

Use of cross-cultural adaptation in Postgraduate Nursing courses

Uso da adaptação transcultural nos cursos de pós-graduação em Enfermagem

Uso de la adaptación transcultural en las carreras de grado en Enfermería

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ABSTRACT

Objective: to analyze the Brazilian scientific production in Postgraduate Nursing education using the cross-cultural adaptation method. **Method:** documentary study with searches carried out in the Digital Library of Theses and Dissertations resulting in 140 Master's theses and 72 Doctoral dissertations for analysis originated from Postgraduate Programs carried out in the Southeast region of Brazil, followed by the Northeast, South and Midwest regions – there was no representation of the North region. **Results:** the adapted instruments were, mostly, originally written in English. Research in the Care area/field prevailed, highlighting the line of research called Health and Nursing Care Process. A gap between what is produced in the area and what is recommended internationally was identified. **Conclusion:** an increase in the use of cross-cultural adaptation as a research method was noticed, with the persistence of regional academic asymmetries and lack of consensus on the methodological framework. **Descriptors:** Nursing Research; Education, Nursing, Graduate; Cross-Cultural Comparison; Surveys and Questionnaires; Psychometrics.

RESUMO

Objetivo: analisar a produção científica brasileira, na Pós-Graduação em Enfermagem, que utilizou o método de adaptação transcultural. **Método:** estudo documental, com busca realizada na Biblioteca Digital de Teses e Dissertações, que resultou em 140 dissertações e 72 teses para análise, oriundas de Programas de Pós-Graduação da região Sudeste, seguida das regiões Nordeste, Sul e Centro-Oeste, sem representação da região Norte. **Resultados:** os instrumentos adaptados foram, em sua maioria, procedentes do idioma inglês. Prevaleram as pesquisas na área/campo Assistencial, destacando-se a linha de pesquisa Processo de Cuidar em Saúde e Enfermagem. Identificou-se descompasso entre o que é produzido na área e o que é recomendado internacionalmente. **Conclusão:** verificou-se aumento na utilização da adaptação transcultural como método de pesquisa, com persistência das assimetrias acadêmicas regionais e sem consenso sobre o referencial metodológico. **Descritores:** Pesquisa em Enfermagem; Educação de Pós-Graduação em Enfermagem; Comparação Transcultural; Inquéritos e Questionários; Psicometria.

RESUMEN

Objetivo: analizar la producción científica brasileña, en el Postgrado en Enfermería, que utilizó el método de adaptación transcultural. **Método:** estudio documental, la búsqueda se realizó en la Biblioteca Digital de Tesis y Disertaciones, se obtuvieron 140 tesis de maestría y 72 tesis de doctorado para análisis, provenientes de Programas de Posgrado de la región Sudeste, seguida de las regiones Nordeste, Sur y Centro-Oeste, no se encontraron documentos de la región Norte. **Resultados:** los instrumentos adaptados fueron, en su mayoría, del idioma inglés. Predominaron las investigaciones en el área/campo Asistencial, se destacó la línea de investigación Proceso de Atención en Salud y Enfermería. Se identificó que lo que se produce en el área no coincide con lo que se recomienda a nivel internacional. **Conclusión:** se comprobó que aumentó el uso de la adaptación transcultural como método de investigación, que persisten las disparidades académicas regionales y que no hay consenso sobre el marco metodológico. **Descritores:** Investigación en Enfermería; Educación de Postgrado en Enfermería; Comparación Transcultural; Encuestas y Cuestionarios; Psicometría.

INTRODUCTION

Cross-cultural adaptation (CCA) is a methodological research procedure increasingly present in the health area, particularly in Nursing¹. Its use has been linked to the need for health monitoring instruments focused on evaluating the efficiency of interventions and facilitating international studies by aggregating or comparing data²⁻⁴.

Due to the long time taken and the number of steps involved in the creation of measuring instruments, researchers choose to use tools developed in other countries and adapt them to their own research reality⁵. Previously, adaptation involved literal translations, but it is now recognized that this process does not guarantee the necessary psychometric stability⁶.

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Translation and adaptation, although often considered synonymous, are distinct. Translation deals only with linguistic aspects while adaptation involves broader adjustments to the instrument^{7,8}. Adaptation covers cultural, linguistic aspects while translation is the very first step in this broader adjustment process⁸.

Considering the need to systematize and standardize a methodological procedure aimed at this type of research⁴, several guidelines have been developed⁸⁻¹¹.

A review of guidelines focused on the process of CCA revealed discrepancies in terminology, techniques, sequence of steps, and specific methods¹². There was no consensus on the superiority of one guideline over another¹³. However, there is consensus that minimum standards must be followed to guarantee the reliability of the results^{6,8,11}.

CCA requires an approach that combines qualitative and quantitative methods to mitigate cultural bias in instruments^{8,14}. The main objective of the CCA process is to ensure equivalence between original and adapted instruments in different cultures⁴, thus eliminating bias and maintaining impartial measures¹⁵.

Currently, it is acceptable to make changes or add new items to the instrument before applying it to another culture, which is called "assembly". Major changes are permitted considering the local context⁶.

Therefore, this study was justified given the heterogeneity of methodological possibilities for CCA, as evidenced in previous research^{1,12,13,16}. The analysis of research studies carried out in Postgraduate Programs (PGP) aims to highlight national scientific production and improve research methods, thus guiding future studies.

Based on the above, the following guiding question was chosen: what is the panorama of Brazilian scientific production in Postgraduate Programs in the Nursing area that used the cross-cultural adaptation method?

To elucidate the problems related to this question, the objective was to analyze the Brazilian scientific production in Postgraduate Nursing Programs that made use of the cross-cultural adaptation method.

METHOD

Documentary study with bibliometric approach focused on collecting data from documentary sources and analyzing them statistically in order to map the scientific production of a given area, thus allowing the assessment of its quality and behavior¹⁷.

The search was carried out in the Digital Library of Theses and Dissertations (Portuguese Acronym: BDTD) of the Coordination for the Improvement of Higher Education Personnel (Portuguese Acronym: CAPES). The choice was justified because this is the most complete material in terms of methodological description, considering the fact that scientific articles often prevent the delivery of more detailed information due to their limiting number of words and/or pages¹⁶.

Based on the cross-over of controlled descriptors, the following search strategy was developed: ("nursing") AND ("cross-cultural adaptation" OR "cross-cultural studies" OR "cultural study" OR "cross-cultural comparison" OR "translation" OR "validation of instruments" OR "validation" OR "equivalence" OR "content validation" OR "validity" OR "reliability" OR "cultural adaptation" OR "face validity" OR "criterion validity" OR "construct validity" OR "convergent validity" OR "divergent validity" OR "conceptual equivalence" OR "semantic equivalence" OR "idiomatic equivalence" OR "experimental equivalence" OR "operational equivalence" OR "functional equivalence" OR "item equivalence" OR "surveys and questionnaires").

The inclusion criteria for selecting the sample were the following: theses and dissertations defended in Postgraduate Nursing Programs (Portuguese Acronym: PPGEnf) and/or PGPs offered by Nursing schools/departments. The following types of study were excluded: development and validation of technologies; instruments; protocols; software; applications; systems or manuals; development and validation of forms related to Nursing History; validation of diagnoses, interventions, or results in the Nursing area; preparation of materials for recording the Nursing Process; other methodological approaches; and PPGEnf at professional level.

The temporal delimitation was the year 1970, a milestone in the creation of the first PPGEnf and/or PGPs in Nursing schools around Brazil.

The search for theses and dissertations took place in May 2020 and was updated in March 2021 to capture sources indexed in 2020. A new search was carried out in February 2022, filtering only publications referring to the year 2021, which were added to the selection flowchart of the studies. The selection followed the guidelines set out in the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) since no guides for conducting bibliometric studies could be found in the literature.

The quality analysis of the included studies considered the recommendations of the PRISMA checklist and only those productions that showed proof of approval in the digital document were considered, since peer evaluation is ratified as part of the process of obtaining Master's and Doctor's degrees.

To reduce the risk of bias, the productions were evaluated independently by two researchers who develop CCA studies as part of Nursing Doctoral studies, and only those that obtained an 80% agreement rate were included¹⁸.

Theses and dissertations were analyzed based on bibliometric data which included name of the institution, author, year of defense, area/field and line of research, origin and objective of the instrument that went through CCA, methodological framework, sequence of steps and additional information. The characterization of the area/field and line of research was done according to the nationally recognized Consolidation of Proposals for Lines of Research in Nursing¹⁹.

The extracted data were entered into Microsoft Office Excel® spreadsheets, reported to the Statistical Package for the Social Sciences® (SPSS) software and submitted to descriptive analysis. The results are presented in the form of tables and graphs based on the nature of the data.

It is noteworthy that, as this is a documentary study, the research protocol was not submitted for consideration by the Research Ethics Committee. However, the intellectual property of the documents analyzed was duly respected.

RESULTS

Upon analyzing the BDTD/CAPES, 1,660 productions were recovered. 629 were excluded for their type of study, 52 for being linked to other research areas, as well as the following: 3 for being PGPs at professional level; 214 were focused on the development of software, programs, ranking systems, devices, manuals, flowcharts and applications; 208 were focused on the development and validation of educational technologies; 144 were aimed at developing instruments for implementing the Nursing History and Process; 84 were linked to the validations of Nursing Diagnoses; and 60 were focused on validations of Nursing interventions and results.

266 theses and dissertations were pre-selected. After reading the objectives, 71 were discarded, as they described the process of elaboration or evaluation of the instruments' psychometric properties - in this case, the CCA process was not included in the same document, totaling 195 productions for analysis. Because this study adopted the documentary research method, an indirect search in institutional repositories was made possible, and 17 studies were added to the final sample, totaling 212 scientific productions, divided into 140 (66%) Master's theses and 72 (34%) Doctoral dissertations (Figure 1).

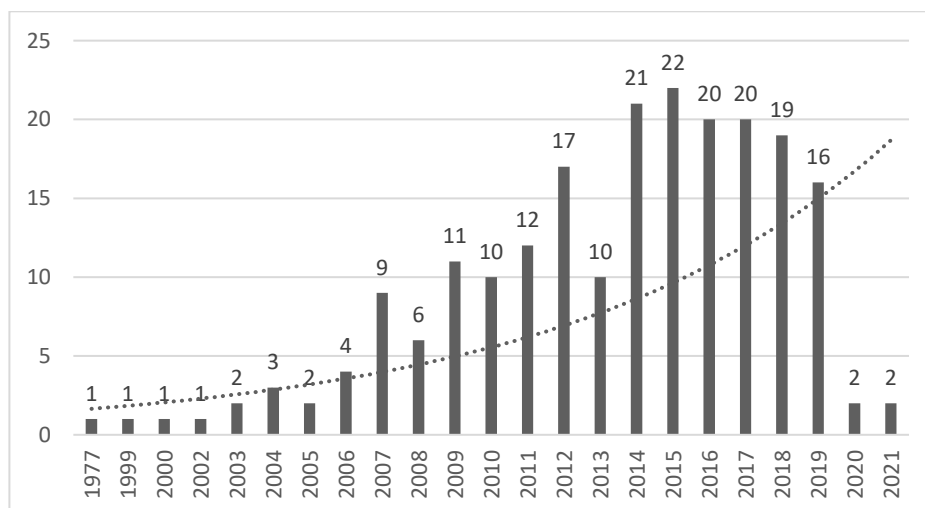


Figure 1: Representation of the research studies according to the year in which the scientific productions were defended (n = 212). Rio de Janeiro, RJ, Brazil, 2022.

Upon analyzing the distribution of studies according to their respective year of defense, it is noted that the first record dates back to 1977 and is a Master's degree thesis from *Universidade Federal do Rio de Janeiro* (UFRJ) in which a US instrument was translated to evaluate the quality of Nursing care. Studies using the CCA approach showed growth from 2007 onwards, being mainly concentrated between 2014 and 2019, which is equivalent to 47.1% (n=118) of the total scientific production identified.

Among the educational institutions, the highest concentration of studies by geographic region occurred in the Southeast region of Brazil (n=145, 68.4%), followed by the Northeast (n=35, 16.5%), South (n=29, 13.7%) and Midwest (n=3, 1.4%) regions. No studies from institutions located in the North region were identified.

Regarding the countries/territories that had most instruments adapted to the Brazilian version, the US represents 49.5% (n=105) of the entire sample, followed by Canada (n=22; 10.4%) and the United Kingdom (n=16; 7.5%). The others were: Germany (n=9; 4.2%), Australia (n=8; 3.8%), Brazil (n=8; 3.8%), England (n=6; 2.8%), Portugal (n=5; 2.4%), Netherlands (n=5; 2.4%), China (n=4; 1.9%), Taiwan (n=4; 1.9%) and France (n=3; 1.4%). Spain, Thailand, Turkey, and Hong Kong (Chinese city) each had two adapted instruments; plus, Sweden, Puerto Rico, New Zealand, Iceland, Finland, Scotland, and Chile had only one adapted instrument.

It is noteworthy that, among the cross-culturally adapted instruments, 2.4% are from Portugal and one was adapted for the Brazilian and Portuguese versions. Furthermore, 1.4% comprise instruments from the same culture, but from different states/provinces, and 1.9% are aimed at population groups different from the original target audience.

Table 1 presents areas, fields of knowledge and lines of research associated with the documents included in the study.

Table 1: Distribution of scientific productions according to areas/fields and respective lines of research (n = 212). Rio de Janeiro, RJ, Brazil, 2022.

Area/field and Line of Research	n	f(%)
Area: Care	145	68.4
Health and Nursing Care Process	93	43.9
Health and Quality of Life	52	24.5
Area: Organizational	57	26.9
Social Production and Work in Health and Nursing	31	14.6
Management of Health and Nursing Services	21	9.9
Policies and Practices in Health and Nursing	4	1.9
Information/Communication in Health and Nursing	1	0.5
Area: Professional	10	4.7
Theoretical and Philosophical Principles of Health and Nursing Care	9	4.2
Ethics in Health and Nursing	1	0.5

It is noted that most research studies (n=145, 68.4%) focus on the care area, with an emphasis on the health and nursing care process (n=93, 43.9%). In the organizational area, all studies address the worker's health (n=31, 14.6%). In the professional area, the majority falls within the theoretical-philosophical principles of health and nursing care (9=4.2%). Table 2 presents the methodological frameworks identified.

Table 2: Distribution of scientific production according to the methodological framework (n = 212). Rio de Janeiro, RJ, Brazil, 2022.

Methodological Framework	n	f(%)
Beaton et al. (2000, 2007)	109	51.4
Ferrer et al. (1996)	37	17.6
Guillemin et al. (1993) & Guillemin (1995)	33	15.6
The DISABKIDS Group Europe (2004)	8	3.9
Herdman et al. (1997, 1998) & Reichenheim & Moraes (2007)	5	2.5
Emerenco et al. (2005) & PROMIS Group (2013)	4	1.9
Pasquali (2010)	4	1.9
World Health Organization (2007, 2012)	2	0.9
Biering-Sørensen et al. (2011)	2	0.9
Snyder et al. (2007)	1	0.4
Giusti et al. (2008)	1	0.4
Gonçalves & Pillon (2009)	1	0.4
Bracher et al. (2010)	1	0.4
Borsa et al. (2012)	1	0.4
Uninformed	3	1.4

There was a predominance of citations to the process systematized by Beaton and his collaborators¹⁰ (n=109, 51.4%). Studies with multiple references classified based on sequencing stand out, which occurred in 206 (97.2%) of

the scientific productions, according to the methodological framework. Some authors adapted the chosen method; 1.4% did not inform their methodology. Doctoral studies have made progress in evaluating psychometric evidence, but 6.9% focused on the early phases of CCA.

DISCUSSION

There was a notable increase in the number of PPGEnf productions using CCA as a research method, reflecting a growth trend focused on Nursing research²⁰, palliative care^{21,22}, Nursing history²³ and integrative review²⁴. This finding may be a reflection of the policies to increase the number of postgraduate programs, especially the National Postgraduate Plan (2011-2020) which aimed to increase the number of qualified researchers²⁵.

Data from CAPES demonstrated a 30% increase in the number of Master's and Doctorate courses between 2013-2016. This study confirms this fact by showing that, of 224 Doctors, 14 graduated between 1986-1995, 66 between 1996-2005 and 144 between 2006-2016, highlighting the continuous growth of postgraduate Nursing education²⁶.

Data from CAPES revealed a 30% increase in the number of Master's and Doctorate courses between 2013-2016. This study also found continued growth of postgraduate Nursing education as 144 Doctors graduated between 2006-2016, indicating a positive trend. Although there is encouragement to expand postgraduate studies in peripheral regions, regional disparities persist²⁷. This study failed to find PPGEnf productions from the North region of Brazil and only three were from the Midwest region. The academic asymmetry in Nursing can be attributed to the initial emergence of postgraduate courses. In the 1970s, five Master's degree courses emerged in the Southeast of Brazil, two in the South and two in the Northeast. This concentration in the Southeast led to the creation of four Doctorate programs, mainly in São Paulo and Rio de Janeiro²⁸.

It was noticed in previous bibliometric studies^{21-24,29,30} that many Master's thesis have been conducted, and the predominance of Master's theses in relation to Doctoral dissertations reflects the greater number of Master's courses in Brazil whose duration is 24 months, thus being able to stimulate scientific production at a faster pace compared to Doctorate courses, which last 48 months with possible extensions²³. Longer-lasting PGPs stimulate a wider range of research areas, while internationalization leads to the choice of internationally recognized instruments.

The assessment of content validity evidence is crucial for CCA, as it ensures that the instrument's items represent what is intended to be measured. This is essential for the interpretability of the final version³¹. To evaluate instruments, qualitative and quantitative techniques are used. However, to be able to measure the effect of a phenomenon on a certain target audience, the instrument must present solid psychometric evidence in terms of internal structure, response process, test results and relationships with other variables, always following Psychometrics' good practices^{8,31}.

The number of countries of origin whose instruments were adapted is significant (n=23), but there is a predominance of North American instruments: 104 (49.5%) of the total. The power of the US in terms of research and development is being threatened by Asian countries, including China, Taiwan and Singapore due to investments being made in the areas of Science, Technology and Innovation (ST&I) to promote economic and technological development, as evidenced in the sample of this study³².

However, the US remains the greatest power in the ST&I sector as evidenced by the predominance of its scientific productions³³, despite the increase in publications from countries such as India, Brazil, and countries in East and Southeast Asia. Seeking to identify the granting of research grants, the study³⁴ identified an exponential growth in the development of research all over the US over a 10-year period, and, among these, 64.2% of the organizations that carry out research in the country have received research grants.

In addition to the investments in ST&I, it is believed that the cross-cultural adaptation of English-language instruments to the Brazilian version is more common due to the ease in seeking individuals that are able to participate in the stages of translation and cross-cultural equivalence assessment. Knowing the original language of the instrument is essential for experts to participate in the stage of cross-cultural equivalence assessment¹¹. Since English is the universal language of science, it is easier to find English speakers compared to other languages³⁵.

Cultural disparities between countries and regions influence health outcomes and indicators. In Brazil, given its diversity⁵, adapted instruments must be used with care, and regional experts must be involved in the evaluation of these translations³⁵.

Three instrument adaptations were identified within the same country, considering cultural and linguistic variations between different regions. This justifies the universalist approach to adaptation, allowing new research studies and comparisons to be carried out between different population groups and different contexts³⁶.

In four productions, instruments were adapted for groups and categories different from those recommended in the original versions. This highlights differences in organizational culture and work processes, factors that affect the type of measurement. Step-by-step CCA is crucial to ensure valid and reliable results³⁷.

Five instruments from Portugal were adapted to the Brazilian version, highlighting the need to consider differences in terms of culture and use, even within the same language. In some cases, the initial translation steps may be waived, but the CCA process should include expert assessments, pre-testing and psychometric assessment^{10,38}.

The lines of research in the Professional area which address theoretical-philosophical principles of care, ethics, Nursing history and health and Nursing technologies had limited presence. This means that more attention should be paid to the knowledge focused on the construction of the epistemology and identity of the Nursing profession³⁹. However, it is challenging to measure indicators related to this area of concentration given the abstract nature of its concepts.

The scientific production of PPGEnf reveals a lack of consensus on the ideal method to perform the CCA¹³, but most studies follow Beaton's recommendations¹⁰. These guidelines include six stages: translation, synthesis, back-translation, review by the expert committee, pre-testing, and submission to the author of the instrument, all based on an initial proposal from 1993 that is still widely used³⁷. The second most used method, developed by Ferrer⁹, differs from Beaton's recommendations mainly regarding the sequence of steps. It includes translation by a bilingual professional, review by the expert committee, back-translation and comparison with the original, panel of patients and pilot testing.

Carrying out the back-translation after the review by the expert committee aims to improve understanding and detect errors early. Other guidelines for CCA mentioned in Table 3 are similar to the steps proposed by Beaton^{10,38}, with slight variations. In only five productions (2.4%) were Brazilian researchers' guidelines for CCA used which include translation, synthesis I, back-translation, synthesis II, pre-testing, and psychometric assessment. It is worth mentioning that, before carrying out the pre-testing, some studies (n=48, 22.9%) developed a stage called semantic evaluation or validation. The guidelines from the DISABKIDS group³⁹ were the most mentioned regarding the implementation of this technique. In subgroups, small samples of the target audience assess the items for comprehensibility and the interpretation of these items are verified. This procedure is also recommended by Ferrer⁹ and this step is called panel of patients by the latter. The items, in this case, must be intelligible and understandable by all segments of the population – but must be plausible for those with greater level of education – through the adoption of a more colloquial language⁹.

The other frameworks that were not mentioned in this study, regardless of their particularities, follow the steps proposed by Beaton¹⁰, with changes only in the recommendations about the techniques to be adopted. Although the studies were classified into a single methodological framework, the authors mentioned these supporting guidelines for definitions and techniques^{10,38}.

At the same time, it is important to mention that the international scientific community recognizes the International Test Commission (ITC) guidelines as a general model for CCA and to simultaneously develop instruments between countries. In 2017, the refinement of these guidelines, originally proposed in 1996, was published. The ITC recommendations include 18 general guidelines that include permission from the test developers, evaluation of the construct's legitimacy in the target-audience context, item content and test format analysis, search for validity and reliability evidence in the process of interpreting scores and documenting⁸.

However, none of the productions that make up the sample of this study used the ITC guidelines⁸ or the *American Psychological Association's* (APA) minimum standards for validity evidence³¹, thus denoting a mismatch between what is produced and what is recommended. This fact was also identified in a study that assessed measurement instruments in the context of palliative care, which showed low adherence to the ITC guidelines⁴. Nevertheless, a systematic review⁴⁰ showed improvements in the assessment of validity and reliability evidence. However, the ITC guidelines are not strictly followed in the process of developing and adapting instruments, which raises concerns about the interpretation and inferences regarding their use.

Considering the guidelines presented in this study, we did not intend to cover all the dimensions related to the subject or define a path to be taken by researchers who aim to carry out the CCA of research instruments; however, the importance of systematizing and documenting methods and techniques is reiterated. It is advocated that investigations be conducted with methodological rigor and that all decisions taken are duly documented so that future researchers who may use the products of these studies have sufficient information to assess the credibility of the process that was followed, as well as to assist the planning and execution of this type of research.

Study Limitations

It is believed that the limitation of this study is that the search for scientific productions was carried out in a single database, so it is likely that other theses and dissertations have not been captured even though we selected the main indexing source for this type of document in Brazil.

FINAL CONSIDERATIONS

The analysis of bibliometric indicators for evaluating scientific production in stricto sensu postgraduate programs in the area of Nursing in Brazil revealed an increase in the use of cross-cultural adaptation as a research method, as well as the persistence of regional academic asymmetries. Although there is no consensus on the most appropriate methodological framework, the stages of translation, synthesis, back-translation, review by the expert committee and pre-testing seem to be widely accepted as minimum conditions for conducting the cross-cultural adaptation process.

The cross-cultural adaptation process includes the recognition and confirmation of the theoretical model, detailed by means of an assessment of the instruments' validity evidence and construct replicability. None of the productions investigated followed the International Test Commission's guidelines for cross-cultural adaptation. It is recommended that justifications be presented in the research reports to explain the execution or addition of techniques when adapting measurement instruments, as this is essential to ensure data reliability and maximize the replication of the method.

Finally, it is expected that this study will serve as a basis to empower researchers in the decision-making process focused on the methodological framework to be used in their cross-cultural adaptation studies.

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