



## Bibliometric indicators of the nursing journals according to the index databases

Indicadores bibliométricos das revistas de enfermagem sob a ótica das bases indexadoras

Indicadores bibliométricos de las revistas de enfermería bajo la óptica de las bases indexadoras

Magdalena José Avena<sup>1</sup>, Dulce Aparecida Barbosa<sup>1</sup>

### How to cite this article:

Avena MJ, Barbosa DA. Bibliometric indicators of the nursing journals according to the index databases. Rev Esc Enferm USP. 2017;51:e03262. DOI: <http://dx.doi.org/10.1590/S1980-220X2017014603262>

<sup>1</sup> Universidade Federal de São Paulo, Escola Paulista de Enfermagem, São Paulo, SP, Brazil.

### ABSTRACT

**Objective:** To analyze the bibliometric indicators of the national and international journals in the area of nursing from the perspective of index databases. **Method:** A historical cohort referring to the period of 2014 to 2016. National nursing journals indexed in the SciELO database and classified in the Qualis as A1, A2 and B1, and international nursing journals with impact factor above 1.0 and below 1.8, indexed in the Web of Science and Scopus Bases, were selected. Nursing specialty periodicals were excluded. The bibliometric indicators were collected from the index databases and imported into Ms Excel for analysis and data tabulation. **Results:** The bibliometric indicators of the different index databases are divergent and cannot be compared. Lower title coverage and shorter calculation periods amplify the distortions between the indicators of national and international journals. **Conclusion:** The internationalization criteria imposed on national journals do not contribute to obtaining or increasing the impact factor. A broader coverage of indexed titles and a longer calculation period for citations represent a significant difference in results. The h-index and CiteScore appear to be better impact indicators for national nursing research.

### DESCRIPTORS

Bibliometrics; Impact Factor; Journal Impact Factor; Periodicals; Nursing Research.

### Corresponding author:

Magdalena José Avena  
Rua Promissão, 19 – Vila Carrão  
CEP 03448-130 – São Paulo, SP, Brazil  
madah@terra.com.br

Received: 04/23/2017  
Approved: 06/05/2017

## INTRODUCTION

Publication of research results in specialized journals is the main form of scientific dissemination in all academic areas. "Scientific information is the basic input for the scientific and technological development of a country"<sup>(1)</sup>. After being validated by peer certification this type of information, i.e. scientific research results, are disclosed to the community through the publication of articles in scientific journals<sup>(1-2)</sup>.

The adoption of the article as the main vehicle for scientific communication makes it an important instrument for measuring researcher productivity<sup>(3)</sup>.

The transition from scientific journals to electronic format has given the scientific community unprecedented agility in the disseminating of results in the history of written communication, as well as the retrieval of information and knowledge in real time<sup>(4)</sup>.

Editors involved in national scientific dissemination have searched for strategies which increase visibility and promote the internationalization of their periodicals<sup>(5)</sup> and thereby improve the indicators for measuring the impact of these publications.

The growing demand for financial resources by researchers and the scarce allocation of funds by research financing agencies require the adoption of more rigorous selection mechanisms in place of traditional peer reviews. The requirement for regular publications is added to the quantitative criteria which verify the impact of these publications.

The objective of this study was to analyze the bibliometric indicators of the national and international journals in the area of nursing from the perspective of the index databases.

## BIBLIOMETRIC INDICATORS

At present, there are several evaluation indices attributed to the journal, which aim to measure the impact of scientific production. Among them include:

### JOURNAL CITATION REPORT (JCR)

The impact indicator, known as Impact Factor (IF), considered the most influential within the scientific world<sup>(3)</sup>, is distributed by means of subscription by Clarivate, which acquired the rights of Thomson and Reuters in 2016<sup>(6)</sup>. Based on data extracted from the journals indexed in the Web of Science database (WoS), it also uses the formula created by Garfield in 1950, used for the evaluation of periodicals by librarians<sup>(7)</sup>, which only counts citations made in a given year, in documents published in the previous 2 year period<sup>(8)</sup>. Clarivate also uses other indicators, which are auxiliaries and do not influence the IF of JCR. They include:

Immediacy Index: Citation count of an article during the same year in which it was published<sup>(9)</sup>;

Half-Life: Calculation that defines the number of years ("age") needed to reach 50% of a journal's total citations. It reflects the period which articles published in a journal continue to attract citations<sup>(9)</sup>;

Eigenfactor: calculated from WoS data, with a formula similar to IF, but uses citations from a 1-year census period, and applied to the previous 5 years for calculation<sup>(9)</sup>;

Cites per item: Average number of citations received per document or the total number of citations divided by the total number of articles in the WoS database<sup>(6)</sup>;

Article Influence Score: determines the average influence of articles in a journal during the first 5 years after publication. It is calculated by multiplying the Eigenfactor Index by 0.01 and dividing it by the number of articles in the journal. This measurement is comparable to the procedure the 5-year- JCR.

### SCIMAGO JOURNAL RANKING (SJR)

Scimago Journal & Country Ranking (SJR): is an Internet platform that provides a series of indicators regarding the quality and impact of publications and journals based on information from the Elsevier Scopus Database<sup>(10)</sup>.

Scopus was created in 2004, with over 21,000 periodicals, covers a larger area than WoS and also provides alternative indicators<sup>(3)</sup>. It is the largest citation and summary database of peer-reviewed literature: scientific journals, books, and conferences. It offers "intelligent tools for tracking, analyzing and visualizing research, providing a comprehensive view of worldwide research production in the areas of science, technology, medicine, social sciences, the arts and humanities"<sup>(10)</sup>. In addition to the more widely disseminated SJR, Scimago disseminates other secondary indicators that are also not computed for SJR:

The h-index: The h-index was proposed in 2005 by the physicist Jorge E. Hirsch to measure the impact and the individual performance of researchers, based on the calculation of citations throughout their career. The same formula was used to evaluate the journals, with the h-index being based on the citations received by the journal over time<sup>(11)</sup>.

Source-Normalized Impact per Paper (SNIP): measures contextual citation impact by weighting citations based on the total number of citations in a subject field, with a lower potential for citations, aiming at equity between areas<sup>(12)</sup>.

Impact per Publication (IPP): measures the ratio of citations during 1 year of academic papers published in the 3 previous years divided by the number of academic papers published in those same 3 years<sup>(10)</sup>

Cites per Doc: Average citations per document over a period of 2, 3 and 4 years. It is calculated considering the number of citations received by a journal in the current year from the documents published during the period evaluated<sup>(10,13)</sup>.

CiteScore: Launched in December 2016 by Scopus, the indicator counts citations of articles published in the previous 3 years as it considers, that range captures the peak of citations in most disciplines. It uses all published documents: research articles, review articles, conference proceedings, errata, editorials, letters, notes and short surveys, and only excludes "in press" articles<sup>(14)</sup>.

### SCIELO CITATION INDEX (SciELO CI)

Scientific Electronic Library Online (SciELO) – Created in 1997, with the aim of increasing the visibility of natural and exact science journals, with a prevalence for medical disciplines<sup>(3)</sup>, the SciELO Periodical Collection brought greater visibility to national journals, and complimenting WoS and Scopus in participating countries<sup>(16)</sup>. In 2014, the

SciELO collection became part of the WoS database, named SciELO Citation Index (SciELO CI), with the possibility of expanding the coverage of periodicals in searched and citation counts. In addition to bibliometric citation indicators, SciELO also counts accesses and document downloads<sup>(16)</sup>.

### GOOGLE SCHOLAR METRICS (GS)

Google Scholar allows the search of academic production in a variety of disciplines and sources, including scientific articles, theses, books, abstracts, courts, professional societies, *online* archives, universities and other *sites*<sup>(17)</sup>. By accounting for citation data in all databases, its calculation follows the h-index methodology, but applied to a period of 5 years. It publishes a list of the 100 best publications in several languages, ordered by h-index and 5 year h-median metrics, but allows the search for a specific periodical or author. In addition, it shows listings by area, but only for journals which use the English language<sup>(17)</sup>.

### REPERCUSIÓN INMEDIATA CUIDEN (RIC)

Calculated based on the number of citations received by a periodical and divided by the number of articles published over a 2 year period. It only covers the constant collection of the bibliographic database of the Index Foundation, with Ibero-American coverage in the area of Health Care<sup>(18)</sup>. The Cuiden ranking also uses the “Imediatez Index”, calculated in the same way as those published by other bodies<sup>(18)</sup>.

### CLASSIFICAÇÃO QUALIS/CAPES

Qualis is a system of periodical classification used by the Postgraduate programs to disseminate their academic production<sup>(19-20)</sup>, it was created by the Coordination of Improvement of Higher Education Personnel (CAPES), founded by the Ministry of Education, at almost the same time as the creation of SciELO.

Quality is measured using a periodic evaluation system based on criteria defined by representatives of each area of expertise, organized by the Advisory Committees of each Evaluation Area-CTC-ES. National and international journals which meet criteria are categorized into categories from A1 to C<sup>(19-20)</sup>.

The last document from the available area describes the classification for the triennium 2010-2012 and in Chart 2, presents the proposal to be applied in the period 2013-2014<sup>(19)</sup>.

### RATIONALE/RELEVANCE

The discussion about the relevance of adopting international impact indicators to measure Brazilian scientific production is outdated and does not seem to evolve<sup>(2,5)</sup>.

In the area of nursing, the challenges faced by Brazilian scientific journals in increasing their visibility have proved insufficient in significantly changing the indicators<sup>(5,16,21)</sup>.

Currently, SciELO indexes seven Brazilian nursing journals, of which, Scopus indexes six and WoS only three. The inclusion of the main Brazilian nursing journals in SciELO led them to search for standards of excellence in editorial management, such as multilingual publication, rigid peer review norms and periodicity compliance<sup>(21)</sup>.

Although the implantation of the SciELO portal has brought international visibility to the Ibero-American scientific literature, especially in the area of Health and Life Sciences, such visibility in the area of Nursing did not represent an increase in the impact factor, calling into question the validity of purely metric methods in the evaluation of an area with a strong social component. The rise in international rankings was not even effective with the inclusion of SciELO nursing journals in the WoS database<sup>(5,16)</sup>.

If visibility can also be reflected in the accesses and downloads of an article<sup>(2,5)</sup>, another aspect worth highlighting is that the “lifetime” of the article in the nursing area is higher when compared to other areas, with articles being used for many years after their publication and articles which, have been downloaded hundreds of thousands of times, possibly for use in academic formation, have received little or no citation.

This panorama of divergent indicators and the fact that databases use criteria, coverage and different periods justifies this study, whose objective was to analyze the bibliometric indicators of national and international journals in the area of nursing, from the perspective of indexing databases.

Chart 1 – Nursing area classification criteria.

| Classification | Required condition                                 | OR  |
|----------------|--|---|
| A1             | WoS/JCR with impact factor $\geq 0,900$            | Scopus/SCImago with h-index $\geq 18$                                       |
| A2             | WoS/JCR with impact factor between 0,400 and 0,899 | Scopus/SCImago with h-index between 8 and 17                                |
| B1             | WoS/JCR with impact factor $\leq 0,399$            | Scopus/SCImago with h-index $\leq 7$ OR CUIDEN with RIC index $\geq 1,1400$ |
| B2             | CUIDEN with RIC index between 0,2300 and 1,0999    | Medline, SciELO, CINAHL, REV@ENF da BVS-Enfermagem                          |
| B3             | CUIDEN with RIC index $\leq 0,2299$                | Lilacs  |
| B4             | BDENF  | Latindex  |
| B5             | Indexed in other databases                         | Belonging to other associations/ societies                                  |
| C              | Periodicals with ISSN                              | and /or unsuitable  |

Source: CAPES<sup>(19)</sup>

## METHOD

**Ethical aspects:** the study was approved by the Ethics and Research Committee of the Federal University of São Paulo. Opinion n. 503,573, in the year 2013.

**Study design:** historic cohort referring to the time period of 2014 to 2016.

**Place of study:** research conducted using the internet as a search tool. Downloads of data files from WoS, Scopus, SciELO.

**Inclusion/exclusion criteria:** national nursing journals indexed in the SciELO database and classified in Qualis as A1, A2 and B1: *Acta Paulista de Enfermagem*; *Escola Anna Nery Revista de Enfermagem*; *Revista Brasileira de Enfermagem*; *Revista da Escola de Enfermagem da USP*; *Revista Gaúcha de Enfermagem*; *Revista Latino-Americana de Enfermagem*; *Texto & Contexto Enfermagem*.

International nursing journals with impact factors between 1.0 and 1.8.

American Journal of Nursing; Applied Nursing Research; International Nursing Review; Journal of Nursing Care Quality; Nursing & Health Sciences; Nursing Inquiry; Research in Nursing & Health.

Journals with scopes focused on nursing specialties were excluded.

**Protocol of the study:** National and international journals of the area, indexed in the WoS, Scopus and SciELO databases which fulfilled the inclusion criteria were selected. The variables studied were imported into MS-Excel for tabulation and analysis.

**General characteristic variables of periodicals:** Affiliations, Publisher, Creation, Periodicity, Support.

### Evaluation indicator variables

Web of Science: Journal Citation Report (JCR) - Impact Factor; Imediatez, 5-year impact factor, h-Index; Cites per item, Half-life.

Scopus Scimago: SCImago Journal Ranking (SJR), CiteScore, Cites per Doc, h-index, SNIP.

SciELO: Citation Index CI (2 and 3 years); Imediatez, Half-life.

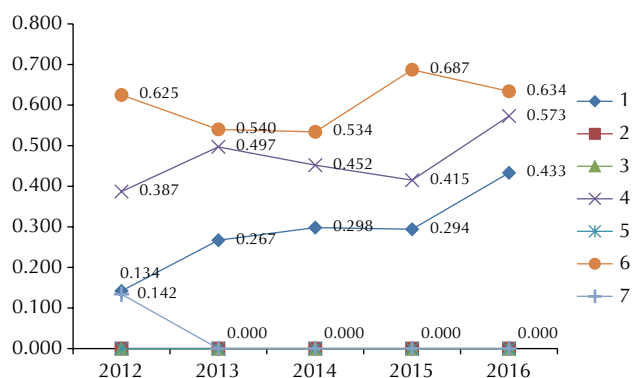
Cuiden: Repercusión Inmediata CUIDEN (RIC), Imediatez.

Google Scholar: h-index 5-i, h-index 5-m.

CAPES: Qualis.

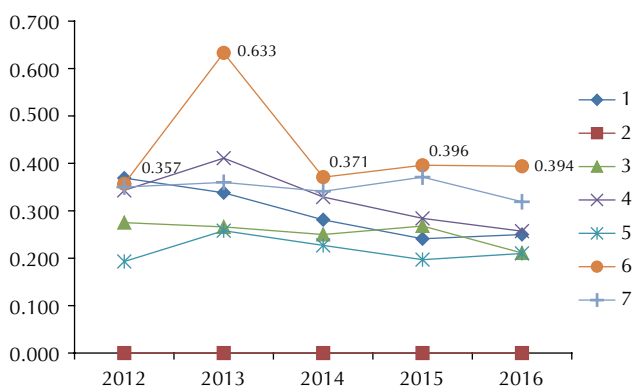
## RESULTS

It can be observed in Figures 1 and 2, except for the exclusion of a periodical, the other national journals remained at the same level in the two main impact indicators.



Source: Clarivate – WoS.

**Figure 1** – Evolution of the JCR-WOS Impact Factor of Brazilian periodicals during the study period.



Source: Scimago.

**Figure 2** – Evolution of the SJR Scimago of Brazilian journals during the study period.

**Chart 2** – Main indicators attributed by the Index databases to the periodicals – São Paulo, SP, 2017.

|             | National Journals |       |       |       |       |       |       | International Journals |        |       |       |       |       |       |       |       |              |        |
|-------------|-------------------|-------|-------|-------|-------|-------|-------|------------------------|--------|-------|-------|-------|-------|-------|-------|-------|--------------|--------|
|             | 1                 | 2     | 3     | 4     | 5     | 6     | 7     | Average (SD)           | Median | 8     | 9     | 10    | 11    | 12    | 13    | 14    | Average (SD) | Median |
| WoS-FI-JCR  | 0.433             | N/A   | N/A   | 0.573 |       | 0.634 | N/A   | 0.547 (0.10)           | 0.573  | 1.605 | 1.379 | 1.517 | 1.117 | 1.347 | 1.141 | 1.638 | 1.392 (0.21) | 1.38   |
| Scimago-SJR | 0.250             | N/A   | 0.211 | 0.257 | 0.210 | 0.394 | 0.319 | 0.293 (0.08)           | 0.28   | 0.295 | 0.483 | 0.661 | 0.602 | 0.760 | 0.504 | 0.702 | 0.572 (0.16) | 0.60   |
| SciELO-CI   | 0.497             | 0.339 | 0.512 | 0.456 | 0.375 | 0.569 | 0.390 | 0.448 (0.08)           | 0.46   | N/A   | N/A   | N/A   | N/A   | N/A   | N/A   | N/A   | N/A          | N/A    |
| Cuiden-RIC  | 1.479             | 2.226 | 1.931 | 2.006 | 1.499 | 2.368 | 1.870 | 1.911 (0.33)           | 1.93   | N/A   | N/A   | N/A   | N/A   | N/A   | N/A   | N/A   | N/A          | N/A    |

N/A=not available

Periodicals from one to seven: national, in alphabetical order. Periodicals from eight to 14: international, in alphabetical order

Source: WoS, Scimago, SciELO, Fund. Index

The main indicators that guide the evaluation of journal quality by financial institutions, universities and authors are essentially quantitative, as identified in Chart 2. From the International Journals, two are

classified in Qualis/CAPES, but, as per the criteria of the area, all would be A1. The numbers indicated by the databases have no similarity and are not comparable to each other.

**Chart 3** – Indicators for the evaluation of quality attributed by Indexing databases to periodicals – São Paulo, SP, 2017.

|                |                | National |      |      |      |      |      |      | International |        |      |      |      |      |      |      |       |              |        |
|----------------|----------------|----------|------|------|------|------|------|------|---------------|--------|------|------|------|------|------|------|-------|--------------|--------|
|                |                | 1        | 2    | 3    | 4    | 5    | 6    | 7    | Average (SD)  | Median | 8    | 9    | 10   | 11   | 12   | 13   | 14    | Average (SD) | Median |
| Web Of Science | Cites per item | 0.81     | 0.52 | 0.92 | 0.85 | 0.60 | 1.07 | 0.56 | 0.76 (0.21)   | 0.81   | 2.85 | 1.64 | 2.26 | 2.91 | 1.84 | 2.08 | 2.78  | 2.34 (0.52)  | 2.78   |
|                | Imediatez      | 0.04     | N/A  | N/A  | 0.02 | N/A  | 0.05 | N/A  | 0.04 (0.01)   | 0.04   | 0.11 | 0.21 | 0.12 | 0.12 | 0.06 | 0.18 | 0.28  | 0.15 (0.07)  | 0.12   |
|                | IF 5 years     | 0.35     | N/A  | N/A  | 0.52 | N/A  | 0.73 | N/A  | 0.53 (0.19)   | 0.52   | 1.62 | 1.74 | 1.72 | 1.19 | 1.49 | 1.38 | 2.33  | 1.64 (0.36)  | 1.49   |
|                | Half life      | 4.90     | N/A  | N/A  | 4.80 | N/A  | 5.70 | N/A  | 5.13 (0.49)   | 4.90   | 9.10 | 8.20 | 6.10 | 7.20 | 5.60 | 8.50 | >10.0 | 7.45 (1.39)  | 6.60   |
| Scopus Scimago | CiteScore      | 0.56     | 0.00 | 0.45 | 0.48 | 0.42 | 1.01 | 0.56 | 0.50 (0.30)   | 0.29   | 1.35 | 1.44 | 1.28 | 1.81 | 1.16 | 1.56 | 0.29  | 1.27 (0.48)  | 1.35   |
|                | Cites per Doc  | 0.51     | 0.00 | 0.28 | 0.44 | 0.31 | 0.98 | 0.40 | 0.42 (0.30)   | 0.77   | 1.35 | 1.58 | 1.24 | 1.26 | 1.16 | 1.65 | 0.77  | 1.29 (0.29)  | 1.26   |
|                | SNIP           | 0.56     | 0.00 | 0.00 | 0.41 | 0.00 | 0.59 | 0.59 | 0.31 (0.17)   | 0.69   | 0.79 | 1.18 | 0.98 | 1.38 | 0.90 | 0.95 | 0.69  | 0.98 (0,23)  | 0.95   |
| Scielo         | CI-3 anos      | 0.51     | 0.57 | 0.56 | 0.60 | 0.53 | 0.82 | 0.52 | 0.59 (0.11)   | 0.56   | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A   | N/A          | N/A    |
|                | Imediatez      | 0.04     | 0.03 | 0.05 | 0.02 | 0.08 | 0.04 | 0.04 | 0.04 (0.02)   | 0.04   | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A   | N/A          | N/A    |
|                | Half life      | 5.40     | 5.24 | 6.50 | 5.19 | 4.97 | 6.11 | 5.16 | 5.51 (0.57)   | 5.24   | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A   | N/A          | N/A    |

N/A=not available

Periodicals from one to seven: national in alphabetical order. Periodicals from eight to 14: international in alphabetical order.

Source: WoS, Scimago, SciELO

Secondary indicators that adopt normalization by area, qualifying citing journals as well as those covering longer periods of time present less extreme, more balanced results.

The data presented in Chart 4 reflect the inequality between the indicators, according to the scope of the database that present them. Even those who use the same methodology, from citations throughout the

journal's existence (h-index), are incomparable precisely because the coverage of journals in the different databases is different.

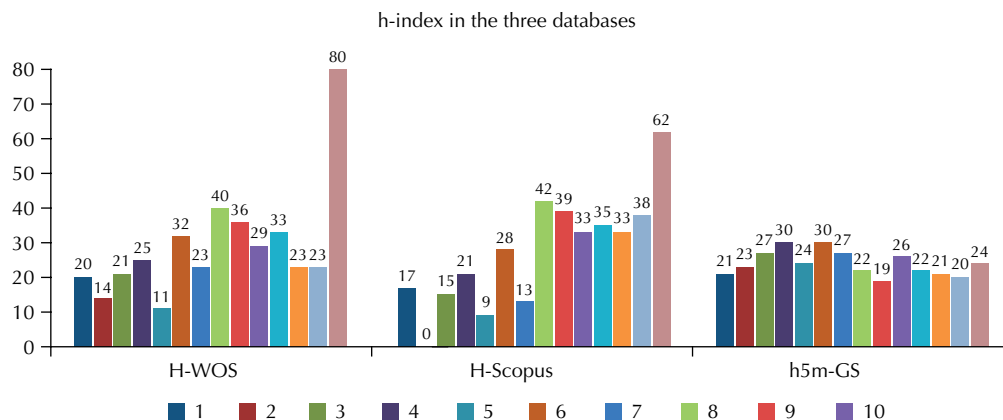
Figure 3 facilitates the visualization of these distortions, present even in the most balanced indicator: the h-index in the three bases calculated from the total of articles published by the journal and constant in the database.

**Chart 4** – Bibliometric indicators with similar methodology evaluated by different databases – São Paulo, SP, 2017.

| Database |      | National Journals |    |    |    |    |    |    | International Journals |        |    |    |    |    |    |    |    |               |        |
|----------|------|-------------------|----|----|----|----|----|----|------------------------|--------|----|----|----|----|----|----|----|---------------|--------|
|          |      | 1                 | 2  | 3  | 4  | 5  | 6  | 7  | Average (SD)           | Median | 8  | 9  | 10 | 11 | 12 | 13 | 14 | Average (SD)  | Median |
| WOS      | H    | 20                | 14 | 21 | 25 | 11 | 32 | 23 | 20.86 (6.96)           | 21     | 40 | 36 | 29 | 33 | 23 | 23 | 80 | 37.71 (19.70) | 33     |
| Scimago  | H    | 17                | 0  | 15 | 21 | 9  | 28 | 13 | 14.71 (8.88)           | 15     | 42 | 39 | 33 | 35 | 33 | 38 | 62 | 40.29 (10.13) | 38     |
| GS       | h5-i | 21                | 23 | 27 | 30 | 24 | 30 | 27 | 26.00 (3.46)           | 27     | 22 | 19 | 26 | 22 | 21 | 20 | 24 | 22.00 (2.38)  | 22     |

N/A=not available.

Source: Fonte: WoS, Scimago, Google Scholar



**Figure 3** – h-Index in WoS, Scopus and Google Scholar Databases - São Paulo - 2014 to 2016.

With identical methodology, the data obtained are unequal due to the difference of journals indexed in the databases. Google Scholar, represents the most balanced result as it collects its data from every databases. Source: WoS, Scimago, Google Scholar.

Regarding the characteristics of periodicals, periodicity, links, support, language, etc., the results show a greater similarity between the national and international sample. The periodicity is varied, with the majority being seven, bimonthly, one with continuous flow and two others preparing for such. The publication format, in its entirety, is electronic. All journals belong to or are in some way linked to societies, class associations or academics. Considering SciELO as an editor, all journals are linked to some *Publisher*.

## DISCUSSION

A historical series was performed comparing seven international journals, considered to have a standard of excellence, with seven national journals indexed in SciELO, a database that hosts a significant part of the national research production.

During the study, one national newspaper was excluded from WoS, and another was suspended for 1 year, which may have impacted the indicators of the periodicals that remained. The alleged reason for suspending the journal was a high rate of self-citation.

To avoid suspension and subsequent exclusion, editors began to avoid self-citation and cross-citation, while encouraging citation to foreign articles. These two actions significantly reduced citations in national journals.

This, together with the absence of the other periodicals, in WoS which quoted the articles from Brazilian periodicals more often, made any rise in the ranking unfeasible.

It was observed during the study that the established SciELO criteria for indexing the national journals, which aim for excellence, are not required for the international nor are they required to have a high impact factor. Among the international journals studied, the occurrence of an endogenous Editorial Board was observed with a single language publication, lack of information regarding the evaluation of the flow of the manuscripts and in particular the access charges<sup>(22)</sup>.

The aspect with greater inequality corresponded to the financing and the contribution of resources. While national journals are wholly maintained with sponsorship and public resources, international journals are funded by private companies and associations and also advertise paid advertisements on their pages.

With regards to the running time of the journals, in order to verify if the length of time a journal exists could be synonymous with more efficient management, it was verified that this variable did not lead to a higher or lower IC. The oldest running magazine does not have the highest IF, nor does the newer one show the lowest.

The hypothesis was based on the assumption that the requirements for permanence in the SciELO database, aiming at the internationalization of research of national scientific journals, would increase the visibility of scientific production to the international community<sup>(16,21-25)</sup>, which could contribute an increased IF. However, even though most of the criteria for excellence are met, the IF has remained relatively unchanged, and most journals do not proceed in an upward curve in the IF-JCR or SJR (Figures 1-2).

In the last ten years, there has been increased questioning regarding the preferred application of IF in the evaluation of journals and its consequence in the evaluation of researchers. At the same time, other formulas were used to calculate the “impact” of an article or periodical in its field<sup>(12, 25-27)</sup>.

It is argued that IF is an imprecise measure, that has great potential for distortions, is vulnerable to manipulation, through the practice of self-citation, cross-citation, and publishes massive amounts of review articles which attract more citations<sup>(25)</sup>.

Considering that the IF is only calculated from the citations received in the journals presented in WoS, the low representation of national nursing in this database only increases the distance between the indicators of the national journals and the best ranking international journals<sup>(6)</sup>.

The results presented in Chart 2 highlight that, although the IF, SJR and RIC indicators are the ones that guide the quality evaluation of the periodicals for grant promotion, the indexes presented by the databases do not resemble each other, they adopt different methodologies and data sources,

not clearly presented to the editors, who cannot easily confirm the data for the final result<sup>(12)</sup>.

In Chart 3 other metrics are presented which, although represent a quality indicator for periodicals, are not computed to the main and most relevant indicator of the database. However, what we perceive is that the normalization by area, pondering the potential of the citation, or when the citing journals are also evaluated, or, as in the case of CiteScore, only with the extension of the established interval, as well as the coverage of diverse types of documents, balances the result, resulting in a less distal interval<sup>(12, 27)</sup>.

This analysis of h-index data and other indexes which cover a larger time period brings other elements to the discussion: the question of how long the articles in the area should be used for. The longer the period, the more balanced the numbers become. This may mean that the science produced in the field of nursing has a longer life and a lower obsolescence rate than other health areas<sup>(28)</sup>.

These results show that the proliferation of new measures, with scopes, intervals and different methodologies, represent dissatisfaction in all areas when IF is used exclusively<sup>(12)</sup>.

With the presence of only three national nursing journals in WoS, Brazilian citations will always be minimized. Currently, only Scopus comes close to covering the same amount as SciELO, which is now the most complete evaluation indicator for nursing journals in the Ibero-Latin American universe<sup>(26)</sup>.

Only the inclusion of the main national magazines in the utilized database could result in improvement of the ranking. Likewise, changes in the policy with regards to encouraging the publication of national research in Brazilian journals can alter this perspective<sup>(29)</sup>.

## CONCLUSION

The results obtained from this study allow us to affirm that the criteria for the internationalization imposed on journals does not contribute to obtaining or increasing the IF.

The IF, created in 1950, is an analog indicator used in a digital universe. It was created to measure the use of library collections due restricted physical space, a problem that is no longer present nowadays. Articles in the digital world remain indefinitely within user reach, being read and downloaded for long periods, and may require other indicators that measure these various uses.

It is recommended that the adoption of the IF should no longer be the “gold standard” and that the other indicators should be adopted in the evaluation processes of the journals, according to the specificities of each area. SNIP and CiteScore are highlighted, which use a longer duration period for citation count, and thus reduces the distortion between the obtained numbers. By assigning greater weight to areas, SNIP raises the numbers of all journals and, as it covers four Brazilian journals, also reduces the distortion between numbers.

Therefore, it is understood that the IF cannot be considered the most important aspect in science. For other areas with higher citation potential for, the IF can be considered a qualifier, however in nursing, where innovations and discoveries are more impacting in the long term, the evaluation should be differentiated.

According to this logic, it is understood that as the h-index covers the whole collection of the Journal and contemplates the citations throughout all this time, it should be considered more in the evaluation of the periodicals and classification processes. In this same line of thinking, CiteScore also becomes a fairer option to complement the evaluation.

## RESUMO

**Objetivo:** Analisar os indicadores bibliométricos dos periódicos nacionais e internacionais na área de Enfermagem, sob a ótica das bases indexadoras. **Método:** Coorte histórica referente ao período de 2014 a 2016. Foram selecionados os periódicos nacionais de enfermagem indexados na base SciELO e classificados no Qualis A1, A2 e B1, e periódicos internacionais de enfermagem com fator de impacto acima de 1.0 e abaixo de 1.8, indexados nas Bases Web of Science e Scopus. Foram excluídos os periódicos de especialidades da enfermagem. Os indicadores bibliométricos foram coletados das bases de dados indexadoras e importados no Ms Excel, para análise e tabulação. **Resultados:** Os indicadores bibliométricos das diversas bases indexadoras são divergentes e não podem ser comparados. Menor cobertura de títulos e período mais curto para o cálculo ampliam as distorções entre os indicadores das revistas nacionais e internacionais. **Conclusão:** Os critérios para internacionalização impostos aos periódicos nacionais não contribuem para obtenção ou aumento do fator de impacto. Cobertura mais ampla de títulos indexados e um período maior no cálculo de citações representam diferença significativa nos resultados. O índice H e o CiteScore parecem ser melhores indicadores do impacto da pesquisa de enfermagem nacional.

## DESCRITORES

Bibliometria; Fator de Impacto; Fator de Impacto de Revistas; Publicações Periódicas; Pesquisa em Enfermagem.

## RESUMEN

**Objetivo:** Analizar los indicadores bibliométricos de los periódicos nacionales e internacionales en el área de Enfermería, bajo la óptica de las bases indexadoras. **Método:** Cohorte histórica referente al período de 2014 a 2016. Fueron seleccionados los periódicos nacionales de enfermería indexados en la base SciELO y clasificados en el Qualis A1, A2 y B1, y periódicos internacionales de enfermería con factor de impacto arriba de 1.0 y abajo de 1.8, indexados en las Bases Web of Science y Scopus. Fueron excluidos los periódicos de especialidades de la enfermería. Los indicadores bibliométricos fueron recogidos de las bases de datos indexadoras e importados al Ms Excel, para análisis y tabulación. **Resultados:** Los indicadores bibliométricos de las distintas bases indexadoras son divergentes y no pueden compararse. Menor cobertura de títulos y período más corto para el cálculo amplian las distorsiones entre los indicadores de las revistas nacionales e internacionales. **Conclusión:** Los criterios para internacionalización impuestos a los periódicos nacionales

no contribuyen a la obtención o aumento del factor de impacto. Cobertura más amplia de títulos indexados y un período mayor en el cálculo de citaciones representan diferencia significativa en los resultados. El índice H y el CiteScore parecen ser mejores indicadores del impacto de la investigación de enfermería nacional.

## DESCRIPTORES

Bibliometría; Factor de Impacto; Factor de Impacto de la Revista; Publicaciones Periódicas; Investigación en Enfermería.

## REFERENCES

1. Kuramoto H. Informação científica: proposta de um novo modelo para o Brasil. *Ci Inf* [Internet]. 2006 [cited 2016 June 02];35(2). Disponível em: <http://revista.ibict.br/ciinf/article/view/1144>.
2. Mugnaini R. Caminhos para adequação da produção científica brasileira: impacto nacional versus impacto internacional [tese doutorado]. São Paulo: Universidade de São Paulo, Escola de Comunicação e Artes; 2006.
3. Aguado-López E, Rogel-Salazar R, Becerril-García A. Limites e potencialidades da avaliação científica: crítica epistemológica à cobertura de bases de dados e à construção de indicadores. In: Ferreira SMSP, Targino MG, organizadores. *Acessibilidade e visibilidade de revistas científicas eletrônicas*. São Paulo: SENAC; 2010. p.175-212
4. Meadows AJ. Os periódicos científicos e a transição do meio impresso para o eletrônico. *Rev Bibliotecon Brasília* [Internet]. 2001 [citado 2015 out. 02];25(1):5-14. Disponível em: [http://www.brapci.ufpr.br/brapci/\\_repositorio/2010/10/pdf\\_29f176742d\\_0012269.pdf](http://www.brapci.ufpr.br/brapci/_repositorio/2010/10/pdf_29f176742d_0012269.pdf)
5. Marziale MHP. Editorial management: innovations and perspectives [editorial]. *Rev Latino Am Enfermagem*. 2014;22(1):1-2.
6. Thompson Reuters. Web of Science, Web of knowledge [Internet]. 2016 [cited 2014 June 02]. Available from: [http://wokinfo.com/products\\_tools/analytical/jcr/](http://wokinfo.com/products_tools/analytical/jcr/)
7. Garfield E. "The agony and the ecstasy: the history and meaning of the Journal Impact Factor [Internet]. Chicago; 2005 [cited 2016 Oct 05]. Available from: <http://garfield.library.upenn.edu/papers/jifchicago2005.pdf>
8. Araújo CA. Bibliometria: evolução histórica e questões atuais. *Em Questão*. 2006;12(1):11-32.
9. Pendlebury D. The use and misuse of journal metrics and other citation indicators. *Arch Immunol Ther Exp*. 2009;57(1):1-11.
10. SCIMAGO SJR. SCImago Journal & Country Rank [Internet]. 2015 [cited 2016 June 02]. Available from: <http://www.scimagojr.com/>
11. Hirsch JE. An index to quantify an individual's scientific research output. *Proc Nati Acad Sci U S A*. 2005;102(46):16569-72.
12. Waltman L, van Eck NJ, van Leeuwen TN, Visser MS. Some modifications to the SNIP journal impact indicator. *J Informetr*. 2013;7(2):272-85.
13. Mingers J, Leydesdorff L. A review of theory and practice in scientometrics. *Eur J Oper Res*. 2015;246(1):1-19.
14. Scopus. Journalmetrics: introducing CiteScore metrics for serials [Internet]. 2016 [cited 2016 Dec 15]. Available from: <https://journalmetrics.scopus.com/>
15. Pendlebury DA, Adams J. Comments on a critique of the Thomson Reuters journal impact factor. *Scientometrics*. 2012;92(2):395-401.
16. Packer AL. A eclosão dos periódicos do Brasil e cenários para o seu porvir. *Educ Pesqui* [Internet]. 2014;40(2):301-23. Disponível em: <http://www.scielo.br/pdf/ep/v40n2/v40n2a02.pdf>
17. Google Scholar. About Google Scholar [Internet]. 2016 [cited 2016 Dec 15]. Available from: <https://scholar.google.com.br/intl/pt-BR/scholar/about.html>
18. Fundación Index. Cuiden: Base de Datos Bibliográfica [Internet]. 2016 [citado 2016 Dez. 15]. Disponible en: <http://www.index-f.com/new/cuiden/>
19. Brasil. Ministério de Ciência e Tecnologia; Coordenação de Aperfeiçoamento de Pessoal de Nível Superior. *Avaliação Qualis* [Internet]. Brasília: CAPES; 2014. Disponível em: <http://www.capes.gov.br/avaliacao/qualis>
20. Trzesniak P. As dimensões da qualidade dos periódicos científicos e sua presença em um instrumento da área da educação. *Rev Bras Educ*. 2006;11(32):346-77.
21. Marziale MHP. Produção científica da enfermagem brasileira: a busca pelo impacto internacional [editorial]. *Rev Latino Am Enfermagem*. 2005;13(3):285-6. DOI: <https://doi.org/10.1590/S0104-11692005000300001>
22. Scientific Electronic Library Online (SciELO). Critérios SciELO Brasil: critérios, política e procedimentos para a admissão e a permanência de periódicos científicos na Coleção SciELO Brasil [Internet]. São Paulo; 2014. [citado 2016 dez. 15]. Disponível em: [http://www.scielo.br/avaliacao/criterio/scielo\\_brasil\\_pt.htm](http://www.scielo.br/avaliacao/criterio/scielo_brasil_pt.htm)
23. Ferreira AGC, Caregnato SE. Visibilidade de revistas científicas: um estudo no Portal de Periódicos Científicos da Universidade Federal do Rio Grande do Sul. *Transinformação*. 2014;26(2):177-90.
24. Packer AL. Os periódicos brasileiros e a comunicação da pesquisa nacional. *Rev USP* [Internet]. 2011 [citado 2016 out. 05];(89):26-61. Disponível em: <https://doi.org/10.11606/issn.2316-9036.v0i89p26-61>
25. Portugal MJ, Branca S, Rodrigues M. Dados de medida de fator de impacto das revistas científicas. *Rev Enferm Ref* [Internet]. 2011 [citado 2016 dez. 15];III Série(5):211-5. Disponível em: <http://www.scielo.mec.pt/pdf/ref/vserIIIIn5/serIIIIn5a22.pdf>
26. Mugnaini R. The Impact Factor: its popularity and impacts, and the need to preserve the scientific knowledge generation process [editorial]. *Rev Esc Enferm USP*. 2016;50(5):720-1. DOI: <http://dx.doi.org/10.1590/s0080-62342016000600002>
27. Van Noorden R. Controversial impact factor gets a heavyweight rival. *Nature* [Internet]. 2016 [cited 2016 Oct 05];540:325-6. Available from: <http://www.nature.com/doifinder/10.1038/nature.2016.21131>



28. Silva MJP, Egry EY, Margareth A, Barbosa MAM, Sousa RMC, Castilho V, et al. Nursing knowledge production: from the research idea to the publishing in a qualified journal. *Rev Esc Enferm USP*. 2009;43(n.spe2):1345-5.
29. Grinberg M, Solimene MC, Barreto MCC. Por que publicar em periódicos nacionais? *Arq Bras Cardiol*. 2012;98(3)e62-e63.

---

### Financial support

Conselho Nacional de Desenvolvimento Científico e Tecnológico – CNPq. Process no. 443997/2014-4.

---



This is an open-access article distributed under the terms of the Creative Commons Attribution License.