

# Publication performance of Indian authors in high impact anesthesiology journals: Are we doing enough?

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## Abstract

**Background and Aims:** Over the years, there is a continuing increase in the number of anesthesia journals and good quality articles are being submitted to these journals from all over the world. The aim of the study was to assess the contribution of Indian authors to high impact anesthesia journals.

**Material and Methods:** The study is a literature survey design and thus ethics committee clearance was not required. Based on The Journal citation report (2017), top six anesthesia journals with highest impact factor were selected. Subspecialty journals were excluded. A search was conducted for articles published by Indian authors between September 2008 and August 2018 and subcategorized to review articles, original articles, case reports, correspondence, and miscellaneous. Corresponding author was noted in articles with authors from more than one country. The percentage of articles in each of the above categories by Indian authors were calculated and state and city wise distribution was also assessed.

**Results:** The six highest impact journals were Anesthesiology, British Journal of Anaesthesia, Anaesthesia, Anaesthesia analgesia, European journal of Anaesthesia and Canadian Journal of Anaesthesia with impact factor of 6.52, 6.49, 5.43, 3.46, 3.9, 3.37, respectively. A total of 22,298 articles were published in the six journals in the study period, out of which 242 (1.08%) were authored by Indians. Majority of the articles were published as correspondence (58%). Only 20% of total publication were original articles. Most publications were contributed from Delhi (76), followed by Chandigarh (49).

**Conclusion:** Publication performance of Indian authors in high impact journals is poor. There is an uneven distribution of publication across various regions.

**Keywords:** Anaesthesiology, journal impact factor, publication

## Introduction

Academic activity is the cornerstone of teaching Institutions. Publication of original research in a high indexed journal reflects the academic quality of an institute. Many recent studies have been done to introspect the publication performance of various countries. Concluding on sole parameter of international publication is tough but thorough evaluation

and high standards of publication material in international journals definitely makes a mark. Thus, we aimed to evaluate the Indian authors contribution to high impact international journals in Anesthesia over a period of 10 years.

## Material and Methods

The study is a literature survey design and did not require ethics committee clearance. The literature search was conducted on

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15<sup>th</sup> September 2018. Based on the Journal citation report (2017), top six anesthesia journals with highest impact factor were included for the survey. The journals selected were Anesthesiology, British Journal of Anesthesia, Anesthesia, European Journal of Anesthesiology, Anesthesia and Analgesia, and Canadian Journal of Anesthesia with impact factors of 6.52, 6.49, 5.43, 3.9, 3.46, 3.37, respectively. Subspecialty journals were excluded. A computerized search was conducted on the journal websites and the past issues for the study period of 10 years from September 2008 to August 2018 were manually verified for total published articles and those by Indian authors. The articles were sub-divided to various categories like review article (RA), original article (OA), case reports (CR), letter to editor (LE), and miscellaneous (MI) groups. Narrative review, systemic review, and meta-analysis were included under RA category. Correspondence articles were considered under letter to editor category. If the article did not fit into any of the above, then it was included in MI category. Conference abstracts, book reviews, and retracted articles were excluded. If any article had authors from more than one country, then institution of the corresponding author was noted. The percentage of Indian articles in each category, year-wise and regional (city and state wise) publication distribution of the authorship was assessed. Microsoft Excel 2003 worksheet was used for data collection and statistical analysis.

## Results

A total of 22,298 articles were published in the surveyed journals during the study period. Original articles constituted major portion (40%) followed by correspondence (29%) and miscellaneous (22%) of total articles. Case reports and review articles constituted minor part, 2% and 7%, respectively. European Journal of Anesthesia published most Indian articles (1.7%) while least percentage of Indian author publication was observed in “Anesthesiology (0.44%)” [Table 1]. A total of 242 articles were published by Indian authors (1.08%). Original articles by Indian authors constituted only 0.55% of total published original articles. Most Indian publications were made in the correspondence/letter to editor category (57.8%), followed by Original articles (20.2%) and miscellaneous group (16.9%).

The city-wise distribution of articles revealed that Delhi (76) and Chandigarh (49) contributed to most number of publications. Trivandrum, Hyderabad, Pune, and Lucknow followed next. Karnataka (16), Maharashtra (14), and Uttar Pradesh (12) were the states with most publications. [Table 2]. Contribution from all the states depicted in

**Table 1: Journal-wise distribution of Indian articles**

Journal name (Impact factor)		Publications	RA	OA	LE	MI	CR	Total
Anaesthesiology (6.52)	Total	206	1884	1128	1241	64		4523
	Indian	0	2	9	8	1		20 (0.44%)
BJA (6.49)	Total	408	1721	1310	628	16		4083
	Indian	1	10	23	13	1		48 (1.1%)
Anaesthesia (5.43)	Total	210	1075	1823	501	126		3735
	Indian	1	13	35	0	2		51 (1.36%)
EJA (3.9)	Total	111	840	653	264	1		1869
	Indian	2	11	18	1	0		32 (1.71%)
Anaesthesia and Analgesia (3.46)	Total	437	2752	1079	1735	175		6178
	Indian	2	11	39	14	1		67 (1.08%)
CJA (3.37)	Total	165	549	579	472	145		1910
	Indian	1	2	16	5	0		24 (1.2%)
Total		1537	8821	6572	4841	527		22298
INDIAN TOTAL		7	49	140	41	5		242

BJA=British Journal of Anaesthesia, EJA=European Journal of Anaesthesia, CJA=Canadian Journal of Anesthesia, RA=Review article, OA=Original article, LE=Letter to the editor, MI=Miscellaneous, CR=Case reports

the Indian map [Figure 1]. The year-wise trend of total publications and Indian publications over the study period is graphically represented in Figure 2.

## Discussion

The present study evaluated the publication performance of Indian authors in high impact anesthesia journals over a 10-year period. Contribution of Indian researchers to international anesthesia literature has been studied in the past by few authors. [1,2] However, these studies were either based on data of small time period or evaluated one particular type of article (e.g., randomized controlled trial).

In our study, we found that number of Indian publications are suboptimal across the six journals that were surveyed (1.08%). In a study by Akhtar *et al.* [3] the articles from Indian authors in top five high indexed journal from 2000 to 2015 constituted 95.6% of total article contribution from South Asia. In another study by Chen *et al.* [4] where 30 journal’s literature were surveyed from 1995 to 2020, India was at a distant 19<sup>th</sup> position in worldwide ranking with 878 publications (1.3% of total publications). Other Asian countries like Japan, China, Korea, and Turkey are placed at a better position than India with the total no publication of 4329, 933, 990, and 1,083, respectively. In fact, India was better placed than China and Korea during

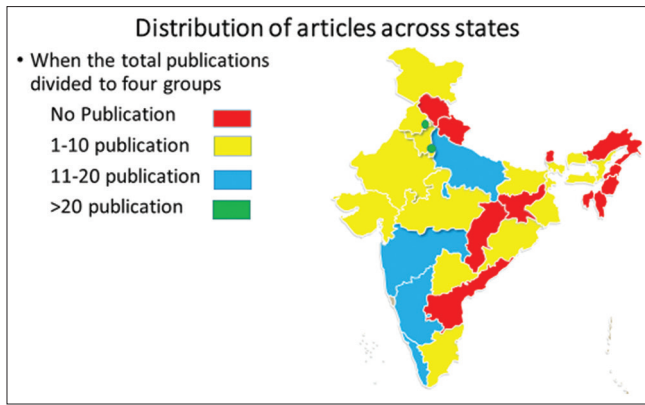


Figure 1: Indian publication distribution across states

Table 2: State-city wise publication of Indian articles

State/UT	City	City Total	State Total
Delhi	Delhi	76	76
Chandigarh	Chandigarh	49	49
Karnataka	Bangalore	6	16
	Dharwad	4	
	Manipal	6	
Maharashtra	Mumbai	5	14
	Pune	9	
Uttar Pradesh	Lucknow	9	12
	Agra	1	
	Varanasi	2	
Kerala	Trivandrum	11	11
Telangana	Hyderabad	10	10
West Bengal	Kolkata	8	8
Puducherry		8	8
J&K	Jammu	6	6
Tamilnadu	Vellore	2	5
	Chennai	3	
Haryana	Rohtak	3	3
Odisha	Bhubaneswar	3	3
Assam	Guwahati	3	3
Madhya Pradesh	Gwalior	1	2
	Indore	1	
Rajasthan	jodhpur	2	2
Bihar	Patna	2	2
Meghalaya		2	2
Gujrat	Ahmedabad	2	2
Punjab	Ludhiana	1	1
Total		242	242

UT=Union territory

the first 10 years from 1995 to 2004 with 278 publications versus 93 from China and 154 from Korea, however in the subsequent decade the progress was not exponential as compared to the other two Asian countries. Two articles published in anesthesia-analgesia concluded that publication from China gradually improved with each passing year in the first decade of 21<sup>st</sup> century and were at par with some developed countries.<sup>[5,6]</sup> Interestingly, an article authored by Bould *et al*,<sup>[7]</sup> middle income group countries like India had

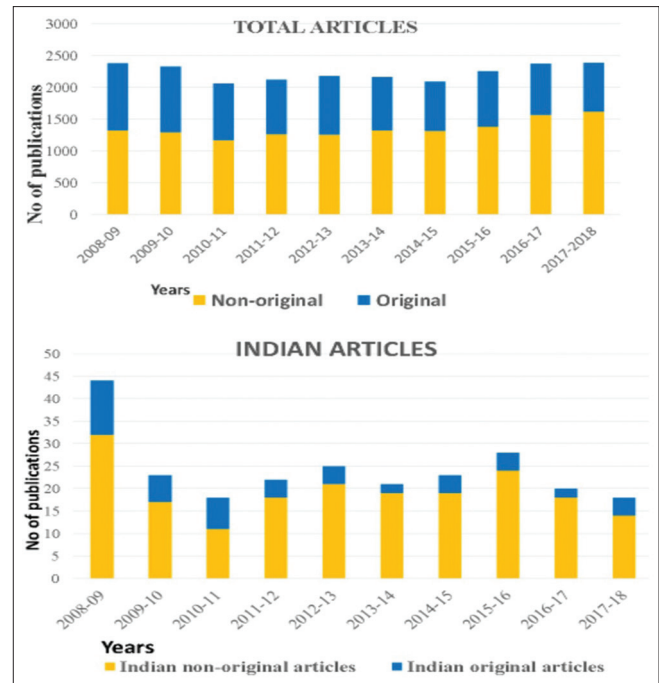


Figure 2: Trend of indian and total articles over the years

shown promising increase in number of articles authored in 2007--2008 as compared to the previous decade.

Specialty like Clinical pharmacology also have done similar literature reviews to find out their contribution to high indexed journal publication.<sup>[8]</sup> India's global publication share in clinical pharmacology was 4.80%, which increased from 2.65% in 2005--2009 to 6.69% in 2010-2014. The annual growth percentage of publication for Indian Clinical pharmacology from 2005 to 2014 was 25.89%. However, a closer look at the trend of Indian publication in the present study shows a decline in total as well as OA during the course of study period in spite of relatively constant total international publications [Figure 2].

Indian author's publications were lowest in highest impact journal (Anesthesiology, Impact Factor 6.52, publication percentage 0.44%). Most of the contribution to international publications from India was from Delhi followed by Chandigarh [Table 2] which are homes to two of India's premier institutes AIIMS and PGI. Combined publication from both cities contributed more than half of the total Indian publications. Most of the other publications were from major cities like Trivandrum, Hyderabad, Pune, Bangalore, and Lucknow. Other states had disproportionately small representation [Figure 1]. Similar trend of higher numbers of publication in biomedical journals from metro cities was also reported by Hari Kumar and colleagues.<sup>[9]</sup> We believe that this brings to light the fact that most academic institutes in the country has very little access to modern infrastructure, equipment, technology to match international standards.

The reason for decreased publication of Indian authors in high impact journals may be analyzed under the following points: (1) There was an overall reduction in the number of original articles published in the high impact journals over the study period, leading to concurrent reduction of absolute number of Indian publications. (2) In the year 2015, MCI regulation made it mandatory to consider only original articles (to be published in journals indexed even with index Copernicus) for promotions in teaching institutions.<sup>[10]</sup> This rule encouraged investigators to look for easier alternatives for publication in predatory journals.<sup>[11]</sup> Thus, this rule was criticized and suggestions were put forth to change citing the ill effects. The new MCI guideline revised the consideration of publication for promotion of teachers with eliminating Index Copernicus and allowing articles other than original article (systematic review, case series) for promotion. We hope future academicians will conduct and publish articles with higher quality. (3) The 2 main Indian anesthesia journals (Indian Journal of Anesthesia, Journal of Anesthesiology Clinical Pharmacology) have been indexed in recent years. This could also have impacted Indian author's submission and subsequent publication in high impact journals. These two journals are of significant repute and getting published in these journals seems easier as there is lesser competition from international authors.

The overall low publication percentage of Indian articles is many a times referred to as racial bias of international journals. However, other Asian countries have quite high publications in recent times.<sup>[12]</sup> China's publication increased from an absolute number of 93 to 840 between 1995 and 2004 and 2005 and 2014.<sup>[4]</sup> The citation percentage of these articles was comparable to that of developed countries. Many reasons have been hypothesized for the low publication rate of Indian authors. Common ones described being low submission rate, grammatical errors and language issues, and low quality of studies and poor preparation of manuscripts.<sup>[12]</sup> The inability of most Indian institutions to publish international articles may be attributed to poor infrastructure, lack of financial aid for research work, and probably lack of inspiration as research work encouragement.<sup>[12]</sup>

Limitations of our study include, first we did not evaluate the citations of Indian articles, so we are unable to judge the quality of published articles, we restricted our survey to high indexed journals based on impact factor of 2017, which varies over the years. We excluded sub-specialty journals. We were also unable to find the actual submission rate and causes of rejection.

## Conclusion

Indian authors contribution in high indexed Anesthesiology journals is poor. The decreasing trend of original articles publication is alarming. The contribution is limited to a handful of cities and institutions. The outcome of the study can be viewed as either we are not doing enough or not able to successfully publish in international journal due to one reason or the other. The jury is out.

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## Conflicts of interest

There are no conflicts of interest.

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