

Journal Metrics-Based Position of *Diabetes & Metabolism Journal* after the Change of Its Text Language to English

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After changing its language from Korean or English to English only in 2010, the journal metrics of *Diabetes & Metabolism Journal* (DMJ) were analyzed to assess whether this change in the journal policy was successful. The journal metric items that were analyzed were the following: impact factor; total citations; countries of authors; proportion of the articles funded out of the total number of original articles; and Hirsch-index (H-index). A retrospective, descriptive analysis was carried out using various databases, such as KoreaMed, Korean Medical Citation Index (KoMCI), KoreaMed Synapse, Web of Science, and Journal Citation Ranking. The journal's impact factor was 2.054, which corresponds to 83/122 (68.0%) out of the 2012 JCR endocrinology and metabolism category. The number of the journal's total citations was 330 in 2013. In addition to Korean authors, authors from 13 other countries published papers in the journal from 2010 to 2013. The number of funded papers from 2010 to 2013 was 65 out of 148 original articles (43.9%). The journal's H-index from KoreaMed Synapse was 7, and that from Web of Science was 9. It can be concluded that changing the journal's language to English was successful based on journal metrics. DMJ is currently positioned as an international journal based on the international diversity of authors and editors, its sufficiently high proportion of funded articles, its relatively high impact factor, and the number of total citations.

Keywords: Bibliometrics; Databases, bibliographic; Journal impact factor; Korea; Periodicals; PubMed

INTRODUCTION

Taehan Tangnyobyong Hakhoe (Korean Diabetes Association, KDA) was founded in 1968 with 30 members. By 2014, it had more than 3,000 society members. Its aims are to promote people's health, to encourage medical progress through active academic exchange between members and to develop research in the fields of diabetes and metabolism. To fulfill those aims, KDA began to publish Tangnyobyong (*The Journal of the Korean Diabetes Association*), with volume 1, number 1 issue in 1972 continuing up to volume 31, number 6 in 2007. It then continued as the *Korean Diabetes Journal* from volume 32, number 1 in 2008 to volume 34, number 6 in 2010. In 2009,

KDA decided to change the text language from Korean or English to English only beginning with the issues published in 2010. The purpose of the language change was to include *Korean Diabetes Journal* in PubMed Central (PMC) and PubMed and thereby make the invaluable research results from Korea and other countries accessible via the web to physicians, researchers, patients and their families, and other interested people throughout the world without any access barriers [1,2]. KDA also hoped that the *Korean Diabetes Journal* would be competitive in the worldwide journal market given the high level of research activities and medical service in Korea. In 2011, the journal underwent another change in title to *Diabetes & Metabolism Journal* (DMJ) to broaden its scope to these

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worldwide problems. Because 4 years have passed since the change of language into English only, it is time to thoroughly examine the journal's position in the worldwide journal network based on journal metrics. The results can be used to assess whether the change in the journal's language policy was successful based on journal metrics.

METHODS

Research type

This study was a retrospective, descriptive analysis using information from various databases, such as KoreaMed [3], KoMCI [4], KoreaMed Synapse [5], Web of Science [6], and Journal Citation Ranking (JCR) [7].

Scope of journal metrics

The journal metric items that were analyzed were the following: number of citable and noncitable articles per year; impact factor from KoreaMed and Web of Science; total citations from KoMCI and Web of Science; countries of the authors of DMJ; countries of the authors who cited DMJ; proportion of articles funded out of the total number of original articles; Hirsch-index (H-index) from KoreaMed Synapse and Web of Science [8]; publication types of highly cited articles from KoreaMed Synapse and Web of Science; and comparison of impact factors between DMJ and other Science Citation Index Expanded (SCIE) journals from Asia.

Analysis methods

The numbers of citable and noncitable articles per year were counted by reviewing the publication types. Reviews, original articles, case reports, and special articles were counted as citable articles. The calculations for impact factor, total citations, countries of authors of DMJ, countries of authors who cited DMJ, and H-index were performed as previously described [9]. The publication types of highly cited articles from KoreaMed Synapse and Web of Science were counted from two databases. The impact factors of other four SCIE journals from Asia in the category of endocrinology and metabolism were obtained from JCR 2012. The target journals were *Endocrine Journal*, *Journal of Bone and Mineral Metabolism*, and *Journal of Diabetes Investigation* from Japan and *International Journal of Diabetes in Developing Countries* from India. Their impact factors for 2013 were calculated from Web of Science, excluding noncitable articles in the denominator.

RESULTS

Number of citable and noncitable articles per year from 2006 to 2003

These data are presented in Fig. 1. Of the 580 total articles from 2006 to 2013, the number of citable articles was 466 (80.3%), and the number of noncitable articles was 114 (19.7%).

Impact factor from KoreaMed and Web of Science and total citations from Web of Science

Although the impact factor trends are available from KoMCI Web, where the citations from medical journals from Korea have been calculated, these were recalculated after omitting the number of noncitable articles in the numerator of the calculation formula for the impact factor. The recalculated impact factor was denoted "the KoreaMed impact factor" to avoid confusion with the KoMCI impact factor. The impact factor from Web of Science was manually calculated. First, the impact factor excluding self-citations was calculated. The impact factor including self-citations was then calculated to enable comparisons with other journals in JCR 2012. The results are presented in Fig. 2. According to the 2012 JCR data, the JCR ranking of DMJ in 2013 in the category of endocrinology and metabolism was estimated to be 83/122 (68.0%). If self-citations were not included, the ranking was estimated to be 87/122 (72.3%).

Total citations

The total citations from medical journals from Korea and jour-

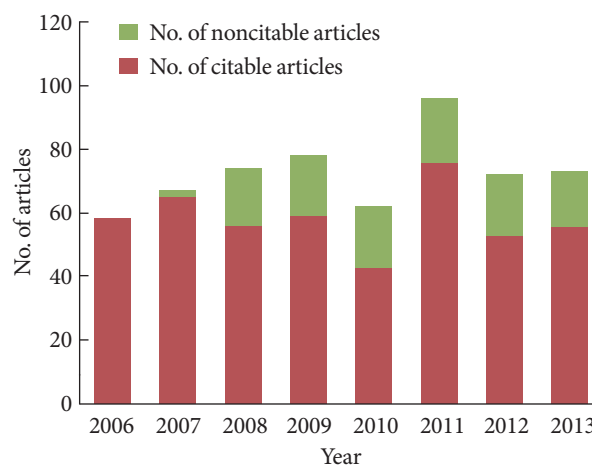


Fig. 1. Proportion of citable and noncitable articles published in the *Diabetes & Metabolism Journal* according to year.

nals included in the Web of Science are presented in Figs. 3 and 4 presents the total citations of each different title of DMJ from the Web of Science. The recent citations were mostly from the journal's current title, DMJ. Its previous title, *Korean Diabetes Journal*, has been cited continuously at a rate of approximately 50 times a year.

Countries of authors of DMJ

From 2006 to 2008, all of the authors of articles published in DMJ were from Korea. After the language was changed to English only, the number of papers from outside Korea began to increase annually (Fig. 5). In 2013, the cumulative number of articles from countries outside Korea was 19 out of 52 citable articles, including review and original articles and brief

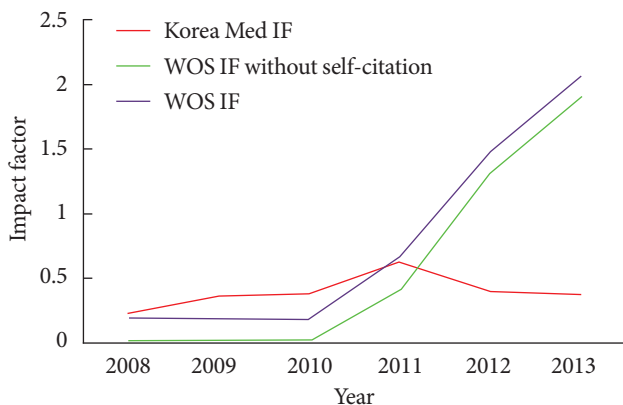


Fig. 2. Impact factors of *Diabetes & Metabolism Journal* from KoreaMed and Web of Science (WOS), with or without self-citations, according to year. IF, impact factor.

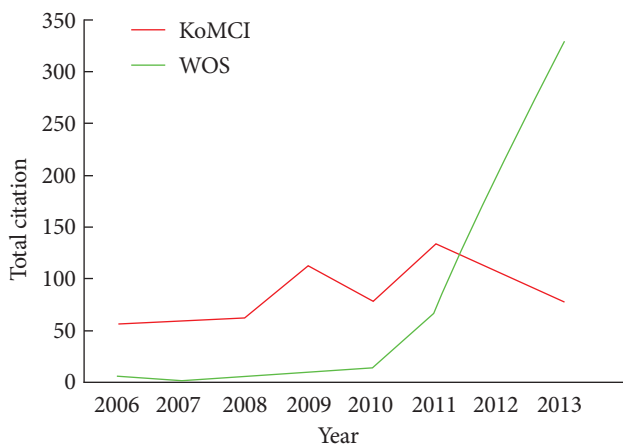


Fig. 3. Total citations of *Diabetes & Metabolism Journal* from Korean Medical Citation Index (KoMCI) and Web of Science (WOS) according to year.

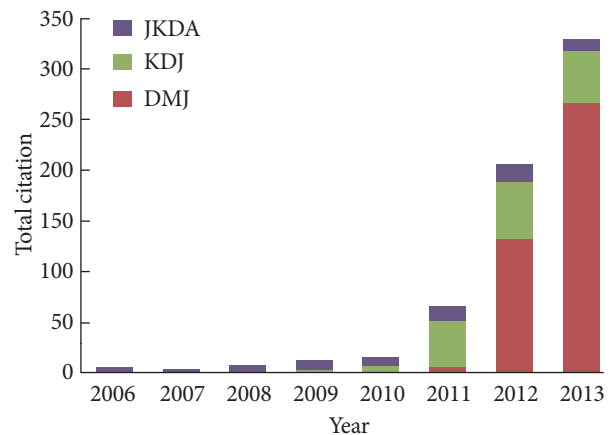


Fig. 4. Total citations of each different title of *Diabetes & Metabolism Journal* (DMJ) from Web of Science according to year. JKDA, *Journal of the Korean Diabetes Association*; KDJ, *Korean Diabetes Journal*.

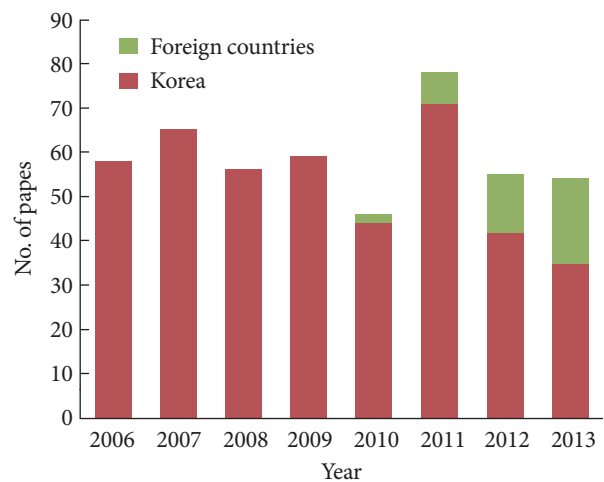


Fig. 5. Proportion of papers in *Diabetes & Metabolism Journal* from foreign countries according to year.

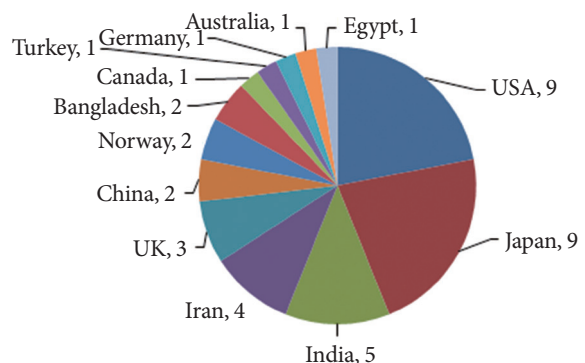


Fig. 6. Number of countries, in addition to Korea, that the 41 authors who published their articles in *Diabetes & Metabolism Journal* from 2010 to 2013 were from.

reports (36.5%) (Fig. 5). The countries of authors outside of Korea who published citable articles in DMJ from 2010 to 2013 are diagrammed in Fig. 6.

Countries of authors who cited DMJ

The country of the authors who most frequently cited DMJ was Korea, followed by USA, China, Japan, India, England, Canada, Italy, Australia, and Germany. The total number of countries of authors who cited DMJ was 64 (Fig. 7).

Proportion of funded articles of the total number of original articles

Of the 148 original articles published from 2010 to 2013, 65 articles (43.9%) were supported by funding agencies. The annual change in the number of articles with funding is shown in Fig. 8.

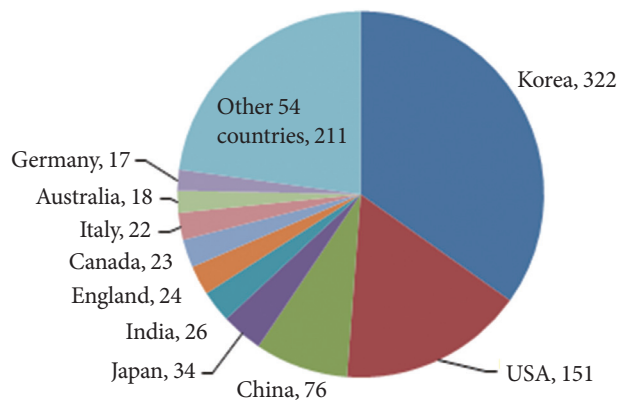


Fig. 7. Major countries of the authors who cited in *Diabetes & Metabolism Journal*, in order of frequency, from Web of Science.

H-index from KoreaMed Synapse and Web of Science

The H-index from KoreaMed Synapse was 7, and the highly cited papers are presented in Table 1. The H-index from Web of Science was 9, and the data are presented in Table. 2.

Highly cited publication types

The highly cited publication types included four reviews and four original articles in KoreaMed Synapse and 10 reviews and three original articles in Web of Science.

Comparison of the citation frequencies between DMJ and other SCIE journals from Asia

The data presented in Fig. 9 show the remarkable increase in the impact factor of DMJ in contrast to other journals from Asia in the endocrinology and metabolism category listed in

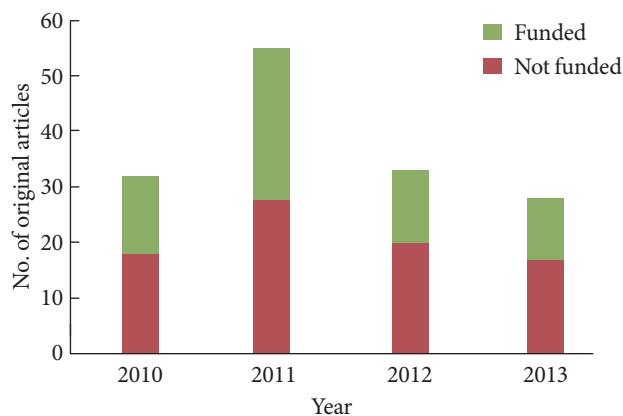


Fig. 8. Proportion of funded original articles in *Diabetes & Metabolism Journal* according to year.

Table 1. Hirsch-index of the *Diabetes & Metabolism Journal* from KoreaMed Synapse (cited 2014 Apr 23)

Rank	Title	Year;vol(no):page	Cited frequency	Publication type
1	The epidemiology of diabetes in Korea	2011;35(4):303	26	Review
2	A nationwide survey about the current status of glycemic control and complications in diabetic patients in 2006: the Committee of the Korean Diabetes Association on the Epidemiology of Diabetes Mellitus	2009;33(1):48	22	Original article
3	Obesity and metabolic syndrome in Korea	2011;35(6):561	11	Review
4	2011 Clinical practice guidelines for type 2 diabetes in Korea	2011;35(5):43	10	Review
5	Cause-of-death trends for diabetes mellitus over 10 years	2009;33(1):65	10	Original article
6	Epidemiologic characteristics of diabetes mellitus in Korea: current status of diabetic patients using Korean Health Insurance Database	2009;33(5):357	9	Review
7	The effects of low-calorie diets on abdominal visceral fat, muscle mass, and dietary quality in obese type 2 diabetic subjects	2009;33(6):526	8	Original article
8	Prevalence of chronic complications in Korean patients with type 2 diabetes mellitus based on the Korean National Diabetes Program	2011;35(5):504	7	Original article

Table 2. Hirsch-index of the *Diabetes & Metabolism Journal* from Web of Science (cited 2014 Apr 23)

Rank	Title	Year;vol(no):page	Cited frequency	Publication type
1	Anti-obesity drugs: a review about their effects and safety	2012;36(1):13	29	Review
2	The epidemiology of diabetes in Korea	2011;35(4):303	24	Review
3	Obesity and metabolic syndrome in Korea	2011;35(6):561	16	Review
4	Diabetes and cancer: is diabetes causally related to cancer?	2011;35(3):193	14	Review
5	The relationship of adiponectin/leptin ratio with homeostasis model assessment insulin resistance index and metabolic syndrome in apparently healthy Korean male adults	2010;34(4):237	13	Original article
6	New perspectives on diabetic vascular complications: the loss of endogenous protective factors induced by hyperglycemia	2011;35(1):8	12	Review
7	The prediabetic period: review of clinical aspects	2011;35(2):107	11	Review
8	Epidemiology of micro- and macrovascular complications of type 2 diabetes in Korea	2011;35(6):571	10	Review
9	The relationship between diabetes mellitus and health-related quality of life in Korean adults: the Fourth Korea National Health and Nutrition Examination Survey (2007-2009)	2011;35(6):587	9	Original
10	Glucolipotoxicity in pancreatic β -cells	2011;35(5):444	9	Review
11	The roles of glycated albumin as intermediate glycation index and pathogenic protein	2012;36(2):98	9	Review
12	The role of oxidative stress in the pathogenesis of diabetic vascular complications	2012;36(4):255	9	Review
13	The effect of glucose fluctuation on apoptosis and function of INS-1 pancreatic beta cells	2010;34(1):47	9	Original article

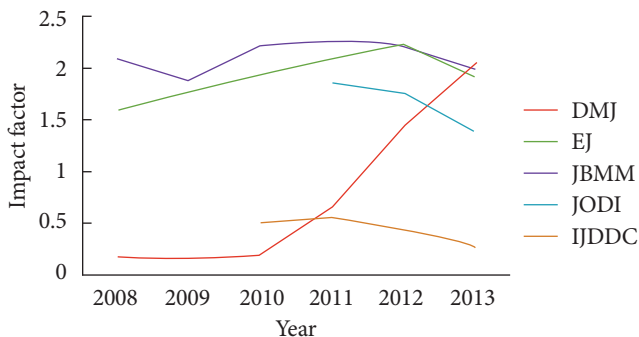


Fig. 9. Impact factors of *Diabetes & Metabolism Journal* (DMJ) and four SCIE journals in the category of endocrinology and metabolism of JCR 2012 according to year. EJ, *Endocrine Journal*; JBMM, *Journal of Bone and Mineral Metabolism*; JODI, *Journal of Diabetes Investigation*; IJDDC, *International Journal of Diabetes in Developing Countries*.

JCR 2012.

DISCUSSION

The change in the language of DMJ to English only can be con-

sidered successful based on journal metrics. Its citation frequency, according to Web of Science, increased markedly after the change in language. Its impact factor, according to Web of Science, increased from less than 0.01 to 1.907, excluding self-citations. The number of total citations also increased rapidly starting in 2011. There was no marked change in the impact factor or the total citation from KoMCI, indicating that the number of readers of DMJ in Korea had reached its peak level prior to the change in the language policy. The proportion of funded articles from 2010 to 2013, i.e., 43.9% of the original articles, is also remarkable. These articles had been screened by funding agencies prior to submission, and the quality of the article is thus likely to be higher. The proportion of papers from outside Korea began to increase starting in 2000 and was 36.5% in 2013. This increase may have been due to its indexing in PMC, which enabled foreign researchers to find DMJ easily from PMC or PubMed as the journal of submission. The distribution of authors from 64 countries who cited DMJ shows that DMJ contains useful information for researchers throughout the world. The H-index from Web of Science was greater than that from KoreaMed Synapse, showing that, although DMJ has

been cited by Korean researchers for a long time, its citation by researchers throughout the world has only recently increased. The frequent citation of review articles is a common phenomenon in most journals.

The 2013 impact factor of 2.054 that was calculated from Web of Science, including self-citations, showed that DMJ is a top journal in comparison to the four other SCIE journals from India and Japan in the category of endocrinology and metabolism. This high ranking is believed to be the effect of the journal's inclusion in PMC and PubMed. The increase in its impact factor after being indexed in PMC is a consistent pattern that has been observed with other medical journals from Korea [10]. To be included in PMC, the production of journal article tag suite extensible markup language (JATS XML) file is mandatory [11]. Because it is not difficult to produce JATS XML file, every medical journal written in English can be added to PMC.

There have been other reports on journal metrics from medical journals in Korea. The dramatic increase in the impact factor of *The Korean Journal of Internal Medicine* was reported 2 years after the first journal metric analysis. Its impact factor increased from 0.623 in 2010 to 1.274 in 2012, and the journal has a ranking of 70/151 (46.4%) in the category of general medicine of JCR [12,13]. The other example is the *International Neurourology* Journal, which changed its language policy in 2010 and had an impact factor of 0.857 in 2013, corresponding to 85.7% in the category of nephrology-urology [14]. To obtain immediate results regarding journal metrics, inclusion in Web of Science is necessary because the position of a journal in the journal network can be easily found in this database [15].

For the future progression of DMJ, its style and format should be further considered. Currently, the international standard of scholarly journals is frequently suggested by CrossRef and includes items such as a digital object identifier, CrossMark, and FunRef [16]. DMJ has rapidly applied new technologies, and editors should be alerted when new functions are implemented. Another suggestion is the inclusion of multimedia data, such as voice recording of abstracts [17] and the inclusion of video files. Another policy is leadership to the endocrinology and metabolism category journals in Asia. DMJ can serve as an official journal for neighboring countries in East and South-East Asia, as is *Journal of Neurogastroenterology and Motility* [18]. The preliminary uploading of the citation XML of accepted articles to PubMed (epub ahead of print) is also mandatory for the rapid propagation of the accepted papers

[19]. For rapid and efficient peer review, the cascade peer review system can be considered with cooperation from other diabetes journal editors [20].

In conclusion, DMJ can be considered an international journal according to its international diversity of authors and editors, citations from authors from a variety of countries, sufficiently high proportion of funded articles, relatively high impact factor, and number of total citations.

CONFLICTS OF INTEREST

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

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