities of Nurse Educators questionnaire* para a língua portuguesa. **Métodos:** estudo metodológico, cujas etapas foram: tradução e validação de conteúdo por especialistas, realizadas conforme o *International Society for Pharmacoeconomics and Outcomes Research*. Na fase de validação do conteúdo, o questionário foi aplicado a 10 enfermeiros especialistas e utilizou-se o Índice de Validade de Conteúdo, considerado suficiente quando maior ou igual a 90%. Calculou-se também o *Content Validity Ratio,* considerando valores maiores ou iguais a 0,80. Além disso, mensurou-se a concordância entre os especialistas, a partir do coeficiente de concordância de primeira ordem. **Resultados:** no processo de validação de conteúdo, obteve-se um percentual do índice de validade de conteúdo acima de 90%, uma *Content Validity Ratio* superior a 0,80, e concordância maior que 0,90. **Conclusão:** o instrumento apresentou evidência adequada no processo validação do conteúdo (semântica, idiomática e conceitual), demonstrando ser um apropriado para avaliar as competências dos enfermeiros educadores no contexto brasileiro. **Contribuições para a prática:** o instrumento é capaz de identificar pontos fortes e habilidades que necessitam ser desenvolvidas na atuação do enfermeiro educador no setor acadêmico ou em serviços de saúde.

Descritores: Comparação Transcultural; Educação em Enfermagem; Tradução; Enfermeiros; Estudo de Validação.

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Introduction

Nurses represent the largest professional category in healthcare, holding a key position in delivering quality and safe services[1-3]. Consequently, the role of this professional has evolved significantly, gaining autonomy and authority. Their advanced practice integrates clinical skills to assess, diagnose, and manage patients at different levels of care, in addition to playing the essential role of educator with patients, families, and colleagues[4].

As a result of this evolution, the need for nurses to develop new competencies has emerged, highlighting the importance of their academic training, which should be supported by different teaching methods. The National League for Nursing (NLN) recognizes the challenge in the professional development of nursing, and the World Health Organization (WHO) expresses great concern about the quality of education offered by institutions and the skills of nurses acting as educators[5-6].

Currently, it has become evident that the academic training of nurses is a complex issue that can be affected by several factors, one of which is the competence of nurse educators. A nurse educator is someone who provides some form of education or training, moving away from clinical activities to focus on teaching, whether in the academic sector or professional education[7].

There is a consensus that nurse educators need to be competent and adequately trained in the use of pedagogical strategies and technological solutions, as well as demonstrating clinical competence in nursing. These professionals play a crucial role in educational and healthcare sectors as agents of change and inspiring leaders, who support the development of competencies and contribute to the successful transition of nursing students to clinical practice[8-10].

Therefore, there is a clear need to assess the competence of nurse educators, whose professional training seldom develops these skills. This professional should also be up-to-date, provide support in their learning environment, and be an active researcher in terms of publications. In addition, they are expected to establish and cultivate collaborative partnerships, and initiate research or quality development projects in their educational institution or clinical field[11-13].

Due to this need, and the absence of instruments designed for this audience, the Capabilities of Nurse Educators (CONE) questionnaire was developed to measure the competencies of nurse educators. Launched in 2016 in Australia, its objective is to analyze, through self-assessment, the strengths and skills that need improvement, contributing to professional development and the enhancement of teaching practice[14].

The CONE questionnaire is subdivided into two parts, with the first focusing on the characterization of respondents regarding their experience in nursing, time as a nurse educator, and academic level, as well as questions related to submissions of papers, books, articles, and participation in conferences and symposiums. The second part contains statements related to the self-assessment of strengths and skills that need to be developed in the role of the nurse educator.

It is a questionnaire consisting of 93 items and six subscales, using a five-point Likert scale anchored from not descriptive at one end to very descriptive at the other. The subscales are: 1) teaching relationships, 2) knowledge and teaching practice,3) extraction of nursing knowledge, 4) leadership, 5) research guidance, and 6) research action[14-15].

The CONE questionnaire is considered a viable self-assessment instrument, but it should be noted that it aligns with the sociocultural context in which it was created. Therefore, to be applied in different contexts, it is necessary to cross-culturally adapt it according to the sociocultural characteristics of each country. Given the scarcity of instruments for evaluating the professional development of nurse educators in the national context, this study aimed to cross--culturally adapt the Capabilities of Nurse Educators questionnaire to Portuguese.

Methods

This is a methodological study conducted in accordance with the guidelines for cross-cultural adaptation of self-administered instruments by the Task Force of the International Society for Pharmacoeconomics and Outcomes Research (ISPOR), which includes 10 steps, as described in Figure 1.

Stage	Description
1	Preparation: permission from the instrument developer.
2	Translation: use of the original language version of the instrument and translation into the target language.
3	Reconciliation: panel of experts convened to create a single translated version.
4	Back-translation: translation of the new (target) language version back-into the original (source) language. The back-translators should be native speakers of the country where the original instrument was created.
5	Back-translation review: comparison of the back-translated versions of the instrument to investigate discrepancies between the original version and translations.
6	Harmonization: comparison of all existing versions in other languages with the original instrument.
7	Cognitive debriefing: feedback from the target audience regarding semantic equivalence (whether the words have the same meaning), idiomatic equivalence (whether colloquialisms in both languages are considered), and conceptual equivalence (whether the concepts of the words are similar). This step also assesses the clarity, relevance, and importance of the items, as well as suggestions for alternative wording.
8	Analysis of cognitive debriefing results: comparison of the interpretations provided by the target audience with the original version, highlighting discrepancies.
9	Review: orthographic, diacritical, and grammatical corrections.
10	Final report: completion and documentation of each step of the process.

Figure 1 – Steps in the translation and cross-cultural adaptation process proposed by ISPOR. São Paulo, SP, Brazil, 2024

The translation of the CONE questionnaire into Brazilian Portuguese began with obtaining authorization from the original instrument's authors (Step 1), granted on August 28, 2019, through electronic communication.

In the translation (Step 2), two independent translators were involved, both of whom were native Portuguese speakers fluent in English. Translator 1, who has a background in healthcare, received the original instrument and material on the content concept being evaluated in the instrument and was responsible for Translated Version 1 (TV1). Translator 2, who had no background in healthcare (a naïve translator), received only the instrument and was responsible for Translated Version 2 (TV2). After obtaining the two versions, the reconciliation step followed (Step 3), during which a meeting was held with a team of experts comprising the principal researcher, their advisor, co-advisor, Translator 1, and a nurse educator (specialist). During this three-hour meeting, the participants reviewed TV1 and TV2, and after discussion, reached a consensus on the best translation for each item, resulting in Translated Version TV1-2. In this stage, the instrument's guidelines and the best translation options for the items were also discussed[16].

The back-translation step (Step 4) of TV1-2 was conducted by two translators without a healthcare back-ground, who were native speakers of the source language (English), fluent in the target language (Portuguese), and had not previously received the original instrument material. This step resulted in Back-Translated Version 1 (BTV1) and Back-Translated Version 2 (BTV2)[17].

For the Back-Translation Review step (Step 5), the two back-translated versions were sent to the primary author of the instrument, requesting relevant feedback on both versions regarding the equivalence of meanings between the original instrument and the back-translations. Also in Step 5, a committee composed of the principal researcher, advisor, co-advisor,

Translator 1, and a subject matter expert reached a consensus based on the committee's review and the author's considerations, resulting in Translated Version TV3, regarded as the pre-final Brazilian version of the CONE questionnaire. To reach a consensus, semantic equivalence (identifying whether the words had the same meaning), idiomatic equivalence (whether colloquialisms in both languages were considered), and conceptual equivalence (whether the concepts of the words were similar) were analyzed. Clarity, relevance of the items, and suggestions for alternative wording were also evaluated[17].

In the harmonization step (Step 6), the aim was to consider all existing versions (languages) and the original instrument. However, since no other versions of the instrument were found in languages other than English, our study did not include this step[18]. In the Cognitive Debriefing step (Step 7), the instrument was validated with the participation of 10 expert nurses, assessing the suitability of each item.

The experts were selected based on their experience as nurse educators in academic settings and/or healthcare services. Regarding their background, most had 18 or more years of experience in nursing education, and the academic levels of the professionals were divided into 40% (n=4) with specializations, 40% (n=4) with master's degrees, and 20% (n=2) with doctorates. Four had published 1 to 5 articles, and 2 had published 15 or more. Regarding books, four had publications. Five had given presentations at scientific events in the last two years, and seven had participated in nursing education workshops or courses.

The expert nurses were invited through email exchanges. Those who voluntarily agreed to participate signed the Informed Consent Form. The validation period was from November 2020 to June 2021. Thus, the 10 subject-matter experts assessed the consensus version (after translation) regarding evidence of content validity.

Participants filled out a dichotomous scale (yes/no) regarding the items in the Brazilian version of the CONE questionnaire concerning equivalence, clarity, relevance, and importance of the item. This step involved sending the invitation, followed by the questionnaire via Google Forms®, with a 15-day response deadline.

The responses obtained were used to evaluate content validation evidence, aiming to confirm whether the instrument is easily understandable. To this end, the adequacy proportion of each item was calculated according to the corresponding aspect using the Content Validity Index (CVI), considered sufficient when the result is greater than or equal to 90%, as this is an appropriate value when there are 10 evaluators.

The Content Validity Ratio (CVR) was also calculated for the English version, evaluating the judges' agreement regarding the adequacy and applicability of the item, considering it sufficient when greater than or equal to 0.80. The agreement among experts was measured using the first-order agreement coefficient (AC1). The coefficients were accompanied by confidence intervals (95% CI) and compared to the classification of Practical Statistics for Medical Research, which classifies coefficients below 0.2 as poor; between 0.2 and 0.4 as fair; between 0.4 and 0.6 as moderate; between 0.6 and 0.8 as good; and as excellent those above 0.8. The analyses were performed with the help of R, irrCAC, and SPSS software. Items requiring adjustments were sent back for expert review until the CVI and CVR reached agreement, resulting in Translated Version 4 (TV4).

In the analysis step 8, "Review of cognitive debriefing results and finalization," the principal researcher met virtually with their advisor and co-advisor to assess the participants' feedback in Step 7. At this time, some suggestions and observations deemed relevant were discussed and addressed, though they did not lead to structural changes in the adapted instrument.

In the review step (Step 9), the TV4 of the instrument was sent to a Portuguese language reviewer to check for possible orthographic, diacritical, gram-

matical errors, among others. There were no changes to the items[17].

The final report (Step 10) is a crucial step in the translation and validation process. It provides a description of the decisions made throughout the process and helps interpret the data set and inform other researchers for future translations. The results presented correspond to the final report[17].

The research began only after the approval of the Research Ethics Committee of the Albert Einstein Israelite Hospital, under Opinion No. 3.904.318/2020 and Certificate of Presentation for Ethical Consideration 28673120.1.0000.007. All research participants were guaranteed data confidentiality and anonymity, and the Informed Consent Form was applied.

Results

This study required three rounds, as it was observed in the first round that four items had a Content Validity Index below 80% and, therefore, were corrected. The Content Validity Ratio was evaluated only in the second round, where six items were below 0.80. After the changes, the third validation round was conducted, where all items reached adequate indices.

The first round of evaluation took place in December 2020. As the results indicate, 4 items across 3 domains did not reach the minimum of 90% in the CVI index. These items were 10, 25, 29, and 78, which were subsequently adjusted (Figure 2).

Domains	1st Round (Dec/20)	2nd Round (Feb/21)
Knowledge and teaching practice	10. I am capable of: promoting critical questioning. Clarity: 80%	10. I am capable of: engaging in the process of critical investigation. Clarity: 100%
Research action	25. I am capable of: discerning between high and low-impact research when reading articles or scientific reports. Pertinence: 70% Clarity: 80%	25. I am capable of: discerning between high and low-quality research by reading articles or scientific reports. Pertinence: 100% Clarity: 100%
Research action	29. I am capable of: selecting and using theories, references, and theoretical arguments. Clarity: 80%	29. I am capable of: selecting theories, references, and theoretical arguments. Clarity: 100%
Leadership	78. I: encourage others' leadership capacity. Clarity: 80%	78. I contribute to enhancing others' leadership capacity. Clarity: 100%

Figure 2 – Content Validity Index of the Brazilian version of the CONE questionnaire (n=10). São Paulo, SP, Brazil, 2024

The second round took place in February 2021. In this round, the evaluation was again conducted by the same experts, and all items achieved a CVI result above 90% (Table 1). In this same round, the CVR was assessed, and the items that did not reach an index higher than 0.80 were: 10, 25, 29 and 78. After adjustments and a third round, held in June 2021, all items reached the expected index, above 0.80 (Figure 3).

Domains	2nd Round (Feb/21)	2nd Round (Jun/21)
Knowledge and teaching practice	5. I am capable of: using different communication strategies to facilitate the exchange of ideas. Clarity: 0.60	5. I am capable of: using different communication strategies to facilitate learning. Clarity: 1.00
	14. I am capable of: using a variety of tools and instruments to stimulate learning. Equivalence: 0.60 Clarity: 0.60	14. I am capable of: using a variety of tools to stimulate learning. Equivalence: 1.00 Clarity: 1.00
	26. I am capable of: planning assessment activities that deepen the level of learning accuracy. Equivalence: 0.60	26. I am capable of: planning assessment activities that precisely indicate the level of learning depth. Equivalence: 0.80
Knowledge in nursing	32. Establish strategic models to adapt to changes/setbacks. Equivalence: 0.60 Clarity: 0.60	32. Establish strategies to adapt to changes/setbacks. Equivalence: 1.00 Clarity: 1.00
Teaching relationships	37. I am capable of: implementing counseling strategies to support students. Clarity: 0.60	37. I am capable of: implementing counseling tutorials to support students. Clarity: 1.00
Leadership	40. I am capable of: inspiring excellence by articulating vision, integrity, and courage. Clarity: 0.60	40. I am capable of: inspiring excellence aligned with vision, integrity, and courage. Clarity: 1.00

Figura 3 – Taxa de validade de conteúdo do CONE *questionnaire,* versão brasileira (n=10). São Paulo, SP, Brasil, 2024

Regarding the agreement assessment among the responses provided by the ten expert nurse educators, both for each aspect and for the instrument as a whole, using the AC1 coefficient, the results showed excellent agreement, eliminating the need for adjustments (Table 1).

Table 1 – First-order agreement coefficient among experts regarding the content of the Brazilian version of the CONE questionnaire (n=10). São Paulo, SP, Brazil, 2024

Aspect	Agreement coefficient (95% CI)*
Equivalence	0.928 (0.903; 0.952)
Clarity	0.910 (0.881; 0.938)
Pertinence	0.969 (0.953; 0.985)
Relevance	0.971 (0.956; 0.986)
Total	0.945 (0.934; 0.956)

*CI: Confidence interval

After all necessary adjustments, the cross-cultural translation was completed, resulting in Translated Version - TV4. The translated instrument retained the original name: The Capabilities of Nurse Educators (CONE) questionnaire - Brazilian version, maintaining its structure of 93 items divided into six domains, without the need to exclude or add items from the original version.

In the Portuguese Language Review Step (Step 9), a Portuguese language reviewer examined the instrument for potential orthographic, diacritical, grammatical errors, among others, leading to the cross-culturally translated version of the CONE. The final report (Step 10) corresponded to the completion and documentation of each stage of the process. Thus, the cross-cultural translation was concluded.

Discussion

The translation of the CONE Instrument addressed a recognized gap identified by the reviewed studies: the scarcity of a validated self-assessment instrument to evaluate the competencies and skills of nurse educators working in professional education or academic services.

Addressing the competencies of nurse educa-

tors is a significant challenge, as there are no national theoretical references to support this activity. Establishing competency-based standards for educational activities is a decisive factor for a positive impact on the workforce and advancements in healthcare[19].

We emphasize that self-assessment is essential, not only as a tool for information collection but also as a means to identify strengths and diagnose the skills and competencies that need improvement[20]. Developing and supporting the evolution of these skills is essential in all areas where nurse educators operate.

The CONE questionnaire allows the self-assessment of the skills and competencies of nurse educators. The domain "teaching relationships" aligns with an Indian study conducted with 124 nurses, which highlighted the need to advocate for and evaluate issues related to competencies in teaching and educational practice[21]. The concern with assessing nurse educators is linked to the lack of preparedness of these professionals, which in turn is associated with their knowledge, teaching practice, and nursing knowledge. These include nursing practice competence, communication competence, pedagogy, collaboration skills, assessment, management, and digital technology[22].

In the search for self-assessment scales for nurse educators' competencies, no study presented a validated and specific questionnaire for nurse educators; all were directed toward the teaching role. Articles that followed all the translation and validation steps described in the literature were considered valid and reliable. It was found that the use of self-assessment scales for teaching competencies has multiple and diverse aspects, demonstrating that there is no widely accepted self-assessment model in this area[23]. This highlights the importance of the translated CONE instrument for use in self-assessing the competencies of nurse educators working in academic settings and/or healthcare services.

Professional development is a learning process that is necessary at all stages of a nurse educator's career and should be based on individual needs. A European study developed a self-assessment scale for health educators titled The Educators' Professional Development scale (EduProDe) for the assessment of social and healthcare educators' continuing professional development. Its objective was to identify the professional development needs of educators. The author compares the CONE with EduProDe and concludes that they are complementary instruments since both assess nurse educators across correlated dimensions[24].

In evaluating the two EduProDe scales, it is suggested that combining the CONE and EduProDe instruments could benefit nurse educators' self-assessment by allowing the inclusion of items related to learning and organizational leadership in the CONE, focusing on experience, well-being, and job satisfaction, which impacts student learning, competitiveness, and organizational effectiveness[24].

When assessing the five dimensions presented in the CONE instrument, it can be affirmed that the nurse educator plays a crucial role in the educational and healthcare sectors as a change agent and leader who serves as an inspiration in the healthcare field. Consequently, there is a clear need to systematically assess competencies and identify development needs[25].

The competencies of knowledge and teaching practice, as well as teaching relationships, nursing knowledge, leadership, guidance, and research action, which were validated, align with a study that evaluated nurse educators' competencies. One of the factors affecting these competencies is the level of engagement in research activities. Thus, the importance of the connection between education, research, and practice was understood[26].

During the expert panel review step, it was stated that there is no consensus on the training of professionals who work as nurse educators and that this training does not adequately prepare nurses for this role. The competence of nurse educators is multidimensional, and faculty skills have been a topic of

discussion. The primary role of nursing educators is to facilitate student learning and the development of professionals[27].

It is understood that the importance of validating the CONE for the Portuguese language lies in its ability to provide nurse educators with a self-assessment regarding skills in knowledge and teaching practice, teaching relationships, nursing knowledge, leadership, research guidance, and research action. Nurses working in education are expected to be highly prepared, and the necessary competencies should be aligned with the CONE, including academic and research competencies, nursing knowledge, teaching, communication, and management[28].

Study limitations

Given that the CONE questionnaire is an extensive instrument, the high number of items might hinder the engagement of nurse educators when responding. Another limitation relates to the fact that the original study does not provide a reference for minimum scores per domain or an overall score, nor does it define ways to interpret the results. However, a lower score indicates a poorer perception, which can guide which competencies of the nurse educator need to be addressed. Conversely, a higher score suggests a better self-assessment in the item.

Contributions to practice

This is an innovative study that offers valuable contributions to nurses working in education, as it cross-culturally adapted an instrument capable of identifying strengths and skills that need to be developed in the role of nurse educators in academic settings or healthcare services. The results of this study can contribute to the development of competencies that nurse educators will perform and to improvements in practice.

The study, therefore, indicates the need for further research that delves deeper into the competencies required for a nurse educator. Additionally, it may be useful in identifying candidates with the profile required for available positions in nursing education.

Conclusion

The instrument The Capabilities of Nurse Educators (CONE) questionnaire, Brazilian version, allows for assessing nurse educators' skills in knowledge and teaching practice, teaching relationships, nursing knowledge, leadership, guidance, and research-related actions.

The instrument demonstrated a good level of validity, with evidence of semantic, idiomatic, and conceptual equivalence compared to the original instrument, showing that it is suitable for evaluating nurse educators' competencies in the Brazilian context.

Authors' contribution

Concept and design or analysis and interpretation of data; writing of the manuscript or relevant critical review of the intellectual content; responsibility for all aspects of the text and for ensuring the accuracy and completeness of any part of the manuscript: Santana DA. Relevant critical review of intellectual content; responsibility for all aspects of the text and for ensuring the accuracy and completeness of any part of the manuscript: Bergamasco EC. Relevant critical review of intellectual content; responsibility for all aspects of the text and for ensuring the accuracy and completeness of any part of the manuscript; final approval of the version to be published: Mohallen AGC.

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