

Who Publishes in Leading General Surgical Journals? The Divide Between the Developed and Developing Worlds

Kamal Kumar Mahawar, Ajay Malviya¹ and Ganesh Kumar, Department of Surgery, Darlington Memorial Hospital, Darlington and ¹Department of Orthopaedics, Freeman Hospital, Newcastle upon Tyne, UK.

BACKGROUND: Most articles in top general surgical journals seem to originate from a limited few developed countries. The purpose of this study was to establish which countries publish the most in leading general surgical journals.

METHODS: We analysed all the studies, reviews and case reports published in 2003–2004 in 10 leading English-language general surgical journals with the highest impact factors to obtain country-wise data with regard to the origin of articles. Editorials, historical articles, commentaries, guidelines, biographies, interviews and letters to editors were excluded from the analysis.

RESULTS: A total of 5,081 articles were reviewed. Out of these, 834 were excluded as detailed above and the remaining 4,247 articles were analysed. Most of these were from USA, European countries, Japan, and Australia. It seems that the vast majority of the world's population living in the developing countries do not find adequate representation in leading general surgical journals.

CONCLUSION: Very few articles are published from developing countries in leading general surgical journals. Both developing countries and medical journals need to take steps to curb this trend. Steps are suggested to improve the situation so that the developing world is also adequately represented in the surgical literature. [*Asian J Surg* 2006;29(3):140–4]

Key Words: developing world, publication, surgical journal

Introduction

Most of the articles published in leading journals seem to originate from the developed world, and developing nations and their problems do not find much voice in the medical literature.^{1,2} Several previous studies have noted this trend in a variety of specialties.^{1–4} While this can be used to indicate the research productivity of individual countries, it may also be due to a tendency of journals not to publish articles from the developing world. Such a

biased selection process may have its roots in lower quality and quantity of submission from the developing world, journal marketing strategies and a preference for articles that deal with local problems. Many of these journals have very high impact factors, which does not indicate if the journal adequately represents the developing world. The purpose was to study the national origin of articles in the top 10 general surgical journals with the highest impact factors and also to determine what percentage of articles in these leading journals are home-grown.

Address correspondence and reprint requests to Dr Kamal Kumar Mahawar, Department of Surgery, Darlington Memorial Hospital, 37 Hawkesbury Mews, Darlington DL3 6RR, United Kingdom.
E-mail: kamal_mahawar@hotmail.com • Date of acceptance: 5 November 2005

Methods

Since impact factors are widely believed to be indicative of a journal's reputation,⁵ we used this as a measure to select 10 leading general surgical journals. Impact factors for 2003 were used for the analysis (Table 1) and were obtained from the Institute for Scientific Information (ISI) Thomson Corp.⁶

We studied English-language general surgical journals indexed with Pubmed, the Medline database of the National Library of Medicine⁷ and identified the top 10 amongst them in order of their impact factors. All the studies, reviews and case reports published in 2003–2004 in these journals were analysed to obtain country-wise data with regard to the origin of articles. Editorials, historical articles, commentaries, guidelines, biographies, interviews and letters to editors were excluded from the analysis. Pubmed was then used to obtain the information regarding country of origin of each of these publications.⁷ One major limitation of this methodology was when authors were from more than one country and Pubmed would only give us the country of the leading author. However, we do not think that it is likely to significantly influence our results.

United Nations' population data for 2004 published in 2005⁸ were used to obtain the population of the countries, which had published at least one article in these journals. The number of the published articles and population data were used to obtain number of articles/million population/year.

Results

A total of 5,081 articles were reviewed. Out of these, 834 were excluded as detailed before and the remaining 4,247 articles were analysed. Most of the articles originated from the US, European countries, Japan and Australia. It seems that developing countries do not find adequate representation in these general surgical journals as they accounted for only a very small percentage of articles. USA accounted for the largest number of publications, contributing 47.5% of all the articles published in these journals in the selected time period. This was followed by Japan (12.87%), UK (6.16%) and Australia (6.14%).

When the articles published in these journals were analysed per million population per year, only Monaco (14.28%), New Zealand (7.2%), Australia (6.47%), Ireland (3.86%), USA (3.39%), Sweden (2.70%), The Netherlands (2.57%), UK (2.19%), Singapore (2.19%), Austria (2.13%) and Japan (2.13%) were found to have published more than two articles per million population.

We also noticed a trend amongst the journals to publish a large number of articles from their country of publication (Table 1). Most of these journals publish two-thirds of their articles from the host country (Table 1). Some of them published more than 90% of the articles from the country of publication. The lowest figure in this regard was obtained for *British Journal of Surgery (BJS)* (38%), which could thus be labelled as the most internationalized general surgical journal.

Table 1. Ten leading general surgical journals, their impact factors and percentage of articles from their country of publication

Journal	Country of publication	Impact factor (2003)	Total no. of articles in the journal analysed	Articles from country of publication, n (%)
<i>Annals of Surgery</i>	USA	5.937	429	222 (51.74)
<i>British Journal of Surgery</i>	UK	3.772	508	194 (38.18)
<i>Archives of Surgery</i>	USA	2.753	390	255 (65.39)
<i>Surgery</i>	USA	2.611	535	313 (58.50)
<i>American Journal of Surgery</i>	USA	2.183	613	413 (67.37)
<i>Journal of American College of Surgeons</i>	USA	2.071	481	352 (73.10)
<i>Current Problems in Surgery</i>	USA	1.458	24	23 (95.80)
<i>American Surgeon</i>	USA	1.158	443	406 (91.64)
<i>Australia and New Zealand Journal of Surgery</i>	Australia and New Zealand	0.874	369	Australia 203 and New Zealand 50 = 253 (68.50)
<i>Surgery Today</i>	Japan	0.528	454	310 (68.28)

Table 2. Countries listed in alphabetical order with their publications in the top 10 general surgical journals in 2003–2004

Country	Surgery Today	British Journal of Surgery	Australia and New Zealand Journal of Surgery	Current Problems in Surgery	Annals of Surgery	Archives of Surgery	American Surgeon	American Journal of Surgery	Journal of American College of Surgeons	Total no. of articles in 2003 and 2004	Population in millions (2005 medium variant)	Articles/ million/ year
Argentina	0	0	0	0	0	0	0	1	0	1	38.747	0.01
Australia	2	26	203	4	4	12	0	6	3	261	20.155	6.47
Austria	1	3	1	7	6	6	5	4	2	35	8.189	2.13
Belgium	0	4	0	2	6	1	0	1	2	16	10.419	0.76
Brazil	1	0	0	2	1	2	0	3	0	9	186.405	0.02
Bulgaria	0	0	0	1	0	0	0	0	0	1	7.726	0.06
Canada	0	3	0	16	12	0	1	24	16	73	32.268	1.13
Chile	0	0	1	1	0	0	0	0	0	2	16.295	0.06
China	9	26	11	12	12	13	5	12	7	107	1,315.844	0.04
Columbia	0	0	0	0	0	1	0	0	0	1	45.600	0.01
Czech Republic	1	0	0	0	0	0	0	0	0	1	10.220	0.05
Denmark	0	10	0	1	4	2	0	3	0	20	5.431	1.84
Egypt	4	0	0	1	0	2	0	0	1	8	74.033	0.05
Finland	0	3	0	1	1	0	0	3	1	9	5.249	0.85
France	2	19	4	11	25	10	0	10	15	96	60.496	0.79
Germany	8	23	0	29	19	8	0	5	2	94	82.689	0.56
Greece	9	1	1	4	1	2	3	5	9	35	11.120	1.57
Hong Kong (China)	0	2	9	0	8	0	0	0	0	19	7.041	1.34
Hungary	2	2	0	1	0	0	3	0	0	8	10.098	0.4
India	10	2	17	0	2	1	0	3	1	36	1,103.371	0.01
Iran	0	0	1	0	0	1	0	0	0	2	69.515	0.01
Ireland	0	14	4	2	3	2	0	4	3	32	4.148	3.86
Israel	1	0	0	2	5	8	1	3	2	22	6.725	1.63
Italy	6	11	2	10	13	19	6	10	9	86	58.093	0.74
Japan	310	37	3	70	30	12	8	46	31	547	128.085	2.13
Jordan	0	0	0	0	0	0	1	0	0	1	5.703	0.08
Malaysia	0	0	3	0	0	0	0	0	0	3	25.347	0.06
Mexico	0	0	0	1	1	0	1	1	0	4	107.029	0.01
Monaco	1	0	0	0	0	0	0	0	0	1	0.035	14.28
Netherlands	0	34	3	10	20	3	1	7	6	84	16.299	2.57
New Zealand	0	4	50	0	0	1	0	2	1	58	4.028	7.2
Nigeria	0	0	1	0	0	0	0	0	0	1	131.530	0.004
Norway	0	5	0	0	1	0	0	0	0	6	4.620	0.65
Poland	2	0	0	2	0	0	0	1	0	5	38.530	0.06
South Korea	6	0	1	1	2	3	0	1	4	18	47.817	0.19
Republic of Moldova	1	0	0	0	0	0	0	0	0	1	4.206	0.12

(continued)

Table 2. Continued

Country	Surgery Today	British Journal of Surgery	Australia and New Zealand Journal of Surgery	Current Problems in Surgery	Surgery	Annals of Surgery	Archives of Surgery	American Surgeon	American Journal of Surgery	Journal of American College of Surgeons	Total no. of articles in 2003 and 2004	Population in millions (2005 medium variant)	Articles/ million/year
Russia	0	1	0	0	0	0	0	0	1	0	2	143,202	0.007
Saudi Arabia	0	0	1	0	0	0	0	0	0	0	1	24,573	0.02
Singapore	0	6	12	0	1	0	0	0	0	0	19	4,326	2.19
Slovenia	1	0	0	0	0	0	0	0	0	0	1	1,967	0.25
South Africa	1	6	1	0	1	0	0	1	1	2	13	47,432	0.13
Spain	0	7	0	0	5	8	8	0	6	4	38	43,064	0.44
Sweden	0	29	1	0	7	7	2	0	3	0	49	9,041	2.70
Switzerland	0	6	0	0	2	5	5	0	3	4	25	7,252	1.72
Thailand	0	0	1	0	0	0	0	0	0	0	1	64,233	0.007
Turkey	69	2	16	0	7	0	4	1	11	1	111	73,193	0.75
UK	2	194	17	0	8	11	7	0	20	3	262	59,668	2.19
USA	5	28	4	23	313	222	255	406	413	352	2,021	298,213	3.39
Total no. of articles in journal	454	508	369	24	535	429	390	443	613	481	4,247	—	—

Four out of every 10 inhabitants on the earth live in China or India. These two countries together published 143 articles, accounting for only 3.36% of all the articles published in these journals.

Discussion

Our study clearly shows that most of the articles published in leading general surgical journals originate from USA, European countries, Japan and Australia. Some of the smaller nations were seen to be performing much better than larger nations (Table 2). The developing world, harbouring the majority of the world's population, was not adequately represented in the surgical literature.

The number of published articles can be used as an index of productivity in medical research. This study thus indicates that most of the medical research published in leading general surgical journals originates from the developed world. Others have noted similar trends in various specialties.^{3,4} Resources for carrying out quality research in developing countries are limited, probably accounting for the lower number of publications originating from these areas.

Tompkins et al found that the top American and British general surgical journals have become internationalized over the years.⁹ But our study found that a significant proportion of the articles published in these journals was still home-grown. One could thus conclude that though the situation is improving, a lot still needs to be done in this direction if leading journals want to claim universal appeal. In most of these journals, nearly two-thirds of the articles originated from their country of origin, while 90% of the articles were from the home country. *BJS* with 62% of the articles originating from other countries was best in this regard. Tompkins et al noted that a decrease in the number of national articles in the American journals was accompanied by the decrease in government funding.⁹ Funding can be an important issue in this regard for the developing world where money can be difficult to find for medical research. Journals' tendency to publish a large number of articles from their home country may indicate higher acceptance rates for home-grown articles and journals should be more transparent and publish data regarding submission and acceptance from different countries. It may also be partly accounted for by higher submission rates from local authors who may desire to publish their research locally for greater impact. Also, most of the readers of these journals live in the developed world and may have little to gain by

reading about the problems of developing nations. The journals may thus have vested financial interests in publishing articles from the developed world. In 1998, the *British Medical Journal* disclosed that its acceptance rates for articles from different parts of the world were nearly the same whereas the submission from the UK was far higher than from the rest of the world.¹⁰ Publication of such data by other journals would reinforce the faith of the scientific community in them and establish their universal appeal.

Importantly, none of these 10 leading journals studied are published from the developing world. We suggest that developing countries need to develop their research resources and also establish their own reliable peer reviewed journals where their scientists can publish their research. At the same time, leading general surgical journals should publish data regarding submissions and acceptance of articles from different countries to make the process more transparent, failing which they should admit their limited representation and reach. The real importance of the impact factor of journals should hence be understood in this context and its limitation in indicating the journal's representation of the developing world realized.

While interpreting the results of this study, we must bear in mind that it excludes non-English language journals and uses the impact factor as the sole criterion to identify leading general surgical journals. It is possible that researchers may publish their findings in local language journals not indexed in Medline, but we believe that those seeking a larger audience would normally have a preference for journals with higher impact factors for their articles. The other limitations of the "impact factor" also need to be understood to fully appreciate the findings of this study.^{11,12}

Conclusion

Most of the articles published in leading general surgical journals originate from a few developed countries.

The vast majority of the world's population do not find adequate representation in the current surgical literature. We also observed a tendency amongst the journals studied to publish a significant percentage of articles from their home country.

References

1. Boldt J, Maleck W, Koetter KP. Which countries publish in important anesthesia and critical care journals? *Anesth Analg* 1999;88:1175-80.
2. Tutarel O. Geographical distribution of publications in the field of medical education. *BMC Med Educ* 2002;2:3.
3. Bliziotis IA, Paraschakis K, Vergidis PI, et al. Worldwide trends in quantity and quality of published articles in the field of infectious diseases. *BMC Infect Dis* 2005;5:16.
4. Sorrentino D, De Biase F, Trevisi A, et al. Scientific publications in gastroenterology and hepatology in Western Europe, USA and Japan in the years 1992-96: a global survey. *Digestion* 2000; 61:77-83.
5. Saha S, Saint S, Christakis DA. Impact factor: a valid measure of journal quality? *J Med Libr Assoc* 2003;91:42-6.
6. Institute for Scientific Information. *2003 SCI J Citation Rep.* Philadelphia, PA: Institute for Scientific Information, 2004.
7. NLM's Pubmed Medline Retrieval System. <http://www.ncbi.nlm.nih.gov/PubMed>.
8. Population Data source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (2005). *World Population Prospects: The 2004 Revision. Highlights.* New York: United Nations.
9. Tompkins RK, Ko CY, Donovan AJ. Internationalization of general surgical journals: origin and content of articles published in North America and Great Britain from 1983 to 1998. *Arch Surg* 2001;136:1345-51.
10. BMJ data. *BMJ* 1998;316:1519-20.
11. Hecht F, Hecht BK, Sandberg AA. The journal "impact factor": a misnamed, misleading, misused measure. *Cancer Genet Cytogenet* 1998;104:77-81.
12. Cathey JT, Kader A. The impact of the Impact Factor. *Saudi Med J* 2004;25(Suppl):S37.