



Impact factor of Korean Journal of Pediatrics on Korean Medical Citation Index and Science Citation Index of Web of Science

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Purpose: The total number of times a paper is cited, also known as the impact factor (IF) of a medical journal, is widely implied in evaluating the quality of a research paper. We evaluated the citation index data as an IF of Korean J Pediatr in Korean Medical Citation Index (KoMCI) and Journal Citation Index (JCI) of Web of Science.

Methods: We calculated the IF of Korean J Pediatr at KoMCI supervised by Korean Association of Medical Journal Editors. And we estimated the IF of Korean J Pediatr by the JCI of Web of Science although it was never officially reported.

Results: The IF of Korean J Pediatr on KoMCI has increased from 0.100 in the year 2000, to 0.205 in 2008, and 0.326 in 2009. Although the IF of Korean J Pediatr was 0.006 in 2005, 0.018 in 2006, 0.028 in 2008, 0.066 in 2009, and 0.018 in 2010 according to the JCI of Web of Science, the number of citations are steadily increasing.

Conclusion: Understanding and realizing the current status will be a stepping stone for further improvement. The next objective of the Korean J Pediatr is to become registered in the SCI or SCIE. Increasing the IF according to the JCI of Web of Science is crucial in order to achieve this goal.

Key words: Impact factors, Journals, Publications

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Introduction

Publishing an article in a medical journal is to share the process of research from the start to the end in order to proclaim the conclusions one has reached. Receiving critique on the writer's observations from readers and providing guidelines for future similar studies while validating the writer's conclusions and discussions can be understood as the purpose of publishing an article in a medical journal^{1,2)}.

Additionally, an article can be used for reference when fellow colleagues and researchers adopt the contents of an article for further related research. In other words, a research paper of fine quality may be cited in more research papers and the larger the number of citations a certain article receives reflects the eminence and authority of the research material.

That is why among various methods of evaluating the quality of a research paper, the number of citations a paper receives and the

impact factor (IF) of a medical journal are two methods that have been widely applied. The IF is accepted as a subjective guide in evaluating a research paper.

The IF is a measure estimating the average number of citations to articles published in science and social science journals. It is frequently used as a proxy for the relative importance of a journal within its field. Journals with higher IFs are considered more renowned than those with lower IFs. The impact factor was devised by Eugene Garfield, the founder of the Institute for Scientific Information, now part of Thomson Reuters³⁾.

There is the H index⁴⁾, which is based on the distribution of citations received by a given researcher's publications for estimating an individual's number of citations. Internationally, there is the IF for medical journals announced by the Journal Citation Report⁵⁾ with the application of Journal Citation Index (JCI) regarding journals that are categorized under the Science Citation Index (SCI) and Science Citation Index Expanded (SCIE), managed by Thomson Reuters via Web of Science. Domestically, there is the IF of Korean Medical Citation Index (KoMCI)⁶⁾ managed by the Korean Association of Medical Journal Editors (KAMJE)⁷⁾.

Korean Journal of Pediatrics (Korean J Pediatr), which is the official publication of the Korean Pediatric Society, has been striving for further international recognition by modifying to full English publications since May 2010⁸⁾. The journal is already established and indexed in many databases for Korean medical journals (KoreaMed, KoreaMed Synapse, KoMCI, MedRIC, RISS, MEDLIS). Furthermore, the articles from the Korean J Pediatr are registered in international databases such as PubMed Central and Pubmed since December 2010⁹⁾ (indexed since May 2010), SCOPUS since Nov 2010 (indexed since January 2010)¹⁰⁾, CAS since Nov 2010, and other organizations such as WorldWideScience.org, Crossref.org, and Google Scholar. This has played an important role in international recognition of the journal.

By being abstracted and indexed on an international scale through PubMed Central and PubMed, our next objective is to be registered in the index of medical journals of SCI or SCIE. In order to achieve this goal, an increase in IF according to the JCI of Web of Science is most important. Namely, the IF of Korean J Pediatr according to the JCI of Web of Science needs to be elevated by increasing the number of citations to articles published in Korean J Pediatr.

It is critical to examine the current status of Korean J Pediatr domestically and internationally according to the JCI of Web of Science to achieve the above goal. Understanding the current status will be our stepping stone to further progress and recognition.

Materials and methods

1. Method of estimating the IF of Korean J Pediatr by KoMCI

In March 2001, Korean Academy of Medical Sciences launched the KoMCI Project to realize these goals. First, they evaluated the citation index data as an impact factor. Subsequently, the KoMCI book and CD-ROM were published. After maintaining the databases for two years, the KoMCI Project set about establishing the KoMCI Web in March 2003, a system for searching cited references in specific papers.

The method of estimating IF of Korean medical journals at KoMCI supervised by KAMJE is shown in Table 1⁷⁾.

Taking 2008 as an example, Korean J Pediatr was published monthly summing up to a total of 12 publications in 2008. Excluding case reports, the total number of articles including review

Table 1. Impact Factor of Korean Journal of Pediatrics by Korean Medical Citation Index (KoMCI) in 2008

Items	No
Year	
2008 (A), No. of article	208
2007 (B), No. of article	181
2006 (C), No. of article	204
Total No. of references (T)	4,991
No. of Korean references	
Total* (KT)	631
% (KT/T)	12.64%
Journals only (KJ)	490
% (KJ/T)	9.82%
Citation	
Total cites (CT)	506
2008 (C2008)	35
2007 from all journals (C2007)	42
from other journals (C2007S)	29
2006 from all journals (C2006)	37
from other journals (C2006S)	24
Self citations [†]	
Total cites (SJC)	202
2008 (SR)	4.05%
2007 (SG)	41.22%
2006 (SD)	39.92%
Impact factor [‡]	
IF	20.50%
ZIF	13.80%

*Including references to monographs, reports and website

[†]Journal self citation [SR]=[SJC]/[T]

self-citing journal rate [SG]=[SJC]/[KT]

self-cited journal rate [SD]=[SJC]/[CT]

[‡]Excluding journal self-citation

IF=(C2007+C2006)/ B+C

ZIF=(C2007S+C2006S)/ B+C

articles and original publications was 204 in 2006, 181 in 2007, and 208 in 2008. The IF of Korean J Pediatr in the year of 2008 was estimated according to the method shown in Table 1.

2. Method of estimating the IF of Korean J Pediatr by the JCI of Web of Science

To the present day, the Korean J Pediatr has not been included in the Journal Citation Report of Web of Science because it is not yet classified as an SCI or SCIE journal. Therefore, writers estimated the IF of Korean J Pediatr by the JCI of Web of Science although it was never officially reported. The method of estimating the IF according to the JCI of Web of Science⁵⁾ is shown in Table 2.

Results

1. The IF of KoMCI

1) The IF of Korean J Pediatr according to KoMCI

The IF of Korean J Pediatr according to KoMCI has steadily been increasing from 0.100 in the year 2000, to 0.205 in 2008 and 0.326

Table 2. Impact Factor of X-journal by Journal Citation Index of Web of Science, Thomson Reuters (for example)

Cites in 2008 to items published in:	2009	A
	2008	B
	Sum	(A+B)
Number of items published in:	2009	C
	2008	D
	Sum	(C+D)
Calculation		
	Cites to recent items	A+B
	Number of recent items	C+D
	Impact Factor (IF) = (A+B)/(C+D)	

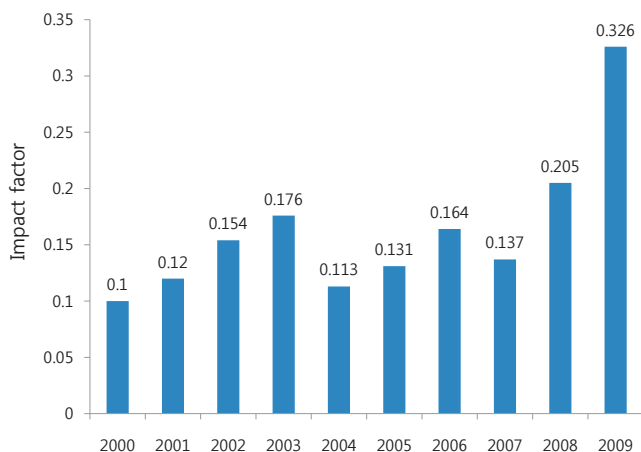


Fig. 1. Change in impact factors of Korean Journal of Pediatrics by Korean Medical Citation Index (KoMCI).

in 2009 (Fig. 1). Despite the overall crescendo pattern, there was a decrease in 2004. This is considered to be due to the change in the journal name from the Korean, SoAKwa, which means Pediatrics in Korean, to Korean J Pediatr, causing confusion in the process of indexing.

2) Comparison of the IF of Korean J Pediatr to that of other Korean medical journals related to pediatrics

The IF of subspecialty Korean medical journals related to pediatrics (J Korean Soc Pediatr Nephrol, J Korean Soc Pediatr Endocrinol, Korean J Pediatr Gastroenterol Nutr, J Korean Soc Neonatol, J Korean Child Neurol Soc, Pediatr Allergy Respir Dis, Korean J Perinatol, Korean J Pediatr Infec Dis) according to KoMCI in 2009 ranged from 0.085 to 0.357. Only J Korean Soc Pediatr Endocrinol had a higher IF than Korean J Pediatr (0.357). The remainder of the journals all had a lower IF compared to that of Korean J Pediatr, which was 0.326 (Table 3). For further reference, general medical journals such as J Korean Med Sci, J Korean Med Assoc, and Yonsei

Table 3. Impact Factors of Pediatric Journals and Others in Korea by Korean Medical Citation Index (KoMCI) in 2009

Journal	Impact factor
Korean J Pediatr	0.326
J Korean Soc Pediatr Nephrol	0.085
J Korean Soc Pediatr Endocrinol	0.357
Korean J Pediatr Gastroenterol Nutr	0.238
J Korean Soc Neonatol	0.181
J Korean Child Neurol Soc	0.127
Pediatr Allergy Respir Dis	0.298
Korean J Perinatol	0.093
Korean J Pediatr Infec Dis	0.158
(J Korean Med Sci)	0.231
(J Korean Med Assoc)	0.106
(Yonsei Med J)	0.130

Table 4. Annual Numbers of Published Review and Original Articles in Korean Journal of Pediatrics

Year	Review articles	Original articles	Total
2000	12	138	150
2001	30	105	135
2002	23	132	155
2003	26	128	154
2004	24	140	164
2005	25	141	166
2006	35	132	167
2007	37	112	149
2008	35	118	153
2009	40	123	163
2010	32	88	120

Table 5. Numbers of Korean Journal of Pediatrics Citing Articles in Science Citation Index or Science Citation Index Expanded Journals and Korean Journal of Pediatrics Cited Articles

No. of KJP* citing articles in SCI (E) [†] journals		No. of KJP* cited articles									
Year	No.	Published year									
		~2002	2003	2004	2005	2006	2007	2008	2009	2010	Total
2010	80	3	2	11	9	9	10	25	9	2	80
2009	45	4	1	10	6	4	7	13	0	-	45
2008	16	2	1	2	2	6	3	0	-	-	16

*KJP: Korean Journal of Pediatrics

[†]SCI (E): Science Citation Index or Science Citation Index Expanded

Med J had an IF of 0.231, 0.106, and 0.130, respectively.

2. The IF of Korean J Pediatr according to the JCI of Web of Science

1) The annual number of published articles of KJP

The number of articles included review and original articles and excluded case reports, as shown in Table 4. An average of 160 articles including review and original articles were published. In 2010, there was a decrease in the number of articles to 120 articles.

2) Annual change in numbers of Korean J Pediatr citing articles in SCI(E) journals and Korean J Pediatr cited articles

The number of citations to the Korean J Pediatr in an SCI(E) medical journal of Web of Science was 16 articles in 2008, 45 in 2009, and 80 in 2010. The distribution of annual change in numbers of Korean J Pediatr citing articles in SCI(E) journals and Korean J Pediatr cited articles is shown in Table 5.

3) The IF of Korean J Pediatr according to the Journal Citation Index of Web of Science

Based on the information of 1) and 2), the IF of Korean J Pediatr according to the JCI of Web of Science was steadily increasing from 0.006 in 2005, 0.018 in 2007, 0.028 in 2006, 0.066 in 2009, and 0.108 in 2010. The number of citations to article is still low but steadily increasing and the IF is elevating accordingly. Especially in 2010, the IF exceeded 0.100 and was estimated at 0.107 for the first time (Table 6).

Discussion

The IF of Korean J Pediatr in 2009 according to KoMCI among Korean medical journal databases steadily increased from 0.100 in 2000 to 0.326 in 2009. Despite the overall crescendo pattern, there was a decrease in 2004. This is considered to be due to the change in the journal's name from the Korean, SoAKwa, which means Pediatrics in Korean, to Korean J Pediatr, causing confusion in the process of indexing. This number is relatively higher than that of other

Table 6. Impact Factors of Korean Journal of Pediatrics by Journal Citation Index of Web of Science, Thomson Reuters

Year	No of articles published in		C=A+B	D*	IF [†] =D/C
	year prior (A)	Two year prior (B)			
2000				0	0.000
2001				0	0.000
2002				0	0.000
2003	155	135	290	0	0.000
2004	154	155	309	0	0.000
2005	164	154	318	2	0.006
2006	166	164	330	6	0.018
2007	167	166	333	5	0.015
2008	149	167	316	9	0.028
2009	153	149	302	20	0.066
2010	163	153	316	34	0.108

*D: Cited number of articles of in Web of Science, which were published within one and two year prior in Korean Journal of Pediatrics

[†]IF: impact factor**Table 7.** Top Journals in Medicine General by Impact Factor in Journal Citation Index, Web of Science, Thomson Reuters in 2009

Journal	Impact factor
New Engl J Med	47.050
Lancet	30.758
JAMA	28.899
Ann Intern Med	16.225
Brit Med J	13.660
PLOS Med	13.050
Annu Rev Med	9.940
Arch Intern Med	9.813
Can Med Assoc J	7.271
J Int Med	5.942
Cochrane DB Syst Rev	5.653
Medicine	5.054
(J Korean Med Sci)*	(0.838)
(Yonsei Med J)	(0.772)

*Published in Korea

subspecialty medical journals on pediatrics and also higher compared to that of medical journals in different fields. This demonstrates how Korean J Pediatr has been established as an eminent domestic medical journal receiving a considerable amount of citations.

However, the IF of Korean J Pediatr according to JCI of Web of Science in 2010 was a mere 0.108. This number is expected to increase considering Korean J Pediatr just recently became registered in international databases such as PubMed Central, PubMed and SCOPUS in 2010. For additional information, the records of IF of established and well-known medical journals according to JCI of Web of Science are shown in Table 7. In 2009, the Korean medical journals with the two highest IFs according to JCI of Web of Science are J Korean Med Sci and Yonsei Med J with IFs of 0.838 and 0.774 respectively⁴⁾. Korean J Pediatr should strive for such recognition as well.

In Summary, English publication of KJP has been available since May 2010⁷⁾. As a result, the journal was indexed in PubMed Central and PubMed since May 2010 and in SCOPUS since Jan 2010. This has allowed Korean J Pediatr to be searched through international medical journal databases and also implies the possibility of a rapid increase in IF according to JCI of Web of Science eventually. Being registered and indexed in SCI or SCIE medical journals can procure a wider readership. With submission of excellent articles, Korean J Pediatr will be able to receive more citations in SCI and SCIE medical journals. From this view, being indexed in PubMed Central, PubMed and SCOPUS is a significant stepping stone for Korean J Pediatr. Although the current IF of Korean J Pediatr according to

JCI of Web of Science is low, further development and recognition is anticipated. We would like to encourage the readers to continue to submit excellent articles and also to cite articles from Korean J Pediatr when submitting research papers to SCI or SCIE medical journals.

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