Publication trend in the Indian Journal of Orthopaedics
What is published and why?

Rishiram Poudel, Venkatesan Sampath Kumar, Ashok Kumar, Shah Alam Khan

ABSTRACT
Background: Factors influencing publication of manuscripts in reputed journals have never been studied to the best of our knowledge. This study was conducted to evaluate the trend in publication within the Indian Journal of Orthopaedics (IJO).

Materials and Methods: A cross-sectional study was conducted by accessing the online database of the IJO. All the issues available online were included. Published articles were classified into one of the following thirteen categories: (i) Basic Sciences (ii) trauma (upper limb and lower limb) (iii) infections (iv) pediatric orthopedics (v) arthroplasty (vi) arthroscopy (vii) spine surgery (viii) musculoskeletal oncology (ix) hand and microvascular surgery (x) adult reconstruction (including the Ilizarov technique) (xi) general orthopedics and miscellaneous (xii) letter to editor (xiii) book review. A scatter diagram was plotted to study the individual trends.

Results: A total of 2213 articles from 110 issues published between 1967 and 2014 were studied. Total number of articles per issue have increased over the years. Publications in the fields of trauma, adult reconstruction, arthroscopy and hand and microvascular surgery have increased steadily. Arthroplasty and spine surgery have recorded dramatic increase in publication. On the other hand, publications in the rest of the fields have declined of which the greatest fall is noted in the field of musculoskeletal oncology.

Conclusions: Trend in publication with the IJO has changed over years with more articles being published in arthroplasty and Spine surgery. Despite advances, publication in the field of musculoskeletal oncology has fallen.

Key words: Indian Journal Orthopaedics, publication, subspecialty

INTRODUCTION
Orthopedics has witnessed tremendous advancements in the last 50 years. The evolution is to the extent that orthopedics is now divisible into various sub-specialties with formalized training programs. In view of recent advances, it is imperative for the specialty to undertake constant evaluation of its curriculum. Analyzing publishing trends in prominent journals is one way of understanding the growth of a specialty. Lee et al.1 studied the trends of publications that focused on the neuro intervention and they measured +6.0% average annual growth rate between 2003 and 2012.2 The aim of the present study was to evaluate on an objective basis the trends of publication on various sub-specialty topics in the Indian Journal of Orthopaedics (IJO). A study of this kind will give an idea regarding the distribution of studies published across various sub-specialties. This in turn would set a platform for the future distribution of publications across specialties in relation to the needs of the orthopedic community. We chose the IJO because the journal has a broad base of readership with no particular orientation towards any one specialty of orthopedics and also because a large part of the journal is available online. We hypothesized that all subspecialties of orthopedics maintained a similar share in the publication in the IJO during the period 1967–2014.

MATERIALS AND METHODS
A cross sectional study was conducted to analyze the publication trends in the IJO. The IJO website was accessed between July 20, 2014 and August 3, 2014 and we included all issues which were available online between the said dates. Issues not available on the web page of the journal were excluded from the study. Two authors (RP and VSK) independently reviewed the contents of each issue and classified the articles under one of the following categories: (i) Basic sciences
Results

A total of 110 issues of IJO from 1967 to 2014 were studied. Some of the issues before the year 2001 were not available online and hence excluded. Between 2001 and 2010 IJO was published quarterly (four issues per year). Since January 2011, six issues of IJO are published every year. The number of articles in each issue has increased over the years [Figure 1]. Except for one issue, rest of all the issues from January 2008 to July 2014 contained twenty or more manuscripts.

We reviewed 2213 manuscripts and classified them accordingly. With 22.2% share, general orthopedics and the miscellaneous group contained the major bulk of published articles. This was closely followed by trauma category, forming one-fifth of the total. Manuscripts on spine surgery contributed 12.4% of the total while around 10% articles belonged to musculoskeletal oncology. If book reviews were excluded, arthroscopy formed the smallest group with just 54 publications in all [Table 1]. The first paper in arthroplasty was published in April 1977 issue while the first in arthroscopy was published in July 1985.

Discussion

Analysis of publishing trends can be carried out in different ways depending upon the research question. Weiss wanted to evaluate the change in publication productivity of family medicine faculty from 1989 to 1999. He studied a sample of members from the Society of Teachers of Family Medicine and studied how many articles each individual has published during those years. Results revealed a decreasing trend in publication productivity. Ward demonstrated a two-third decline in UK research articles in the British Journal of Anesthesia by studying the country of origin of published articles in the journal between 2004 and 2013. Pintér aimed to study the trend in cooperation among authors of articles published in the European Journal of Paediatric Surgery. They analyzed the distribution of publications according to the number of authors per article (1–2, 3–5 and ≥6). They found an increase in cooperation within and between institutions. In our study, we studied the publication trends in the IJO with respect to various recognized subspecialties of orthopedics.

In our analysis, we found that recent issues of IJO carry more articles per issue compared to its earlier counterparts.

Table 1: Distribution of manuscripts according to various categories

| Category                                              | Number of manuscripts (%) (n=2213) |
|-------------------------------------------------------|-----------------------------------|
| Basic sciences                                        | 130 (5.9)                         |
| Trauma (upper limb and lower limb)                   | 424 (19.2)                        |
| Infections                                            | 91 (4.1)                          |
| Pediatric orthopedics                                 | 109 (4.9)                         |
| Arthroplasty                                          | 145 (6.6)                         |
| Arthroscopy                                           | 54 (2.4)                          |
| Spine surgery (including Spine trauma)                | 274 (12.4)                        |
| Musculoskeletal oncology                              | 231 (10.4)                        |
| Hand and microvascular surgery                        | 65 (2.9)                          |
| Adult reconstruction (including ilizarov)             | 77 (3.5)                          |
| General orthopedics and miscellaneous                 | 492 (22.2)                        |
| Letter to editor                                      | 95 (4.3)                          |
| Book review                                           | 26 (1.2)                          |
Furthermore, the number of issues per year has increased with time. These trends demonstrate a healthy growth of the journal. However, this growth is not inclusive. Certain subspecialties, especially spine surgery and arthroplasty, are gaining larger share of published manuscripts at the cost of others. This change in trend, demonstrated by the
line of best fit in the scatter plot, may be due to various factors such as recent advancements in the subspecialty, lack of submissions in one field while increased number of submissions in others and due to author/editorial/readers bias.

It can be speculated that growing share of spine surgery, arthroplasty, arthroscopy and trauma may be attributed to the rapid advances happening in these fields in recent years. Yet another factor could be that with increasing life expectancy and a growing aged population worldwide, arthritis and spinal problems are becoming more prevalent. With growing demand, a lot of investigators might be inclined to conduct research in these fields thereby increasing their share in the publication of such articles. But these factors could not explain the falling trends noted in musculoskeletal oncology despite an increase in patient load and recent advancements in the same.

We would like to hypothesize that publications in spine surgery, arthroplasty and trauma are increasing due to market forces fostering research in these fields. On the other hand, pediatric orthopedics, musculoskeletal oncology, basic science and infections are less lucrative to market drivers particularly in a country like India. This bias could happen at the author level, reader level or the level of the editorial team of the journal. It can be assumed that it is easier to get funding for research in fields, which are considered lucrative and profitable to the industry. As funding is an important aspect of any research, investigators (authors of manuscripts) would be more inclined to conduct research in such fields. Another reason for the decline in publication in certain subspecialties, in general, orthopedic journals could be availability of dedicated subspecialty journals.

Another important aspect to consider is the “popularity” of certain subspecialties amongst the younger generation of orthopedic surgeons. Subspecialties such as spine surgery, arthroplasty, arthroscopy and trauma are widely marketed through workshops, conferences and continued medical education initiatives. Hence, readers (orthopedic surgeons) of major orthopedic journals develop interest in these and the journals tend to publish to their readers’ liking.

Finally, bias of the editorial team does play an important role in giving weightage to a particular specialization. Editorial bias is a known entity in publishing as it is well established that studies with positive (one group better over the other) outcomes are more likely to be published than those with neutral (no difference) outcomes. In a review of gastroenterology journals, a potential conflict of interest was noted in up to 33% of editorials and only 17% of journals disclosed the conflicts of interests of its editors. Whether the interests of the editors affect, the choice of the published article needs to be studied.

Our study has certain limitations. We did not include those issues of IJO, which were not available online. Furthermore, certain subspecialties, for example, foot and ankle surgery, were not classified separately, and they were included under general orthopedics and the miscellaneous category as the numbers of articles were few. We did not analyze the conflicts of interest of authors or the country of origin of manuscripts, as they were not considered relevant to our research question.

To conclude, trend analysis of publication of manuscripts in IJO has revealed an interesting change in share of various subspecialties over the years. Certain specialties such as spine surgery and arthroplasty show a growing trend at the cost of others of which musculoskeletal oncology and pediatric orthopedics are of special mention. Establishing a reason for this change is difficult but certain causes can be hypothesized. Various factors could have contributed to this change in trend of publication within the IJO.

REFERENCES

1. Lao LF, Daubs MD, Phan KH, Wang JC. Comparative study of scientific publications in orthopedics journals originating from USA, Japan and China (2000-2012). Acta Cir Bras 2013;28:800-6.
2. Lee JY, Yoon DY, Yoon SD, Nam SA, Cho BM. Neuroradiology research between 2003 and 2012: Slow growth, high interdisciplinary collaboration, and a low level of funding. AJNR Am J Neuroradiol 2014;35:1877-82.
3. Weiss BD. Publications by family medicine faculty in the biomedical literature: 1989-1999. Fam Med 2002;34:10-6.
4. Ward PA. Academic anaesthesia: The trend in UK publishing in the BJA between 2004 and 2013. Br J Anaesth 2014;113:191-2.
5. Pintér A. Changing authorship patterns and publishing habits in the European journal of pediatric surgery: A 10-year analysis. Eur J Pediatr Surg 2013;8:412-7.
6. Harris IA, Mourad M, Kadir A, Solomon MJ, Young JM. Publication bias in abstracts presented to the annual meeting of the American Academy of Orthopaedic Surgeons. J Orthop Surg (Hong Kong) 2007;15:62-6.
7. Bhargava N, Qureshi J, Vakil N. Funding source and conflict of interest disclosures by authors and editors in gastroenterology specialty journals. Am J Gastroenterol 2007;102:1146-50.

How to cite this article: Poudel R, Kumar VS, Kumar A, Khan SA. Publication trend in the indian journal of orthopaedics What is published and why?. Indian J Orthop 2015;49:661-4.

Source of Support: Nil, Conflict of Interest: None.