

## **Impact of SciELO and MEDLINE indexing on submissions to *Jornal de Pediatria***

*Impacto da indexação no SciELO e MEDLINE sobre as submissões ao Jornal de Pediatria*

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### **Abstract**

**Objective:** To evaluate the impact of SciELO and MEDLINE indexing on the number of articles submitted to *Jornal de Pediatria*.

**Methods:** Analysis of total article submission, submission of articles from foreign countries and acceptance figures in the following periods: stage I - pre-website (Jan 2000-Mar 2001); stage II - website (Apr 2001-Jul 2002); stage III - SciELO (Aug 2002-Aug 2003); stage IV - MEDLINE (Sep 2003-Dec 2004).

**Results:** There was a significant trend toward linear increase in the number of submissions along the study period ( $p = 0.009$ ). The number of manuscripts submitted in stages I through IV was 184, 240, 297, and 482, respectively. The number of submissions was similar in stages I and II ( $p = 0.148$ ), but statistically higher in Stage III ( $p < 0.001$  vs. Stage I and  $p = 0.006$  vs. Stage II) and Stage IV ( $p < 0.001$  vs. stages I and II, and  $p < 0.05$  vs. stage III). The rate of article acceptance decreased during the study period. The number of original articles published has been stable since the 2001 March/April issue ( $n = 10$ ), when the journal reached a printed page limit, leading to stricter judgment criteria and a relative decrease in acceptance rate. The number of foreign submissions in stages I through IV was 1, 2, zero and 17, respectively, with  $p < 0.001$  for the comparison of stage IV with previous stages.

**Conclusions:** SciELO indexing was associated with an increase in Brazilian manuscript submissions to *Jornal de Pediatria*, whereas MEDLINE indexing led to an increase in both Brazilian and foreign submissions.

*J Pediatr (Rio J)*. 2005;81(6):431-4: Database, journal article, impact assessment.

### **Resumo**

**Objetivo:** Avaliar o impacto da indexação no SciELO e MEDLINE sobre o número de artigos submetidos ao *Jornal de Pediatria*.

**Métodos:** Análise do total de artigos submetidos, artigos estrangeiros submetidos e índices de aceitação, nos seguintes períodos: estágio I - pré-website (janeiro/2000-março/2001); estágio II - website (abril/2001-julho/2002); estágio III - SciELO (agosto/2002-agosto/2003); estágio IV - MEDLINE (setembro/2003-dezembro/2004).

**Resultados:** Houve uma tendência significativa de aumento linear no número de submissões, durante o período do estudo ( $p = 0,009$ ). O número de originais submetidos nos estágios I a IV foi, respectivamente: 184, 240, 297 e 482. O número de submissões foi similar nos estágios I e II ( $p = 0,148$ ), mas foi significativamente maior no estágio III ( $p < 0,001$  vs. estágio I;  $p = 0,006$  vs. estágio II) e no estágio IV ( $p < 0,001$  vs. estágios I e II;  $p < 0,05$  vs. estágio III). A taxa de aceitação diminuiu durante o período do estudo. O número de 10 artigos originais publicados é estável desde o número de março/abril de 2001, quando a revista atingiu um limite de páginas impressas que motivou a adoção de critérios de julgamento mais rígidos e uma diminuição relativa dos índices de aceitação. O número de submissões estrangeiras nos estágios I a IV foi, respectivamente, 1, 2, zero e 17, sendo  $p < 0,001$  para a comparação do estágio IV com os anteriores.

**Conclusões:** A indexação no SciELO se associou a um aumento das submissões de artigos brasileiros ao *Jornal de Pediatria*, enquanto a indexação no MEDLINE levou a um aumento de submissões brasileiras e estrangeiras.

*J Pediatr (Rio J)*. 2005;81(6):431-4: Base de dados, artigo de revista, medição de impacto.

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### **Introduction**

Publishing is an essential part of scientific research. However, printing a paper is not sufficient – it is also necessary that the work be read by the broadest possible audience, and that it be cited by others. Because of that, most journals work hard to get indexed in international databases, based on the common sense conviction that indexing will naturally be followed firstly by worldwide visibility, and thereafter by increased citation.<sup>1-3</sup>

However, evidence of this is lacking in the literature. In fact, a thorough search returned only editorials rejoicing over a given journal having been indexed in a particular database, or commenting on the difficult path toward

achieving such goal and on the prospects considering this high-valued accomplishment.<sup>4-7</sup> We retrieved a single cursory follow up evaluation which in effect showed that the number of citations of articles published in five Brazilian journals more than doubled (as gauged by the Institute for Scientific Information's impact factor) after their inclusion in the Scientific Electronic Library Online (SciELO).<sup>1</sup>

Therefore, we set out to evaluate the impact of the *Jornal de Pediatria*'s inclusion in SciELO in 2002<sup>8</sup> and in MEDLINE in 2003,<sup>9</sup> by taking the rate of article submission as a proxy indicator of visibility and attributed quality.

## Methods

We analyzed total article submission to *Jornal de Pediatria* from 2000 through 2004. Secondary outcomes were submission of articles from foreign countries and acceptance figures for the same period.

Since there were no changes in either the editorial board or the methods of manuscript submission throughout the study period, we considered the potential impact of three events on submission rates: the first was the launch of our bilingual (Portuguese/English) free-access website, in March 2001; the second was the indexing in SciELO, in July 2002; and the third was the indexing in MEDLINE, in August 2003. Thus, four stages were considered: stage I, which we called "pre-website" (15 months), stage II, "website" (16 months), stage III, "SciELO" (13 months), and stage IV, "MEDLINE" (16 months).

Statistical analysis comprised simple regression for trend analysis, one-way ANOVA on rank transformed data with Duncan's posthoc test to compare the number of submissions in each period, and Fisher's Exact test with Finner-Bonferroni p-value adjustment to compare foreign submissions in the four periods.

## Results

There was a significant trend toward linear increase in the number of submissions to *Jornal de Pediatria* along the study period ( $p = 0.009$ ) (Figure 1). Table 1 shows the number of articles submitted in each category in stages I through IV. The number of submissions was not statistically different in stages I and II ( $p = 0.148$ ), but it was statistically higher in stage III ( $p < 0.001$  vs. stage I and  $p = 0.006$  vs. stage II) and stage IV ( $p < 0.001$  vs. stages I and II, and  $p < 0.05$  vs. stage III). The upward variation in the submission of letters to the editor was the most striking among the article categories, followed by original papers.

There was an erratic and pronounced fluctuation in monthly submissions in stages III and IV (Table 2).

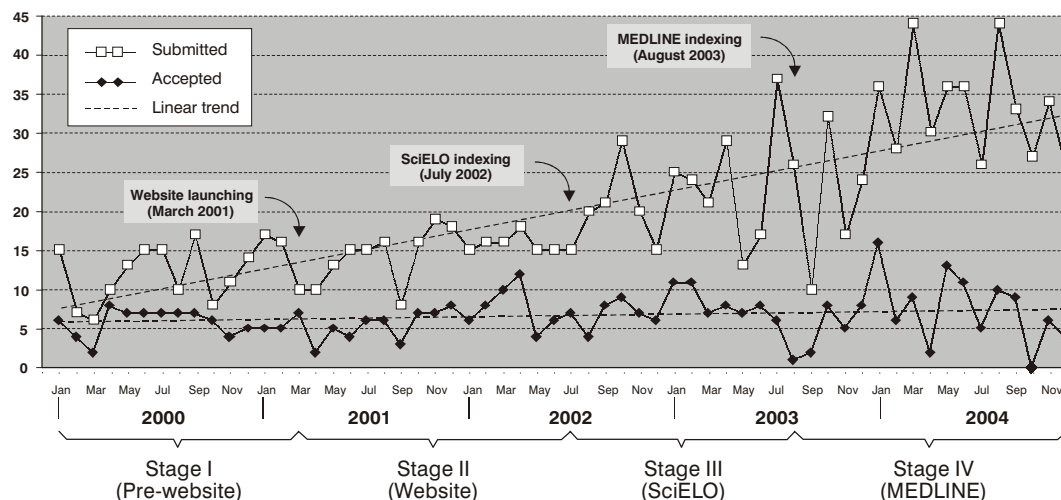
Since the absolute number of accepted articles per issue remained stable throughout the study period, the rate of acceptance naturally decreased. This was most pronounced for case reports.

The number of foreign articles submitted in stages I through IV was 1, 2, zero and 17, respectively, with  $p < 0.001$  for the comparison of stage IV with previous stages.

## Discussion

We observed an unequivocal association between SciELO indexing and a rise in manuscript submissions from Brazil to *Jornal de Pediatria*, while MEDLINE indexing clearly led to an increase in both Brazilian and foreign submissions. These findings substantiate the two empirically held views that authors submit more papers to journals that are indexed in international databases.<sup>1,10-16</sup>

Authors prefer indexed journals because of their visibility, and also because research funding agencies attribute special value to those publications.<sup>10,17</sup> In Brazil, this is one of the



**Figure 1** - *Jornal de Pediatria*: Monthly submissions and acceptance, 2000 through 2004

**Table 1** - *Jornal de Pediatria*: Submissions and acceptance rates, per stage, 2000 through 2004

	Jan/00 to Mar/01			Apr/01 to Jul/02			Aug/02 to Aug/03			Sep/03 to Dec/04		
	Submitted		Accepted	Submitted		Accepted	Submitted		Accepted	Submitted		Accepted
	n	%	n	%	n	%	n	%	n	%		
Original	112	62	55	182	78	43	189	55	29	330	74	22
Case reports	27	16	59	36	9	25	48	10	21	73	9	12
Reviews	23	9	39	19	6	32	39	12	31	41	9	22
Letters	0	0	0	0	0	0	20	15	75	36	17	47
Other	22	3	14	3	1	33	1	1	100	2	1	50
Total	184	90	49	240	94	39	297	93	31	482	110	23

**Table 2** - *Jornal de Pediatria*: Mean monthly submissions per stage, 2000 through 2004

	Mean	Standard deviation	Standard error	95% CI for mean
Stage I (pre-website)	12.27	3.654	0.943	10.24 to 14.29
Stage II (website)	15.00	2.781	0.695	13.52 to 16.48
Stage III (SciELO)	22.85	6.504	1.804	18.92 to 26.78
Stage IV (MEDLINE)	30.13	8.899	2.225	25.38 to 34.87

major criteria employed by the Federal Coordinating Agency for the Improvement of Higher Education (CAPES) to rank graduate programs. CAPES classifies journals by means of a system known as Qualis, according to which top journals are indexed in MEDLINE and have a high impact factor, as measured by Thomson Scientific's Journal Citation Reports (JCR),<sup>18,19</sup> next come MEDLINE-indexed journals with a low impact factor; and third are journals indexed in MEDLINE but not covered by the JCR.

The fact that research funding agencies in Brazil, and perhaps in other countries as well, value above all coverage by the JCR deserves further remarks. First of all, many have pointed out that counting citations is a flawed way to appraise academic worth, among other reasons because it does not measure citations to any single article.<sup>20-25</sup> Second, if an article is cited frequently as an example of poor research, it will nevertheless raise the journal's impact factor. In addition, journals with a print version in a language other than English will hardly get coverage from organizations like Thomson-ISI, allegedly because their impact factor is too low – which is probably the case, since international readers will most likely not cite articles published in a language that they cannot read. It should be noted that the number of MEDLINE citations to English language articles has increased from about half the total records in that database before the 1970s to nearly 90% today.<sup>26</sup>

Moreover, whenever MEDLINE cites a non-English article (meaning an article whose original print version is in any language other than English, irrespective of an English version being provided), its title is listed between square brackets. So, although *Jornal de Pediatria* – like many journals officially indexed as “non-English” – does provide a link to free English full text, it is fair to presume that those brackets alone cause too many readers to shy away. Two interesting questions that stem from this scenario are: how many investigators searching MEDLINE use language filters, or how many will access and cite articles whose titles appear in square brackets? And – would ISI coverage raise a journal's the impact factor, just as MEDLINE indexing raises submissions?

We are certain that *Jornal de Pediatria* has been publishing higher-quality articles in preparation for and because of indexing. This partially explains the striking decrease in the rate of acceptance, which has halved along the study period. The number of original articles published has been stable since the 2001 March/April issue, when *Jornal de Pediatria* reached its printed page limit. This, together with the increase in submissions, led to stricter judgment criteria, and the rate of article acceptance naturally decreased. This effect was most pronounced for case reports, indicating a change in *Jornal de Pediatria*'s characteristics, with higher priority being placed on original research papers.

In conclusion, we have shown that the indexing of *Jornal de Pediatria* in SciELO and MEDLINE increased its worldwide visibility, as well as an overall perception of attributed quality, thus stimulating researchers to submit their manuscripts for publication.

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