Cross-cultural adaptation methods of instruments in the nursing area

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ABSTRACT

Objective: To analyze scientific publications in order to identify the cross-cultural adaptation methods of instruments that are mainly applied in nursing.

Method: Integrative review, in the electronic sources Medline — Pubmed, Cinahl, Lilacs, Scopus and Web of Science. 96 peer-reviewed papers, published between 2010 and 2015 were selected.

Results: The articles that composed the sample were published in 59 different journals, 15.2% were Brazilian. The largest number of publications was concentrated in 2015 (31.2%), 28 countries appeared on the list which is led by Brazil (33.3%), followed by China (10.4%). It was used 26 different guidelines, however the one proposed by Beaton and their collaborators was mentioned in 47 (49.0%) articles and the Brislin’s in 12 (12.5%).

Conclusion: This review does not allow us to define the most appropriate method, however all methods applied agreed on the use of back translation. In addition, many studies in different languages and countries showed the international acceptability of the method developed by Beaton et al.

Keywords: Nursing. Cross-cultural comparison. Methodology. Validation studies.

RESUMO

Objetivo: Identificar os métodos de adaptação transcultural de instrumentos mais utilizados na área da enfermagem.

Métodos: Revisão integrativa, em fontes eletrônicas Medline via Pubmed, Cinahl, Lilacs, Scopus e Web of Science. Foram selecionados 96 artigos revisados por pares e publicados entre 2010 e 2015.

Resultados: Os artigos que compuseram a amostra foram publicados em 59 periódicos diferentes, sendo 15,2% destes brasileiros. O maior número de publicações concentrou-se em 2015 (31,2%). Além disso, 28 países apareceram na lista liderada pelo Brasil (33,3%), seguido de China (10,4%). Utilizaram-se 26 modelos de adaptação transcultural diferentes. Entretanto, o proposto por Beaton e colaboradores foi citado em 47 (49,0%) artigos, e o de Brislin em 12 (12,5%).

Conclusões: Não há consenso sobre adaptação transcultural; entretanto, todos os métodos coincidiram na utilização da etapa de retrotradução. Além disso, diversos estudos em diferentes idiomas e países apontaram a aceitabilidade internacional do método desenvolvido por Beaton e colaboradores.


RESUMEN:

Objetivo: Analizar las publicaciones científicas para identificar los métodos de adaptación transcultural de los instrumentos más aplicados en el campo de la enfermería.


Resultados: Los artículos que compusieron la muestra provenían de 59 periodicos diferentes, 15.2% eran brasileños. El mayor número de publicaciones se concentró en 2015 (31.2%). Además, 28 países aparecieron en la lista liderada por Brasil (33.3%), seguido de China (10.4%). Utilizaron 27 modelos de adaptación transcultural diferentes. Sin embargo, el propuesto por Beaton y colaboradores fue citado en 47 (49.0%) artículos, y el de Brislin en 12 (12.5%).

Conclusion: Esta revisión no permite definir el consenso del método más adecuado. Sin embargo, todos los métodos utilizados coinciden en el uso de back translation. Además, diversos estudios en distintos idiomas y países señalaron la aceptabilidad internacional del método de Beaton et al.


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INTRODUCTION

The adaptation of research instruments and/or measurement scales in the Nursing area has gained space within the scope of current scientific research, as a tool for the development of practice and science in the area.5

This translation and adaptation from one language to another requires methodological rigor, meaning that the researchers must act in uniformity, with impersonality and obedience to the methodological segment that they propose to use, being faithful to the step-by-step translation and cross-cultural adaptation, so that the values reflected by an instrument and the meanings of its components remain equivalent from one culture and another. However, the translation process is often a late reflection, treated as an unimportant part of the study protocol and implemented without close attention to the issues involved.2

A substantial amount of studies and publications has been developed, involving translation and adaptation of instruments to different languages and cultures. From this, it is relevant to research on the methodologies of this process, as well as on the quality of the studies. Considering these aspects, the objective of this work is to identify the methodological models of cross-cultural adaptation of research instruments used in the nursing area.

METHOD

This integrative review has carefully fulfilled the six steps proposed by Whittemore and Knafl: 1) selection of the guiding question; 2) definition of the characteristics of the primary surveys of the sample; 3) selection, in pairs, of the surveys that made up the review sample; 4) analysis of the findings of the articles included in the review; 5) interpretation of the results; and 6) report of the review, providing a critical examination of the findings.3-4

The study question was: what are the methodological models of cross-cultural adaptation of the research instruments used in nursing? For the search and selection of the articles, the following databases were consulted: Latin American Literature in Health Sciences (Lilacs) via Virtual Health Library (BVS), Cumulative Index to Nursing and Allied Health Literature (Cinahl), Medline via Pubmed, Scopus and Web of Science via Capes Journals Portal. The research problem was synthesized in the document indexing language from the controlled descriptors found in Cinahl Titles, in MeSH (Medical Subject Headings) and in DeCS (Health Sciences Descriptors): Questionnaires, Scale, Validation Studies, Nursing Methodology Research, Nursing. Non-controlled descriptors were also used: Instrument, Cross-cultural adaptation.

The terms were combined using the Boolean operators “OR” and “AND”. After identifying the studies through the search strategy and the exclusion of the duplicates, using the reference manager Endnote Online, the screening was initiated by the simultaneous reading of titles and summaries. The studies were selected by the reading of the complete texts and, finally, those included in the review were indicated (Figure 1).

The data collection was carried out between October 2015 and March 2016. The eligibility criteria were: original studies in English, Portuguese and Spanish, conducted by nurses dealing with the application of cross-cultural adaptation methods in the nursing area, published between January 2010 and December 2015. The articles that did not describe the steps of the cross-cultural adaptation methodology, which only brought the translation step, studies that approached the construction or development of scales, and articles that addressed only the validation part of the adapted instruments were excluded.

For the extraction of data from the articles included in the integrative review, a previously used instrument was applied, which contemplates the following items: identification of the original article, methodological characteristics of the study, evaluation of the methodological rigor, the interventions measured and the results found.4

In this study, the procedures of cross-cultural adaptation were evaluated using a strategy developed and applied in a chart format by other authors, which takes into account the adequacy of the studies to the methodological model that it has referenced.5

In order to ensure the validity of the review, as well as the accuracy and clarification of the data and discussion, the studies were selected and analyzed in detail, with a focus on the adequacy of the methodology used by four researchers (students of the Nursing Postgraduate Program of UFPI, and of the discipline that guided the development of this article). In this phase, the experience of each author contributed to the validation of the methods and the results, besides helping to determine their usefulness in practice. The presentation of the results and discussion of the data obtained was done in a descriptive way, allowing the reader to evaluate the applicability of the described methods.
RESULTS

The 96 articles selected are distributed in 59 different journals, of which 9 (15.2%) were Brazilian and concentrated 26.0% of the studies. Regarding the language, 92 (95.8%) presented at least one version in English, with 16.5% also in Portuguese and Spanish. The adapted instruments were, for the most part, specific to nursing 22 (21.9%). The second main focus was quality of life 10 (10.4%). The largest number of publications was in 2015, with 30 (31.2%). Twenty-eight countries appeared on the list, led by Brazil 33 (33.3%), followed by China 10 (10.4%) and Spain 9 (9.4%).

Twenty-seven different guidelines were used, most of which were produced in the 1990s. However, Guillemin, Bombardier, Beaton and Beaton16; Bombardier, Guillemin, Ferraz17-18 were cited in 47 (49.0%) articles; Brislin19-22 in 12 (12.5%); Herdman, Fox-Rushby, Badia and Reichenheim, Moraes23-24 appeared in 6 (6.2%); WHOQOL25 and WHO26 in 4 (4.2%); Bullinger et al.27 in 3 (3.1%); as well as Geisinger28 and Sousa, Rojjanasrirat29, who were cited as methodology in 2 (2.1%). Other 20 (20.8%) methods were cited only once.

Chart 1 shows that, among the studies that used 27 cross-cultural adaptation methodologies16-28 found in the selected articles, there was a predominance of publications in the year 2015 (12 articles). A detailed reading allowed the identification of studies whose cross-cultural adaptation processes were clearly described in the steps proposed by Beaton et al.17-18 (Translation, Synthesis of translations, Back translation, Committee of experts and Pre-test), and whose validity and reliability have been proven in the selected articles themselves20-26.

Chart 2 shows the description and the evaluation of the studies that used one of the versions of the cross-cultural adaptation method proposed by Brislin19-22. Four adequately followed the indications of the process as established by the author in the steps: Translation, Back translation, Semantic Equivalence and Pilot Study.

Chart 3 shows the studies in the nursing area that used models of cross-cultural adaptation developed by several authors and that were cited in at least two selected articles. According to a cross-cultural adaptation proposal, the authors13-16 highlighted propose models whose methodological steps are mentioned in the chart. The articles selected, for the most part, meet the criteria established by the highlighted models.
<table>
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Cross-cultural adaptation methods of instruments in the nursing area

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**Chart 1** - Evaluation of the compliance with the methodological steps of Beaton and collaborators in the studies that used cross-cultural adaptation

**Source:** Research data, 2016.

**Caption:** (+) Step conducted according to the cross-cultural adaptation model cited; (?) Step with questionable design; (–) Translation and/or back translation led by 1 translator; (0) Not informed.

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**Chart 2** - Evaluation of the compliance with the methodological steps of Brislin and collaborators in the studies that used cross-cultural adaptation

**Source:** Research data, 2016.

**Caption:** (+) Step conducted according to the cross-cultural adaptation model cited; (?) Step with questionable design; (–) Step not conducted according to the model of cross-cultural adaptation cited; (0) Step not performed.
In the studies evaluated in the nursing area, different recommendations and methodologies for the cross-cultural adaptation of instruments were found, which, although converging in some aspects, differed in others (use of technical translation, focus groups, etc.). However, there was a predominance of the use of different versions of the method developed by Beaton and collaborators in the years 1996, 2000 and 2007(6-8). This demonstrated its applicability and ease of operation, which made it a reference for national and international use.

Considering the relevance of methodological studies, since they provided reliable and valid instruments of measurement, it was essential to use the method chosen to guide the whole process of cross-cultural adaptation. Thus, the cross-cultural equivalence of an instrument was proportional to the compliance with the process of cross-cultural adaptation of a given instrument to the methodology it was proposed to use.

In contrast, some authors added specificities to the method, in order to improve the cross-cultural adaptation of their instrument. These changes consisted in the addition of a translator(22,66), in the insertion of the evaluation of the synthesis of the translations by the original author of the instrument(33) and in the participation of the original author in the translation and back translation processes(58). Regarding this decision, the cultural linguistic difficulties of the original author should be considered for the understanding and good evaluation of the initial translated version. Others have developed two pre-tests and two expert committees in order to improve and qualify the instrument's adaptation(22,40,63). As for the pre-test, there were those who used a sample that was superior to the one suggested (58). These changes were not always justified by the authors, which may be perceived as failure or limitation of the studies.

Considering the superficiality of the information on the steps of the cross-cultural adaptation process, some articles selected in the sample of this study were uncertain regarding the adequate accomplishment of the methods...
that were proposed to perform. There were also articles with inconsistency in the fulfillment of the methodological steps guided by the chosen model[31-32,44,50,53,66-69].

For this reason, there were methods of cross-cultural adaptation that stood out due to the clarity and reliability with which they were developed in the selected articles. They are: Guillemin, Bombardier, Beaton and Beaton[6], Bombardier, Guillemin, Ferraz[7-8], they were cited in 47 (49.0%) articles; Brislin[9-12] in 12 (12.5%); Herdman, Fox-Rushby, Badia and Reichenheim, Moraes[13-14] appear in 6 (6.2%); WHOQOL[15] and WHO[16] in 4 (4.2%); Bullinger et al.[17] in 3 (3.1%), as well as Geisinger[18] and Sousa, Rojjanasrirat[19].

Although the back translation step is not mandatory, all the main guidelines[6-12,15-19] used as a cross-cultural adaptation model have identified it as essential. It is useful as a tool for communicating with the authors of the original version and it allows to identify possible discrepancies in the translation. The use of a rigorous methodology in the adaptation process helps to achieve the structural, linguistic and cultural equivalences of the instruments[86].

The second most cited guideline[9-12] stands out for pioneering the development of a methodological guide to the cross-cultural adaptation[86]. This process has four steps: the first three relate to the translation, back translation and the evaluation of the semantic equivalence, and the fourth step is the pilot study.

Regarding the contributions of the use of these guidelines[9-12], the researchers concluded that the instruments were translated and validated appropriately according to the method used. The limitations, when mentioned in the body of the articles, listed aspects related to the sample, such as: low quantity and generalization, convenience or specific sampling of a given geographic region[75-77].

In addition to the two main methodological designs already described, it is worth highlighting the indications and guidelines of five other guidelines that were cited by at least two studies found in this review. The most comprehensive discussion of these works is done because, given the research objective, it is necessary to make these more employed methods known.

The model of cross-cultural adaptation of instruments[11-16] was published on the Internet and included the process of: 1) translation; 2) panel of experts; 3) back translation; 4) pre-test and cognitive interview; 5) final version – it is obtained as a result of all the previous steps. It is suggested that in each step a number is assigned to the version of the scale produced in order to facilitate evaluations.

Failure in applying this model focus on the panel of experts and pre-test steps. The lack of detailed description in some steps can also be attributed to the fact that these articles present, concurrently with the process of cross-cultural adaptation, the analysis of psychometric properties.

The idealizers[17] described the cross-cultural adaptation steps used with the Quality of Life Questionnaire - SF-36. The studies presented as main disagreement regarding the guideline the inclusion of the evaluation of a committee of experts in the subsequent step to the initial translation (1 and 2). In one of the studies, the back translation was performed by a single translator and then evaluated by the experts committee, then finally sent to the original author. In addition, the evaluation step performed by two other translators was not routinely performed.

Some authors[14] have developed a methodology for cross-cultural adaptation of instruments based on work[13]. This model included six aspects of equivalence: (1) conceptual (it looks for the existence of a common concept between the two populations, the one in which the scale was developed and the one in which it will be applied); (2) of items (critically examines the questions or items used so that they match in both languages); (3) semantics (the meaning of the words contained in the original instrument must be the same understood in the target population of the version); (4) operational (refers to the instrument format, measurement methods, form of application); (5) of measurement (refers to psychometric properties); and (6) functional (both instruments, original and new version, must measure the same concepts in different cultures).

It was observed that the studies that chose this method remained faithful to the predicted steps. In C 3 no equivalence of measurement was mentioned, because in this work the process of testing the psychometric properties was considered as an item only after the methodological process of cross-cultural adaptation.

In the studies that pointed out this methodology, there was non-compliance with the established rules with the non-accomplishment of back translation or the non-accomplishment of the pre-test. The lack of back translation is pointed out as a limitation of the approach because the final Chinese translation was not back translated to check for accuracy and consistency.

Finally, the authors[14] have proposed a clear and user-friendly guideline for translation, cross-cultural adaptation and validation of instruments or scales for health care research. Their proposal included the following steps: 1) initial translation by at least two bilingual and bi-cultural translators (with experience in the culture of the two countries); 2) synthesis I: comparison between the two translations and the original version by a third bilingual translator. Discrepancies should be discussed in a group to obtain a preliminary translated version; 3) blind back translation of the
draft by at least two translators whose mother tongue is the same as the original version of the scale; 4) synthesis II: comprises the comparison of the two back translated versions with the original, obtaining a pre-final version of the scale. And step five refers to the pilot test of the pre-final version with a sample that can range from 10 to 40 subjects(9).

The authors(14) included two more steps for validation. This methodology is recent and incorporates a number of other methods, which are detailed and easy to apply. The two studies that used it followed strictly the determined steps. It was observed that, although produced in America, the countries that used it are China and Iran(94-95).

The other methodological models used(18-19), even though they presented their particularities, were consistent in performing translation, back translation, pre-test (not necessarily in that order). In some cases, these steps would be carried out through focus groups. In one of these, the model followed closely resembles that of the group(97).

An important point is that, although the authors(14) defined a main model to follow the adaptation of the focus instrument, in almost all the studies secondary authors who also have guidelines for this process were cited. This has often been done in an attempt to justify an inadequacy in the development of the main method chosen. In others, it seems to serve as a backing for the main model.

CONCLUSION

The study presented a compilation of information on the different methodological guidelines applied to the cross-cultural adaptation of instruments in the context of nursing.

The recurrence of the method conceived by Beaton and collaborators indicated its importance and suggested a tacit consensus regarding the most appropriate theoretical and methodological reference. All the methods employed coincided with the use of back translation, and several studies in different languages and countries have pointed to the international acceptability of this methodology.

Although searches have been conducted on the most widely used databases (including local and international, health-specific and multi-disciplinary databases), some studies may not have been captured, since some nursing journals may not have been indexed in any of the bases used, which is a limitation of this review. In addition, there may be data regarding the cross-cultural adaptation methods used that have not been described in the study, although they may be present in the original dissertation and thesis versions.

As a contribution of this study, it should be highlighted the detailed description of different methodological processes, which can serve as an important research source for the planning and development of future studies of nurses focused on the cross-cultural adaptation of instruments.

REFERENCES

Cross-cultural adaptation methods of instruments in the nursing area


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Received: 08.28.2017  
Approved: 03.26.2018