

The Brazilian Journal of Rheumatology over the last ten years – a Scientometrics-based view

Scientometrics is the study of the quantitative aspects of science, while a discipline or economic activity. Scientometrics is a segment of science sociology that is applied to the development of scientific policies. It involves quantitative studies of scientific activities, including the publication and therefore, superimposing Bibliometrics.

In the last ten years, much effort has been devoted by the Brazilian Society of Rheumatology (*Sociedade Brasileira de Reumatologia*) to increase the journal's visibility. One of these efforts was the journal indexing in the following databases: LILACS, SciELO, Scopus® and Index Copernicus. Currently, with PubMed indexing, our visibility in the international scientific scenario has been expanded. Among these databases, the one supplied by Scopus allowed us to design a scientometric profile of our journal regarding the last ten years.

Before analyzing our journal's data, it would be important to define some parameters used in scientometrics. The first one is the impact factor (IF). The IF was created in an attempt to measure quality. Quality can be established **before publication**, with the participation of the reviewers carrying out the peer-review and **after publication**, by computing the citations. There are two indexing systems that generate the IF. The one more broadly known is the **ISI-JCR**®, established by the Web of Science® database, maintained by Thomson Reuters®. It is calculated as the following example:

$$\text{Impact Factor}^{\circledR}_{2010\text{-JCR}} = \frac{\text{number of citations in 2009 of articles published in 2007-2008}}{\text{number of articles published in the journal in 2007-2008}}$$

Analyzing this formula, the impact factor of a journal in 2010 will depend on the citations that occurred in 2009, relating to articles published in the journal in the previous

biennium (2007-2008). So if a journal had 140 citations in 2009 (referring to the articles of the biennium 2007-2008), by dividing by the number of articles published in the biennium 2007-2008 (for example, 140 articles), the 2010 impact factor will be equal to one.

The other impact factor is the **SJR**, established by the Scopus-SCIMAGO® indexing system, maintained by Elsevier. The measurement of the SCIMAGO® impact factor is very similar to that of ISI-JCR®, with a coefficient of regression = 0.97. Thus, the Brazilian Journal of Rheumatology (RBR) will be analyzed based on the data originated from the Scopus-SCIMAGO® indexing system (www.scimagojr.com), which is an open and free system for the entire scientific community.

Table 1 shows RBR parameters during the last ten years (1999-2008). During this period, the impact factor of SCIMAGO-SJR of RBR decreased from 0.045 to 0.031 and it was zero in 2004 and 2005. The total number of articles published per year varied from 53 to 92 and there was no indexing in the years 2001, 2002, 2003 and 2004.

RBR is a journal with a low rate of self-citation. In this case, self-citation is defined regarding the journal, not the author. For instance, if a journal has 20% of self-citation, it means that on average, 20% of the articles in the reference list have been published in the same journal. In relation to 2008, there were only 15 self-citations of the total number of articles published by RBR, a quite low number, considering that in the same year, RBR cited 1,497 articles. Hence, the rate of self-citation is 1%, which contributes to the low IF of the journal. As an example, the journal *Arthritis & Rheumatism* has a 10% rate of self-citation and the *Annals of Rheumatic Diseases* has 8%. It is noteworthy the fact that the IF of the *Annals* increased proportionally to the increase in self-citation. In 1999, the *Annals* had an IF of 2.07 and self-citation of 1.5%. In 2008, the IF increased to 6.67 and self-citation to 16%. Thomson Reuters® (Web of Science®) and

Scopus® consider a limit of 50% for self-citation, with the ideal rate being 20 to 30%. Therefore, we must encourage authors to cite articles that have been previously published by RBR that are relevant to the scientific work that is to be published. If we do not appreciate what we publish, others won't do it, either.

The **cites/doc** rate (2 years, Table 1) is calculated similarly to that calculated by the impact factor of Web of Science® JCR®. The RBR index has improved over the last ten years, increasing from 0.07 in 1999 to 0.23 in 2008. This improvement was attained through the increase in the number of documents cited per year (cited docs, Table 1) in the analyzed decade, totaling 38 citations in 2008. A possible explanation for this increase is the publication of treatment consensuses by SBR during

the 2007-2008 biennium. In a hypothetical situation, in case of the RBR indexing by the Web of Science®, the approximate ISI-JCR® Impact Factor® would be 0.20.

Figure 1 shows the performance of RBR in the years 2001-2008, showing the evolution of SJR, of the impact factor, number of citations in 2 years/number of articles published during those two years (similar to the IF of JCR) and the total number of citations per year. SCIMAGO offers free access to this figure for inclusion in the journal's website.

Table 2 shows the comparisons per year of the cites/doc 2 years index (number of citations every 2 years/number of articles published in the biennium, equivalent to FI-JCR-ISI®), between the journal with the highest impact factor (Arthritis & Rheumatism), the journal occupying the last position of Quartile 2 (Q2 – Pediatric Rheumatology), the journal occupying the first position of Q3 (*Acta Reumatológica Portuguesa*), the journal occupying the last position in Q3 (International Journal of Rheumatic Diseases) and the *Revista Brasileira de Reumatologia – RBR* (Brazilian Journal of Rheumatology), which occupies the first position in Q4. RBR started to be indexed in 2006, showing a progressive increase in its impact factor. If the journal had been indexed in the Web of Science®, this possibly would be the FI-JCR of our journal. It is interesting to observe that journals recently indexed in Scopus®, such as *Pediatric Rheumatology* and *Acta Reumatológica Portuguesa* quickly achieved a higher IF than that of RBR.

In order to increase this index, it is necessary to increase the number of citations of the journal articles during 2010, regarding the articles published in the 2008-2009 biennium. We once more emphasize the need for new RBR authors to

Figure 1.
Brazilian Journal of Rheumatology

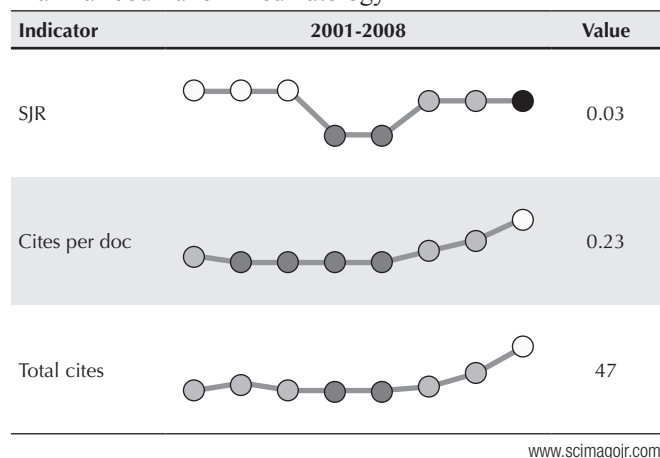


Table 1
Analysis of the Brazilian Journal of Rheumatology (*Revista Brasileira de Reumatologia*) by SCIMAGO-SJR, base-year 2009, 2007-2008 biennium

Indicators	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
SJR	0.045	0.042	0.039	0.041	0.038	0	0	0.031	0.03	0.031
Total Documents	75	53	0	0	0	0	80	92	74	70
Total References	1.884	1.441	0	0	0	0	1.756	2.125	1.868	1.497
Self Cites (3years)	0	5	0	0	0	0	0	3	9	15
Citable Docs. (3years)	132	196	177	110	46	0	0	65	147	217
Cites / Doc. (2years)	0.07	0.05	0.02	0	0	0	0	0.05	0.11	0.23
References / Doc.	25.12	27.19	0	0	0	0	21.95	23.1	25.24	21.39
Cited Docs.	8	11	2	2	1	0	0	3	16	38
Uncited Docs.	143	215	208	126	52	0	0	77	156	208
% International Collaboration	0	0	0	0	0	0	58.75	47.83	21.62	11.43

SJR: SCImago Journal & Country Rank, retrieved in September 30, 2010, from <http://www.scimagojr.com>.

Table 2

Comparison among the journals with the highest impact factor in quartile 1 (Q1, Arthritis & Rheumatism), quartile 2 (Q2, Pediatric Rheumatology), quartile 3 (Q3, Acta Reumatológica Portuguesa), the one with the lowest IF in quartile 3 (International Journal of Rheumatic Diseases) and the one with the highest IF in quartile 4 (Q4, Revista Brasileira de Reumatologia)

Journal	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Arthritis and Rheumatism (Q1)	5.37	5.692	6.198	6.900	7.193	8.471	8.461	8.956	8.203	7.698
Pediatric Rheumatology (Q2)	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.824
Acta Reumatologica Portuguesa (Q3)	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.161	0.613
International Journal of Rheumatic Diseases (Q3)	0.00	0.000	0.000	0.000	0.000	0.000	0.255	0.161	0.226	0.264
Revista Brasileira de Reumatologia (Q4)	0.06	0.053	0.018	0.000	0.000	0.000	0.000	0.046	0.109	0.230

appreciate the journal, not only by submitting original articles, but also by citing the articles published in RBR in their articles published in other journals and RBR itself.

Carrying on the tireless efforts made by all editors that preceded us, our main objective is to try to maintain its regular periodicity. Periodicity is the number one parameter for indexing and indexing maintenance in any database, be it PubMed, Web of Science® or Scopus®. Keeping on the previous Editorial line, RBR will prioritize original articles, limiting the publication of clinical cases to 2-3 per issue. RBR will continue to be bilingual, both for submission and

publication. Moreover, we will attempt to decrease the time between submission and publication at the journal, including the online-first publication system.

Finally, we would like to thank the trust you have bestowed on us, especially President Geraldo da Rocha Castelar Pinheiro, regarding the great challenge of being the editors of Brazilian Journal of Rheumatology.

Paulo Louzada-Junior, MD
Max Victor Carioca Freitas, MD

Editors in Chief of Brazilian Journal of Rheumatology 2011

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