

EVALUATION OF SCIENTIFIC PERIODICALS AND THE BRAZILIAN PRODUCTION OF NURSING ARTICLES

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This study aimed to identify nursing journals edited in Brazil indexed in the main bibliographic databases in the areas of health and nursing. It also aimed to classify the production of nursing graduate programs in 2007 according to the QUALIS/CAPES criteria used to classify scientific periodicals that disseminate the intellectual production of graduate programs in Brazil. This exploratory study used data from reports and documents available from CAPES to map scientific production and from searching the main international and national indexing databases. The findings from this research can help students, professors and coordinators of graduate programs in several ways: to understand the criteria of classifying periodicals; to be aware of the current production of graduate programs in the area of nursing; and to provide information that authors can use to select periodicals in which to publish their articles.

DESCRIPTORS: journal article; nursing; knowledge; research

LA EVALUACIÓN DE PERIÓDICOS CIENTÍFICOS QUALIS Y LA PRODUCCIÓN BRASILEÑA DE ARTÍCULOS DEL ÁREA DE ENFERMERÍA

El objetivo de este estudio fue identificar la indexación de las revistas del área de Enfermería, editadas en Brasil, en las principales bases bibliográficas de las áreas de la salud y de Enfermería, además de clasificar la producción de los programas de posgraduación de Enfermería en el año 2007, de acuerdo con los criterios QUALIS/CAPES, utilizados para clasificar los periódicos científicos usados en la divulgación de la producción intelectual de los programas de posgraduación stricto sensu en Brasil. Es una investigación exploratoria que usó, para rastrear la producción científica, datos del informe y documentos divulgados por la CAPES y consulta a las principales bases indexadoras nacionales e internacionales. Los resultados ofrecen subsidios a estudiantes, docentes y coordinadores de los programas de posgraduación para la comprensión del modelo usado en la clasificación de los periódicos, la situación de la producción del área e informaciones importantes para la selección de periódicos por los autores.

DESCRIPTORES: artículo de revista; enfermería; conocimiento; investigación

A AVALIAÇÃO DE PERIÓDICOS CIENTÍFICOS QUALIS E A PRODUÇÃO BRASILEIRA DE ARTIGOS DA ÁREA DE ENFERMAGEM

O objetivo deste estudo foi identificar a indexação das revistas da área da Enfermagem, editadas no Brasil, nas principais bases bibliográficas das áreas da saúde e Enfermagem, além de classificar a produção dos programas de pós-graduação da Enfermagem no ano 2007, de acordo com os critérios QUALIS/CAPES, utilizados para classificar os periódicos científicos usados na divulgação da produção intelectual dos programas de pós-graduação stricto sensu no Brasil. É pesquisa exploratória que usou, para o mapeamento da produção científica, dados do relatório e documentos divulgados pela CAPES e consulta às principais bases indexadoras nacionais e internacionais. Os resultados oferecem subsidios a estudantes, docentes e coordenadores dos programas de pós-graduação para a compreensão do modelo usado na classificação dos periódicos, a situação da produção da área e informações importantes para a seleção de periódicos pelos autores.

DESCRITORES: artigo de revista; enfermagem; conhecimento; pesquisa

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INTRODUCTION

Nursing is marked by its competence in delivering health care to human beings in their multiple dimensions, whether in the promotion of healthy living or meeting the care needs of human beings with health problems, at risk of death, or in their chronicity from birth to death, and also for its role in educating people in health fields.

Nurses in Brazil lead the practice with more than a 1.3 million nursing workers in the Unified Health System (SUS) who have proven problem-solving capacity. In addition there are 673 active undergraduate programs offering 111,158 slots yearly, graduate programs that were initiated in the 1970s currently comprise 35 programs in different regions of the country. These programs total 14 doctoral programs, 29 masters programs and two professional and research master's degree programs, with 128 researchers accredited by the National Council for Scientific and Technological Development – CNPq⁽¹⁾.

Graduate programs in Brazil produce a large number of studies and crucially advance knowledge in nursing and related areas. The production and dissemination of the scientific activities of these programs depend on efficacious communication and scientific periodicals are important vehicles of dissemination and socialization of scientific knowledge. These periodicals reflect science and technology that support a given area, the profile and competence of its main scientists/researchers and are a political and social instrument that promotes or supports improvement in health care delivered to citizens⁽²⁾.

A scientific periodical is a serial publication with defined periodicity, also referred to as a 'scientific journal' (or 'technical-scientific'). Preference for the term 'scientific journal' is observed in academia. In addition to certifying science, the function of scientific journals in developing countries is to establish and implement quality criteria for the development and dissemination of research, aid the development of research areas and store information of international, national or regional interest, and train referees and authors in analysis and critique with a view to improve the quality of science⁽³⁾.

As a formal channel of disseminating research results, scientific journals reach a large

audience, given indexation in databases. Indexing databases are an important source of the distribution of knowledge produced by different knowledge areas to the national and international scientific community and also provide visibility to publications.

Databases are differently valued in different fields, however, due to the peculiarities and relevance they represent to each⁽⁴⁻⁵⁾. The main indexing databases in the health and nursing areas are described below.

- Indexing databases for reference data: LILACS - Latin American and Caribbean System on Health Sciences Information; MEDLINE - National Library of Medicine and CINAHL - Cumulative Index to Nursing & Allied Health Literature.
- Databases that publish bibliometric citation indexes: ISI- Institute for Scientific Information - Impact factor; SCOPUS – SCImago – H Index and CUIDEN – RIC Index.
- Databases – full text: SciELO - Scientific Electronic Library Online and Rev@Enf - Portal of Nursing Journals at the Virtual Health Library (VHL) - Nursing.

Some indexing databases provide citation indexes of published articles. Among the best-known indexes are the Impact Factor and the H Index.

The Impact Factor gained a reputation in evaluating scientific journals beginning in the 1960s, when Eugene Garfield, director of the Institute of Scientific Information (ISI) and creator of the bibliographic database Science Citation Index (SCI), elected to use the frequency with which an article is cited as a method of classifying and evaluating journals included in the database. Only periodicals indexed in the ISI are considered in the computation of the international impact factor⁽⁶⁻⁷⁾, which is published by the Journal Citation Report (JCR).

The impact factor value is obtained by dividing the article's total number of citations, accumulated in the last two years, by the total articles published by the journal in the same period. A periodical has to meet some requirements in order to be included in this database like regularity of publication and compliance with international publishing standards (informative title, correction of cited references, complete authors' information, containing at least titles, abstracts and descriptors in English and having a peer review process). The adopted selection criterion is rigid since the ISI is

committed to offering complete coverage of the most important and influential periodicals in the world to update information and acknowledges that complete coverage should aim at quality and not quantity. This database is selective and operates from the viewpoint that the majority of the most important scientific studies are published in relatively few periodicals⁽⁷⁾.

The H index is used by SCOPUS and the SCImago Journal & Country Rank (SJR), one of SCOPUS' products, publishes the H Index SCImago. This index is computed for this database's periodicals. The H index was developed in 2005 by Jorge Hirsch, a physicist at the University of California at San Diego, to quantify an article's individual impact and performance⁽⁸⁾.

Among indexes in the nursing field, the bibliometric RIC index from the CUIDEN database deserves to be highlighted. It is coordinated by the Index Foundation, Spanish Scientific Institution, and is relevant for Brazilian nursing because it includes documents on health care produced in the Iberian-American region and also includes the production of 447 indexed scientific journals, of which 252 (56%) are in the nursing area. The importance of this database for Brazilian nursing is that, among indexed journals, it concentrates on a large number of countries that have problems and characteristics similar to Brazil. Contrast this with those journals indexed in the ISI database, which are predominantly Anglo-Saxon; not disregarding their importance, we have to keep in mind they cannot be considered the only or most suitable references for a scientific community in the development process. This bibliometric index is called CUIDEN *Citación* (RIC), which is computed in the same way as the SCImago H Index from the SCOPUS database.

CINAHL, coordinated by Ebsco Publishing, is an important database for nursing and gives worldwide visibility to what is published in the area. It distributes indexed titles to countries in North America, Latin and Central America, Europe and Africa and therefore is considered the most complete database on nursing in the world and is extensively utilized in Brazilian nursing.

Databases have their own evaluation criteria that are used in the selection of periodicals indexed in each database. The evaluation of a

periodical, however, can be performed differently in diverse institutions besides the indexing databases and this evaluation varies due to the assessment objectives and knowledge area.

In the evaluation of periodicals by the main databases, the following aspects are considered: quality of articles (scientific level, identification with the journal's thematic orientation, percentage of original articles and how current the content is), quality of the editorial board and consultants (participation of members from the national and international community), criteria for selecting papers, the nature of the publisher, diversity of authors (openness of the journals to authors of institutional, national and international level), distribution of the journal (the widest distribution possible), indexation (journal should demand inclusion in national and international databases according to the area of subjects it covers – the higher the number of databases, the more its quality, productivity and indirect dissemination will be valued)⁽⁹⁾.

In terms of the periodical's standardization, the evaluation takes into account aspects of its format, which has ideally been maintained throughout its existence, and includes instructions to authors, which should be complete. Completeness means describing the areas covered by the periodical, its sections, adopted standards, selection criteria and issues related to authorship rights and responsibility for the content of published articles, among other matters, besides including examples of bibliographic references.

The assessment includes intrinsic (content) and extrinsic (form) aspects of publishing vehicles. The extrinsic aspects are objectively measurable, as opposed to the intrinsic aspects, whose evaluation includes the analysis of information compiled in the publication such as: criteria for selecting papers, quality of the editorial board and consultants, and quality of articles (originality and identification with the journal's thematic orientation). In summary, article content is not directly evaluated but one infers its quality based on a classification attributed to the vehicle that publishes it⁽⁹⁾.

In Brazil, scientific periodicals are also classified by QUALIS, a model created by the Coordination for the Improvement of Higher Education Personnel (CAPES)^{*}, used in the dissemination of the intellectual products of graduate programs (doctoral and masters programs) in the

* N.T. Agency of the Brazilian Ministry of Education in charge of graduate programs evaluation.

country. Data on scientific production are not the only issues taken into account in analyzing the programs, though it is considered the most important item.

Evaluation criteria also take into consideration the characteristics inherent in each knowledge area. Up to 2006, periodicals were classified regarding their scope of distribution (local, national and international) and regarding their quality (concepts A, B or C could be attributed). However, due to the diversity of classification given to the same periodical in different areas, CAPES, in 2007, established some changes in the periodicals evaluation criteria⁽¹⁾ and began classifying periodicals into seven strata: A1, A2, B1, B2, B3, B4, B5 and C. To A1 is attributed the highest value (100) and to C the lowest (zero). It is worth noting that the classification of periodicals in the QUALIS/CAPES affects where researchers feel they should publish. The classification of periodicals is available at URL: <http://qualis.capes.gov.br>

OBJECTIVES

To identify the indexation of nursing journals edited in Brazil in the main bibliographic databases in the health and nursing areas.

To classify the production of graduate nursing programs in 2007 according to the QUALIS criteria used by CAPES to classify scientific periodicals used in the dissemination of intellectual production of Brazilian graduate nursing programs (doctoral and masters).

METHOD

Exploratory research carried out through searching the production of articles published by students and faculty members of nursing graduate programs and registered with CAPES in 2007 and consulting the following indexing databases: ISI, SCOPUS, MEDLINE, SciELO, LILACS, CINAHL, CIDEN, BDEF and Portal of Journals at VHL – Nursing.

RESULTS

Nursing is included in the Great Health Area in CAPES, which is composed of eight areas with

different stages of development. On the one side are highly consolidated areas such as medicine and on the other, areas like nursing and physical education, which are in phases of development. However, the QUALIS/CAPES criteria for the evaluation of periodicals mainly utilizes the Impact Factor – ISI (J) and the SCImago (H) as indicators of the best periodicals classified in all areas of scientific knowledge.

The QUALIS 2007 criteria for classification of nursing periodicals are:

Classification - A1: periodicals in the field of nursing indexed in the SCOPUS/SJR with H index > 15 or in the ISI/JCR database with impact factor J > 0.8 and the periodicals that belonged to the remaining areas indexed in the ISI/JCR, with JCR impact factor j >2.4.

Classification - A2: periodicals in the field of nursing indexed in the SCOPUS/SJR with H index between 3 and 14, or in the ISI/JCR with impact factor J between 0.3 and 0.7 and those that belonged to the remaining areas with H > 18 or J between 0.6 and 2.3.

Classification - B1: periodicals in the field of nursing in the SCOPUS/SJR database with H index up to 2, or in the ISI/JCR with impact factor J up to 0.2 and other that belonged to the remaining areas with H up to 9 or J up to 0.5 or yet, indexed in CUIDEN with RIC index >0.6.

Classification - B2: periodicals indexed at the Medline or SciELO or CINAHL or CUIDEN with RIC index between 0.2 and 0.5.

Classification - B3: periodicals indexed in Lilacs or CUIDEN with RIC index up to 0.2.

Classification - B4: periodicals indexed in the BDEF database or the Portal of Journals in the VHL-Nursing or Sport Discus or Latindex.

Classification - B5: periodicals indexed in one of the following databases: Embase, Eric, Psycinfo, Cuidatge, Cab Health, Cabstracts, Physical Education Index, Periódica, Open Journal Systems, Scientific Cambridge Abstracts, or in some other indexing databases belonging to scientific associations acknowledged by the academic community in the area.

Classification - C: periodicals with ISSN and with no bibliographic source of reference (indexing databases or lists). Inappropriate periodical.

The main nursing periodicals edited in Brazil are presented below according to indexation in the main bibliographic databases in the health and nursing areas.

Periodicals	ISI	MEDLINE	SCOPUS	SCIELO	LILACS	CINAHL	CUIDEN	REV@ENF	BDEF
Rev. Latino Americana de Enfermagem	x	x	x	x	x	x	x	x	x
Rev de Enfermagem da USP	x	x	x	x	x	x	x	x	x
Rev Brasileira de Enfermagem		x	x	x	x	x	x	x	x
Rev Gaúcha de Enfermagem		x	x		x	x	x	x	x
Texto & Contexto Enfermagem			x	x	x	x	x	x	x
Acta Paulista de Enfermagem			x	x	x	x	x	x	x
Online Brazilian Journal			x		x	x	x		x
Rev Mineira de Enfermagem					x	x	x	x	x
Rev Enfermagem UERJ					x	x	x	x	x
Nursing (SP)					x	x			x
Ciência, Cuidado e Saúde					x	x	x	x	x
RENE- Rede de Enf. do Nordeste					x	x	x		x
Escola Anna Nery Rev de Enf					x	x	x	x	x
Cogitare Enfermagem					x	x	x	x	x
Rev Paulista de Enfermagem					x	x	x	x	x
Revista Eletrônica de Enfermagem					x	x	x	x	x

Figure 1 – Distribution of nursing periodicals edited in Brazil according to the bibliographic database, 2007

Figure 2 shows the number of periodicals with the total production of articles from nursing graduate programs classified into the strata established in QUALIS 2007.

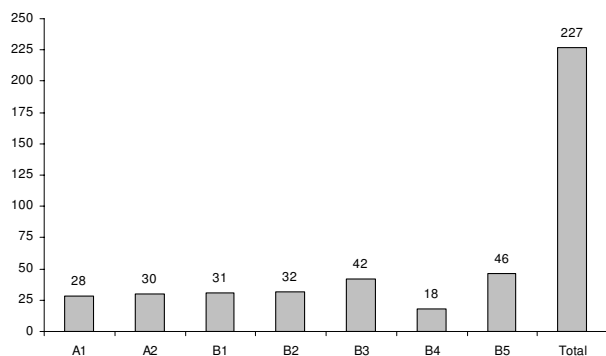


Figure 2 – Number of periodicals and total production in the nursing field according to the classification scheme from QUALIS 2007.

Figure 3 shows articles by the strata of nursing production.

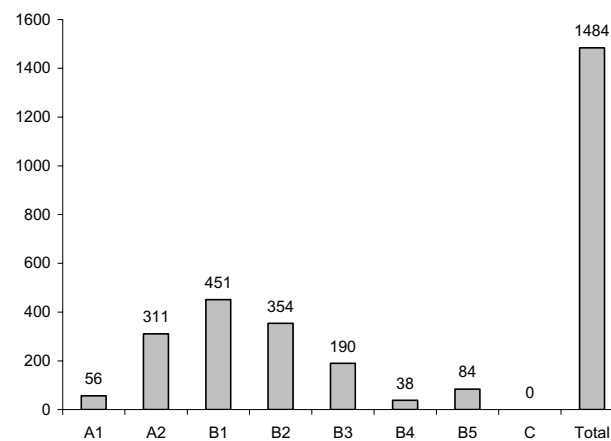


Figure 3 – Number of articles by the strata of nursing production in 2007

DISCUSSION

There are currently two periodicals in nursing edited in Brazil that are indexed in the ISI database: the *Revista Latino Americana de Enfermagem* and the *Revista de Enfermagem da USP*. These periodicals were classified as A2 in QUALIS nursing and no periodical in the area edited in the country was classified as A1.

Considering the number of faculty members and students in nursing graduate programs, the international competition and the lack of receptivity toward Brazilian authors in foreign periodicals indexed in the ISI database, we believe that expanding production in the short term in A1 and A2 periodicals will be difficult to accomplish. This fact will hinder nursing graduate programs in obtaining the highest score available in the CAPES evaluation, which is seven. However, strategies are being adopted by graduate programs and by individual researchers and/or research groups to expand publication in periodicals with high impact indexes.

The nursing field has seven periodicals indexed in the SCOPUS database, namely: *Revista Latino Americana de Enfermagem*, *Revista de Enfermagem da USP*, *Revista Brasileira de Enfermagem*, *Acta Paulista de Enfermagem*, *Online Brazilian Journal*, *Revista Gaúcha de Enfermagem* and *Texto & Contexto Enfermagem*.

Another indexing database also valued by the academic community is MEDLINE – PUBMED, which is used as a data source by the worldwide scientific community and is highly regarded due to its rigor in selecting periodicals and its breadth of coverage. Brazilian nursing has four indexed periodicals: *Revista Latino Americana de Enfermagem*, *Revista de Enfermagem da USP*, *Revista Brasileira de Enfermagem* and *Revista Gaúcha de Enfermagem*.

The SciELO collection is gaining recognition as an indexing database due to its national (already developed) and international (expanding) visibility. Four nursing periodicals are included in this database: *Revista Latino Americana de Enfermagem*, *Revista de Enfermagem da USP*, *Revista Brasileira de Enfermagem*, *Acta Paulista de Enfermagem* and *Texto & Contexto Enfermagem*. SciELO provides an index used in the collection and we highlight the fact that the *Revista Latino Americana de Enfermagem* is among the five periodicals most visited in the collection.

CINAHL indexes all types of documents. The page Journal Coverage in the CINAHL database shows the distribution of titles by regions in the world, evidencing the concentration of titles in the United States, the United Kingdom and Ireland. Latin America is represented by only 1% of titles, which is compatible with other international databases. Another important index for Iberian-American nursing is CUIDEN, which has a bibliometric index for the immediate impact of articles in the database. Although Iberian-American countries orient this database, there are also journals from other regions of Europe. We highlight that the *Revista Latino Americana de Enfermagem* and *Anna Nery Revista de Enfermagem* are among the most cited periodicals in this database.

The databases BDEF and REV@ENF at VHL do not provide scientometric indexes but are acknowledged in Brazilian nursing.

It was difficult to establish the QUALIS classification in 2007 for all areas including nursing because of the difficulty in establishing a consensus among the different areas of knowledge related to values used by the indexes taken as a reference tool and because of the specificities of each knowledge area. It is worth mentioning that the tools used by international indexing databases are criticized because these are not totally impartial in the selection of journals and are not always adequate to evaluate the science and technology of peripheral countries such as Brazil and other Latin American countries. Additionally, articles might get concentrated in the same multidisciplinary journals of high impact.

Nursing researchers have discussed this issue and recommend caution in the use of ISI criteria to evaluate nursing researchers because the number of journals indexed in this database is not enough to accommodate quality scientific productions from the national and international community. Hence, other criteria should also be considered to evaluate scientific production of nursing researchers⁽¹⁰⁾.

Regarding the number of articles written by faculty members and students from graduate programs in 2007 we identified: 1484 articles in 227 periodicals broken down into 56 in A1 periodicals, 311 articles in A2, 451 articles in B1, 354 articles in B2, 190 articles in B3, 38 articles in B4 e 84 articles in B5 as showed in Figure 3.

We verified that only periodicals with quality and impact are acknowledged and the number of

periodicals edited in Brazil and indexed in the main international databases (ISI, MEDLINE e SCOPUS) are not enough to publish the amount of articles from master theses and doctoral dissertations and other intellectual production from Brazilian graduate programs. On the one hand, this fact indicates the need for other periodicals to be indexed in these databases. On the other hand, Brazilian researchers need to seek strategies to increase publication in international nursing journals indexed in such international databases.

Despite individual and collective efforts of editors of scientific nursing periodicals jointly in the Forum of Editors of Scientific Journals of the Brazilian Nursing Association (ABEn), there is still much to do in order to index a higher number of periodicals in international databases.

The dissemination of research results is considered only one of the stages of knowledge production and strategies should focus on training human resources in nursing with a view to produce research and distribute its production. It is necessary to involve nurses in research and activities directed to the community, encouraging students to participate in research groups at universities with a common objective of meeting society's demands. Researchers have the responsibility to send their manuscripts to peer reviewed journals, referring to other Brazilian publications in the field within those manuscripts. Journal editors, moreover, have the responsibility of working for improved editorial quality and indexation in national and international databases⁽¹¹⁾.

Those in the nursing field should reconsider the extension of lines of research of graduate programs, studies submitted to publication and the quality of periodicals where knowledge is published because production *per se* is not enough. Researchers should be rigorous with their production, participate in research groups that favor discussion and the emergence of new ideas to strength the debate and be committed to multidisciplinary approaches so as to obtain acknowledgement from the scientific community. We must dare, predict, experiment, evaluate, participate in populations' aspirations and introduce new practices that provide relevant solutions⁽¹²⁾.

CONCLUSIONS

Nursing is committed to project to the world its production in journals of a certain sort: Brazilian periodicals that have began the submitting process in databases acknowledged by the international scientific community like Web of Science, MEDLINE and SCOPUS and also in international periodicals of impact, gradually increasing the dissemination of nursing science produced in Brazil in expanded scenarios. The role of researchers is to develop quality research. Graduate programs should adopt policies that encourage and support quality production. Publications and editors of periodicals should work to improve editorial quality and seek indexation in international databases. These are the challenges for contemporary nursing.

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