



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 journals' 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

Received: 30 May, 2017
Revised: 19 June, 2017
Accepted: 19 June, 2017

Address for correspondence:

Sun Huh, MD
Department of Parasitology and
Institute of Medical Education,
Hallym University College of
Medicine, 1 Hallimdaehak-gil,
Chuncheon 24252, Korea
Tel: +82-33-248-2652
Fax: +82-33-241-1672
E-mail: shuh@hallym.ac.kr
<https://orcid.org/0000-0002-8559-8640>

This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<http://creativecommons.org/licenses/by-nc/4.0>) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ISSN: 2287-1012(Print)
ISSN: 2287-1292(Online)

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"³⁾. It can be calculated as follows based on a previous report⁴⁾:

A=Number of citable articles of the journal in 2014 and 2015

B=Number of citations of the journal articles from 2014 and 2015 in the Web of Science Core Collection database in 2016

Impact factor for 2016=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 $\geq h$ and it has index h if h of its N_p papers have at least h citations each and the other (N_p-h) papers have $\leq h$ citations each"⁵⁾. 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

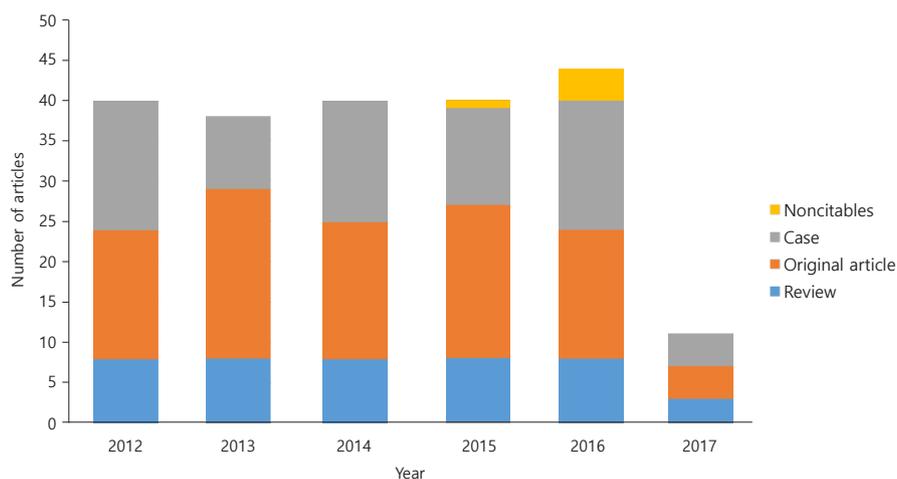


Fig. 1. Number of citable and noncitable articles in *Annals of Pediatric Endocrinology & Metabolism* from 2012 to 2017.

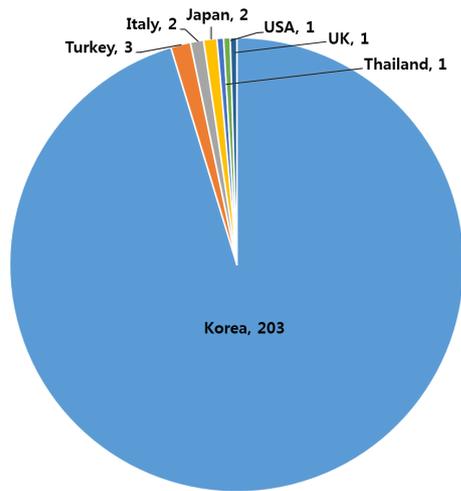


Fig. 2. Countries of author affiliation of *Annals of Pediatric Endocrinology & Metabolism* from 2012 to 2017.

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*

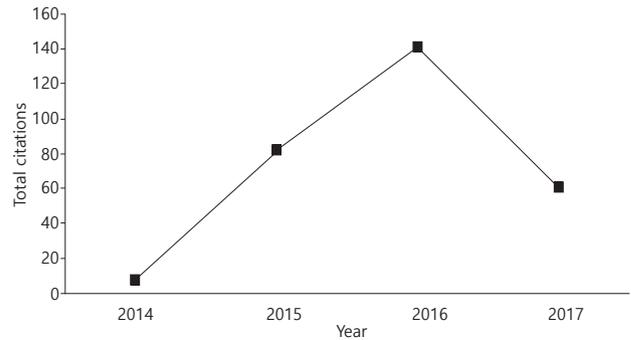


Fig. 4. Total citations of *Annals of Pediatric Endocrinology & Metabolism* from 2014 to 2017 from the Web of Science Core Collection [cited 2017 May 29].

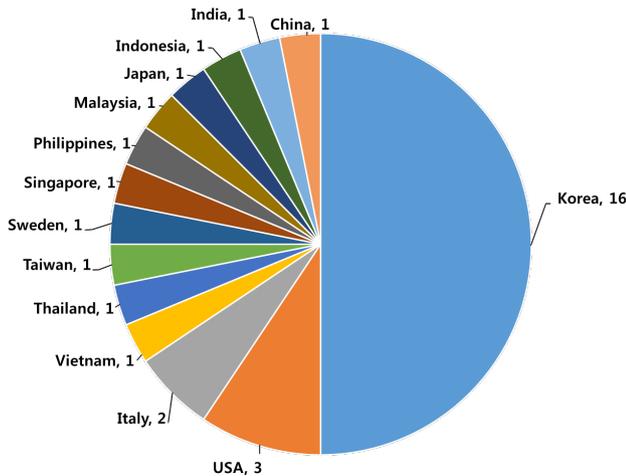


Fig. 3. Countries of editorial board members of *Annals of Pediatric Endocrinology & Metabolism* in 2017.

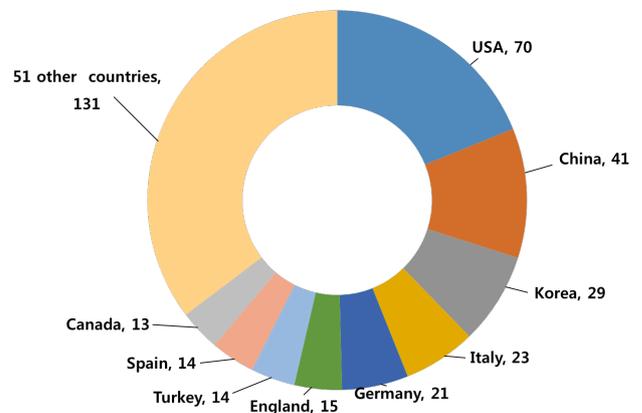


Fig. 5. Countries of authors citing *Annals of Pediatric Endocrinology & Metabolism* from 2012 to 2017 from the Web of Science Core Collection [cited 2017 May 29].

Table 1. Most frequently cited articles from *Annals of Pediatric Endocrinology & Metabolism* from 2012 to 2017 obtained from the Web of Science Core Collection and their publication types [cited 2017 May 29]

| No. | Year | Vol. | Page | Article titles | Publication type | Cited frequency |
|-----|------|------|------|--|------------------|-----------------|
| 1 | 2014 | 19 | 69 | Phthalate exposure and childhood obesity | Review | 25 |
| 2 | 2014 | 19 | 57 | Congenital hyperinsulinism: current status and future perspectives | Review | 19 |
| 3 | 2015 | 20 | 8 | Pubertal growth and epiphyseal fusion | Review | 11 |
| 4 | 2013 | 18 | 60 | Age at menarche in the Korean female: secular trends and relationship to adulthood body mass index | Original article | 10 |
| 5 | 2015 | 20 | 74 | Alternative biomarkers for assessing glycemic control in diabetes: fructosamine, glycated albumin, and 1,5-anhydroglucitol | Review | 9 |
| 6 | 2013 | 18 | 161 | Pathophysiology and clinical characteristics of hypothalamic obesity in children and adolescents | Review | 8 |
| 7 | 2015 | 20 | 69 | Insulin-like growth factor (IGF)-I and IGF binding proteins axis in diabetes mellitus | Review | 8 |
| 8 | 2013 | 18 | 9 | Role of insulin-like growth factor binding protein-3 in glucose and lipid metabolism | Review | 7 |

(6), *Journal of Clinical Research in Pediatric Endocrinology* (6), *Journal of Korean Medical Science* (5), and *European Journal of Endocrinology* (5).

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 journal's 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 well⁶.

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 articles⁷, *Archives of Plastic Surgery*, 6 for 2 years and 7 months with 258 citable articles⁸, *Intestinal Research*, 8 for 3 years with 136 citable article⁴, and the *Journal of Exercise Rehabilitation*, 7 for 4 years with 247 citable articles⁹. Typically,

the publication type that receives the highest frequency of citations is the review¹⁰, although original articles have been more frequently cited in some journals¹¹.

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 journal¹². TDM helps "facilitate access to the relevant corpus of content for researchers who are interested in mining academic publications produced by CrossRef members"¹³. 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 adopted¹⁴ 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 application¹⁵. 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"¹⁶. 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

1. Cho Y, Huh S. Analysis of visits to ScienceCentral, an open access full-text archive of scientific society journal literature. *Sci Ed* 2017;4:30-3.
2. Nakanishi H, Naganawa T, Tokizane S, Yamamoto T. Creating Journal Article Tag Suite extensible markup language from Japanese language articles and automatic typesetting using extensible stylesheet language transformations. *Sci Ed* 2015;2:63-72
3. Clarivate Analytics. The Thomson Reuter's impact factor [Internet]. London: Clarivate Analytics; c2017 [cited 2017 May 29]. Available from: <http://wokinfo.com/essays/impact-factor/>.
4. Jeong GH, Huh S. The great rise of Intestinal Research as an international journal 3 years after its language change to English as evidenced by journal metrics. *Intest Res* 2017;15:1-4.
5. Hirsch JE. An index to quantify an individual's scientific research output. *Proc Natl Acad Sci U S A* 2005;102:16569-72.
6. Jeong GH, Huh S. Increase in frequency of citation by SCIE journals of non-Medline journals after listing in an open access full-text database. *Sci Ed* 2014;1:24-6.
7. Huh S. How much is Journal of Educational Evaluation for Health Professions promoted based on journal metrics? *J Educ Eval Health Prof* 2015;12:57.
8. Huh S. How journal metrics illustrate the transformation of archives of plastic surgery into an international journal. *Arch Plast Surg* 2014;41:617-9.
9. Huh S. Promotion of the Journal of Exercise Rehabilitation to the international level based on journal metrics. *J Exerc Rehabil* 2016;12:510-4.
10. Huh S. Clinics in orthopedic surgery's evolution into an international journal based on journal metrics. *Clin Orthop Surg* 2016;8:127-32.
11. Huh S. Promotion of neurointervention to international journal based on journal metrics. *Neurointervention* 2016;11:5-9.
12. Jeong GH, Huh S. Status of digital standards in Korean medical journals in 2016. *Sci Ed* 2016;3:100-4.
13. Lammey R. CrossRef text and data mining services. *Sci Ed* 2015;2:22-27.
14. Huh S. Promotion to MEDLINE, indexing with Medical Subject Headings, and open data policy for the Journal of Educational Evaluation for Health Professions. *J Educ Eval Health Prof* 2016;13:14.
15. Huh S. How to prepare endocrinology and metabolism for reapplication to MEDLINE. *Endocrinol Metab (Seoul)* 2017;32:58-61.
16. Chi Y. Scientific publishing in the Asian century: an international perspective. *Sci Ed* 2016;3:112-5.