



Original Article

Family medicine publications in Taiwan: An analysis of the Web of Science database from 1993 to 2012

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Abstract

Background: Academic publications are important for developing a medical specialty or discipline. Since family medicine is a rapidly growing medical specialty in Taiwan, this study aimed to analyze family medicine publications from 1993 to 2012 in Taiwan using the Web of Science database.

Methods: Published academic articles submitted from departments/institutes of family medicine were retrieved and analyzed from the Web of Science database, which includes articles published in the Science Citation Index–Expanded and Social Science Citation Indexed journals from 1993 to 2012.

Results: Among 33,073 published articles submitted from the departments/institutes of family medicine worldwide during the years 1993–2012, 1552 articles (4.69%) were submitted from Taiwan, ranking fourth in the world after the USA, Canada, and Sweden. In total, 1409 articles from Taiwan, excluding meeting abstracts and corrections, were selected for further analyses. During these two decades, family medicine publications increased rapidly. There were 60 articles published during 1993–1997, 180 articles during 1998–2002, 334 articles during 2003–2007, and up to 836 articles during 2008–2012. However, the mean citation number of articles decreased from 19.0 to 17.7, 15.1, and 3.8, and the mean impact factor of published journals decreased from 3.41 to 3.15, 2.78 and 2.82 during the periods 1993–1997, 1998–2002, 2003–2007, and 2008–2012, respectively. Most articles belonged to the subject category of the Medicine, General and Internal category (194 articles, 13.8%), followed by Public Environmental Occupational Health (144 articles, 10.2%), Oncology (126 articles, 9.2%), Endocrinology Metabolism (111 articles, 7.9%), Geriatrics Gerontology (99 articles, 7.0%), and the Gastroenterology Hepatology category (85 articles, 6.0%). However, only six articles (0.4%) were published in the Primary Health Care category.

Conclusion: Publications from departments/institutes of family medicine in Taiwan increased rapidly from 1993 to 2012. However, the trends of decreased citation number of articles and journal impact factor, as well as the small amount of articles published in the Primary Health Care Category, deserve further attention and effort.

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Keywords: family practice; journal impact factor; primary health care; publications; Web of Science

1. Introduction

Conflicts of interest: The author declares that there are no conflicts of interest related to the subject matter or materials discussed in this article.

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Family medicine became an official specialty of the medical discipline in Taiwan in 1988. Currently, the family medicine specialty has more than 5000 certified specialists, and constitutes the second largest medical association in Taiwan. Because the main mission of family medicine is in primary health care,

and most specialists work as general practitioners in primary care clinics, the advancement of family medicine academics may confront difficulties compared with other specialties.^{1–6} Even in the United States, where family medicine is popular among medical practices, a decrease in publications by family medicine faculty members was reported.^{7,8}

Taiwan's Institute for Scientific Information publications in clinical medicine increased from 315 articles in 1990 to 2636 articles in 2004.⁹ According to two previous reports, published articles submitted from departments/institutes of family medicine in Taiwan increased slowly from 1979 to 1990, but increased more rapidly from 1991 to 2003.^{10,11} However, these two reports retrieved articles published in MEDLINE, and only the affiliation of the first author or the corresponding author was cataloged. Thus, the publications of family medicine faculty members were underestimated. Many interdisciplinary collaborative research articles with family medicine participation would not be given due credit because the affiliations of coauthors were not provided in MEDLINE-indexed articles.

Web of Science (WoS) is a strong powerful research database officially inaugurated in 2004 by the Thomson Scientific and Health Care Corporation. The WoS database contains not only the affiliations of all authors, but also provides the citation numbers of published articles. WoS provides access to the Thomson Reuter's multidisciplinary databases of bibliographic information such as the Science Citation Index–Expanded (SCI-E), the Social Sciences Citation Index (SSCI), the Arts and Humanities Citation Index, and the Journal Citation Report (JCR).^{12–14} WoS is a powerful web interface providing access to the citation databases. In addition, WoS established a subject category, *Primary Health Care*, in the JCR in 2011 to encourage the publication of research from family medicine, primary care, and general practice.^{15–17} The aim of this study was to analyze the family medicine publications from 1993 to 2012 in Taiwan using the WoS database.

2. Methods

The WoS database was accessed through the Taipei Veterans General Hospital Library website on June 6, 2013. In the first stage, an international comparison of research outputs by departments and institutes of family medicine worldwide was carried out. Publications in SCI-E and SSCI, with the authors' address containing *family medicine*, including all article types, from January 1, 1993 to December 31, 2012 were searched. The number of publications from a country/area worldwide was obtained. In the second stage, publications from the departments/institutes of family medicine in Taiwan (AD = family medicine SAME Taiwan) during the same study period (1993–2012) and data sources from SCI-E and SSCI were searched. The types of publications included articles, letters, reviews, proceedings papers, editorial materials, and notes, but not meeting abstracts or corrections. All of the yearly research output, research output within the 5-year intervals from 1993 to 2012, WoS subject category, authors (including all authors), organization/institute that submitted published articles, and the names of journals publishing articles were analyzed.

In order to analyze the citation numbers of publishing articles and impact factors of published journals, we also obtained the citation number of each paper from WoS and impact factors of publishing journals from the 2012 JCR. H-index indicates the citation number of published articles greater than 20. Linkage of the WoS citation number and JCR impact factors were performed using the SQL Server 2008 (Microsoft, Redmond, WA, USA).

Results from the first and second stages were expressed as descriptive data (count, percentage, range, mean, and standard deviation). The ANOVA, Student *t*, and χ^2 tests were used to assess the statistically significant differences of mean citation numbers and impact factors among different study periods (SPSS version 17.0; SPSS Inc., Chicago, IL, USA). A *p* value <0.05 was considered statistically significant (2-tailed test).

This study was exempted from review by the Institutional Review Board because data were obtained from the public open domain of the Taipei Veterans General Hospital Library website.

3. Results

On searching the WoS database, including articles published in SCI-E and SSCI journals, we found a total of 33,073 published articles submitted from departments/institutes of family medicine worldwide during the period 1993–2012. Table 1 lists the top 10 most prolific countries/areas from which published articles were submitted. Taiwan published 1552 articles (4.69%) and was ranked as number four during 1993–2012, behind the USA, Canada, and Sweden. There were in total 1409 articles, excluding meeting abstracts and corrections, involved for further analyses. Articles were the most common publication type (94.3%), followed by letters (3.2%), reviews (1.4%), proceedings papers (1.1%), editorial materials (0.8%), and notes (0.3%).

The annual total of published articles submitted from the departments/institutes of family medicine in Taiwan increased rapidly, from seven articles in 1993 to 222 articles in 2012 (Fig. 1). Articles published in SCI-E journals increased more rapidly than articles published in SSCI. There were 836

Table 1
Top 10 most prolific countries/areas for published articles submitted from departments/institutes of family medicine from 1993 to 2012.

Country/area	Articles published, <i>n</i>	%
USA	19,877	60.10
Canada	4120	12.48
Sweden	1563	4.73
Taiwan	1552	4.69
Singapore	1053	3.18
South Korea	1045	3.16
People's Republic of China	987	2.98
England	925	2.80
South Africa	909	2.75
Israel	907	2.74

In total, 33,073 articles were found on the Web of Science database, including articles published in the Science Citation Index–Expanded (SCI-E) and Social Science Citation Index (SSCI) journals.

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