The rapid internationalization of *Annals of Pediatric Endocrinology & Metabolism* as evidenced by journal metrics

Sun Huh, MD

Department of Parasitology and Institute of Medical Education, Hallym University College of Medicine, Chuncheon, Korea

**Purpose:** Using journal metrics, this paper explores whether *Annals of Pediatric Endocrinology & Metabolism* has internationalized 4 years after changing its language to English only.

**Methods:** From the journal's website and the Web of Science Core Collection, the following metrics were counted or calculated: Number of citable articles, countries of authors and editorial board members, total citations, impact factor, countries of citing authors, citing journal titles, and Hirsch index.

**Results:** From 2012 to 2017, 208 articles were citable. The authors had affiliations in 7 countries and the editorial board members in 14 countries. From 2014 to 2017, the total citations each year were 8, 81, 141, and 61; and the impact factors from 2014 to 2016 were calculated as 0.05, 0.987, and 1.165. The citing authors were from 60 countries, among which the United States, China, South Korea, Italy, and Germany were most common. The journal was cited by 215 journal titles. The Hirsch index was 7.

**Conclusion:** These journal metrics showed that the journal achieved international status 4 years after changing the journal's language into English only. The journal's language policy successfully enabled the journal to rebrand as an international journal.

**Keywords:** Journal impact factor, Language, Republic of Korea, Research

**Introduction**

In 2012, the title of the official journal of the Korean Society of Pediatric Endocrinology was changed from *Journal of Korean Society of Pediatric Endocrinology* to *Annals of Pediatric Endocrinology & Metabolism*, launching the process of internationalizing the journal. Since 2012, the publisher has taken several more steps to broaden the journal's accessibility and relevance to child and adolescent endocrinology worldwide. In 2013, the language of the journal was changed to English only, beginning with the first issue of volume 18. The English-language journal began to be listed and searchable in PubMed Central and PubMed beginning in June 2014. Now that the journal has become searchable in ScienceCentral, beginning in March 20171, the articles can be viewed with machine translation into 80 languages. An important part of increasing accessibility has included publishing the journal with open access and submitting full-text journal article tag suite (JATS) XML to PubMed Central and Science Central2. This means that all contents of the journal are accessible without a fee and can be used freely for nonprofit purposes.

Five years after since this transformation began, it is worth using journal metrics to assess whether the process has achieved internationalization. I hypothesized that the journal's competency was comparable to other international journals indexed in Web of Science in the
category of endocrinology and metabolism. An "international journal" can be defined as follows: first, the contents are interesting to international researchers of journal’s subject field; second, the authors, readers, and editorial board members are from a variety of countries; third, the style and format of the journal is at the international level; and fourth, the journal’s articles are cited frequently by researchers in a variety of countries. The first criterion is self-evident to subject specialist readers. The multinationality of editorial board members can be verified simply by checking the journal’s verso page and content. The style and format of this journal is being ensured on an ongoing basis by the editorial team and professional manuscript editors. Therefore, in this article, the 2 remaining components—the multinationality of the authors and citing researchers—will be assessed quantitatively.

Materials and methods

1. Materials

The target of this study is the journal information and the citation data of *Annals of Pediatric Endocrinology & Metabolism* from the first issue of 2012 to the first issue of 2017. Citation frequencies were gathered from the Web of Science Core Collection on May 29, 2017.

2. Methods

The following journal metrics were counted or calculated from the journal’s website and the Web of Science Core Collection: citable and noncitable articles; countries of authors; countries of editorial board members; total citations; impact factor; countries of citing authors; citing journal titles; and Hirsch index score. The impact factor was defined by "dividing the number of current year citations to the source items published in that journal during the previous 2 years". It can be calculated as follows based on a previous report:

\[
\text{Impact factor for 2016} = \frac{B}{A}
\]

The 2-year impact factor is a measuring tool to determine whether a journal’s scope is in a period of rapid evolution. If the journal’s scope is in a period of very recent development, such as genomics or stem cells, the span of time from publication to being cited will be very brief. On the other hand, if the journal’s scope is, for example, medical history, which is not changing rapidly, its period from publication to being cited will be relatively long.

The Hirsch index is defined as ‘the number of papers with citation number ≥h and it has index h if h of its Np papers have at least h citations each and the other (Np−h) papers have ≤h citations each’. Although the Hirsch index was designed originally for the evaluation of researchers’ competency, it is now also used for evaluating the competency of journals or institutions.

Results

The number of citable and noncitable articles in *Annals of Pediatric Endocrinology & Metabolism* from 2012 to 2017 is presented in Fig. 1. There were 208 citable articles and 5 noncitable articles. The citable articles included 43 reviews, 93 original articles, and 72 case reports. The countries of the authors of the 213 articles are shown in Fig. 2. Ten articles were from outside of Korea: Turkey (3), Italy (2), Japan (2), Thailand (1), the United States (1), and the United Kingdom (1). The members of the editorial board are from 14 countries (Fig. 3). The total number of citations was 8 in 2014, 82 in 2015, 141 in 2016, and 61 in 2017 (Fig. 4). The manually calculated impact factors were 0.051 in 2014, 0.987 in 2015, and 1.165 in 2016. The

Fig. 1. Number of citable and noncitable articles in *Annals of Pediatric Endocrinology & Metabolism* from 2012 to 2017.
The journal was cited by authors hailing from 60 countries. Among them, the 5 most common were the USA, China, Korea, Italy, and Germany (Fig. 5). The number of journal titles citing this journal was 215 (Supplementary material 1). The top 6 citing journals were Journal of Pediatric Endocrinology and Metabolism (11 citations), Hormone Research in Pediatrics (7), PLoS One (6), Review of the Rapporteur (4), and Acta Paediatrica (4).
The Hirsch index was found to be 7. The publication types of the 8 most frequently cited articles were all reviews except one original article (Table 1).

Discussion

Based on the journal metrics evaluated here, there was a tremendous internationalization of Annals of Pediatric Endocrinology & Metabolism during the 3 years after converting the journal’s language to English only. Almost all of the articles (97.7%) were citable, with the publication type of review, original article, or case report (Fig. 1). There were no authors with institutional affiliations outside Korea in 2012, 2013, or 2015; however, there were 4 each in 2014 and 2016. In the first issue of 2017, out of 11 articles, 2 were from authors outside Korea (Fig. 2). I anticipate that the authors’ affiliations will diversify soon with more extensive networking between the journals sponsoring academic society and other countries’ counterparts in the field of pediatric endocrinology and metabolism. The editorial board already shows a strong mix of national origins. In this lies the potential for the journal to recruit more authors from the board members own countries (Fig. 3).

The number of citations in 2016 was notable (Fig. 4). Although the authors of this journal were mostly from Korea, the pattern of citation of the journal has already internationalized, with citations from 60 different countries; therefore, it can be concluded that the content of the journal is of interest to a worldwide audience of researchers and physicians (Fig. 5). The journal was cited by journals in the endocrinology and metabolism category and the general medicine category (Supplementary material 1); this confirms that this journal’s scope is, in fact, within the endocrinology and metabolism category. The 2015 impact factor of 0.987 corresponds to the 7.5th percentile out of the 133 journals in the endocrinology and metabolism Journal Citation Reports (JCR) category, and that of 1.165 in 2016 corresponds to the 10.5th percentile of the JCR category. Although this ranking is relatively low, the rate of improvement is very rapid.

What explains this rapid improvement in the citation frequency? The most likely explanation is that the journal was submitted to PubMed Central and PubMed, now enabling researchers and physicians around the world to readily access the journal. The open access policy must play a role as well.

The Hirsch index of 7 with 157 articles during the 4 years after conversion to English only was an unexpected achievement. For comparison, the Hirsch index of the Journal of Educational Evaluation for Health Professions was 5 for 10 years with 154 citable articles, Archives of Plastic Surgery, 6 for 2 years and 7 months with 258 citable articles, Intestinal Research, 8 for 3 years with 136 citable article, and the Journal of Exercise Rehabilitation, 7 for 4 years with 247 citable articles. Typically, the publication type that receives the highest frequency of citations is the review, although original articles have been more frequently cited in some journals.

How should the editorial team continue to develop Annals of Pediatric Endocrinology & Metabolism? First, Crossref text and data mining (TDM) must be embedded in the articles of the journal. TDM helps “facilitate access to the relevant corpus of content for researchers who are interested in mining academic publications produced by CrossRef members.” Second, it is recommended that the journal adopt author taxonomy for clarification of each author’s role in article publishing. Third, an open data policy should be adopted to ensure the reproducibility of the research results. The raw data and data from the analysis can be deposited to an open data repository such as the Harvard Dataverse (https://dataverse.harvard.edu/). Gene or protein data produced from the laboratory can be deposited to United States National Center for Biotechnology Information (https://www.ncbi.nlm.nih.gov/) or other bio-informatics repositories. Likewise, giving all researchers equal access to raw data or analysis data will help promote the development of medical science. Fourth, although the acceptance rate ranges from 10% to 15%, it is time to prepare to apply to MEDLINE. A checklist is available that can help editors to prepare before the application. The most important consideration is known to be the uniqueness of the journal so that its inclusion can enrich the MEDLINE database. Therefore, not only high quality content and adherence to house style and format but also a unique aims and scope are essential to being included in MEDLINE.

Three components have been identified as fundamental to success among journals based in Asia: “first, setting high standards for published content; second, developing a strong reputation over time; and third, maintaining a high level of accessibility to readers in the scientific community.” The first 2 components are 2 sides of the same coin. Among journals with full accessibility, the third component, this journal has become one of the most beautiful online journals with a print version. With the dedication of the editorial team and full support of the publisher, the journal will achieve this status in Asia very soon.

In conclusion, the performance of Annals of Pediatric Endocrinology & Metabolism evidenced by journal metrics is that of a truly international journal. The total citations, impact factor, and Hirsch index of the journal are particularly notable. Further attention is still needed to broaden the diversity of author affiliation; active efforts to increase networking with other endocrinology societies in Asia and beyond is the key to meeting this goal.

Conflict of interest

No potential conflict of interest relevant to this article was reported.
Supplementary material

Supplementary material can be found via https://e-apem.org/src/sm/apem-22-77-s001.pdf. Supplementary material: Journal titles citing Annals of Pediatric Endocrinology & Metabolism from 2012 to 2017 from the Web of Science Core Collection [cited 2017 May 29].

References