

Opinion
Editing, Writing &
Publishing



Open Access Publishing in India: Coverage, Relevance, and Future Perspectives

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Received: May 12, 2019

Accepted: Jun 19, 2019

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Disclosure

The authors have no potential conflicts of interest to disclose.

Author Contributions

Conceptualization: Misra DP, Agarwal V.
Data curation: Misra DP. Formal analysis: Misra DP. Investigation: Misra DP, Agarwal V.
Methodology: Misra DP, Agarwal V. Software: Misra DP. Validation: Agarwal V. Writing-original draft: Misra DP. Writing-review & editing: Agarwal V.

ABSTRACT

Open access (OA) publishing is a recent phenomenon in scientific publishing, enabling free access to knowledge worldwide. In the Indian context, OA to science has been facilitated by government-funded repositories of student and doctoral theses, and many Indian society journals are published with platinum OA. The proportion of OA publications from India is significant in a global context, and Indian journals are increasingly available on OA repositories such as Pubmed Central, and Directory of Open Access Journals. However, OA in India faces numerous challenges, including low-quality or predatory OA journals, and the paucity of funds to afford gold OA publication charges. There is a need to increase awareness amongst Indian academics regarding publication practices, including OA, and its potential benefits, and utilize this modality of publication whenever feasible, as in publicly-funded research, or when platinum OA is available, while avoiding falling prey to poor quality OA journals.

Keywords: Open Access Publishing; Publication Models; Predatory Journals; Bibliography as Topic; PubMed Central; Directory of Open Access Journals; Plan S

PUBLISHING MODELS

Various scholarly publication channels are used for dissemination of information. Peer-reviewed journals, conference abstract books, news outlets, blogs, social media platforms, and pre-print archives are all designed to publicize innovative ideas and implement these into further research and practice.

Journal publication involves submission of manuscripts which are initially checked for suitability, methodological rigour, and integrity by handling editors and forwarded to the external reviewers for commenting.¹ With the advent and increased reach of the Internet, traditional print journals started providing content online, most switch to online-only model, and numerous start-up e-journals sprung up.² The publishing enterprise requires financial investments which encompass subscription and pay-to-view fees, open access (OA) charges, and supporting organizations' funding for sustainable development.³

The concept of OA publishing caught wind in the early 2000s, during which period three notable declarations in Europe (the Berlin⁴ and the Budapest⁵ declarations) and North

America (the Bethesda declaration⁶) proposed the principles of OA publishing. These documents proposed that scholarly publications should be free to read and reproduce for all concerned, with proper citation to the original source. Such OA publishing would involve costs, which could be borne by scientists, their funders, or their institutions. Journals providing such OA publishing could exist on their own, or operate on a hybrid model of providing both traditional (with restricted copyrights) and OA publishing (with liberal copyrights). OA publishing may save financial resources spent on library subscriptions for content of traditionally-published journals.⁴⁻⁶ Content published traditionally may also be permitted to be available in an institutional repository or the author's own website, generally the accepted version of the manuscript (unedited by the typesetter) and with a clear reference to the final published manuscript (green OA). Such green OA content may be subjected to a period of embargo (after final journal publication), following which it may be posted on any online repository such as ResearchGate and Academia.edu. Other types of OA include gold OA, where authors, grant funders, or academic institutions pay the required publication charges, and platinum OA, where journals bear the requisite charges.³

The aim of this article is to discuss specifics of scholarly OA publishing in India. Specifically, we shall discuss the emergence of OA publishing in India, initiatives for OA publishing in India (but not limited to OA journals), the role of publishing (including OA publications) in academic promotions in India, the challenges for OA science in India (including the relevance of Plan S), and future perspectives on this.

INDEXING AND ARCHIVING OF OA JOURNALS

Knowledge is of little use unless it is identified, read, and reproduced. Herein lies the importance of indexing scientific content in databases, and such databases should inherently have quality control mechanisms.⁷⁻⁹ Another important principle espoused in the Berlin, Budapest, and Bethesda declarations is the need to archive published knowledge permanently.⁴⁻⁶ Initiatives like the Lots of Copies Keep Stuff Safe¹⁰ aim to archive all digital content, whether webpage- or journal-based, permanently in an archive, so that posterity can access such information if the need for the same arises.

The Directory of Open Access Journals (DOAJ) and PubMed Central (PMC) have mechanisms to implement quality control and increase visibility of trustworthy OA content. Both PMC and DOAJ check editorial policies and technical specifications of applying journals to ensure the users are supplied with quality contents.¹¹ Furthermore, some journals on DOAJ are awarded the DOAJ seal, which is an affirmation from the DOAJ that these journals meet the best technical standards of publishing.¹²

In the context of our discussion on OA in India, we explored OA journals from India listed in DOAJ and PMC. We searched the National Library of Medicine catalog on PubMed on April 17, 2019 with the search terms “journalspmc” and “India,” and identified 135 local and regional journals archived by PMC. Of these, 126 are currently published, and further results refer to these journals. Only 13 of these (10%) are currently indexed in MEDLINE, and 79 (63%) started publishing in the past two decades (**Fig. 1**). Notably, a number of Indian professional society journals related to cardiology, critical care medicine, dermatology, endocrinology, nephrology, parasitology, periodontology, and neurology are available on PMC.

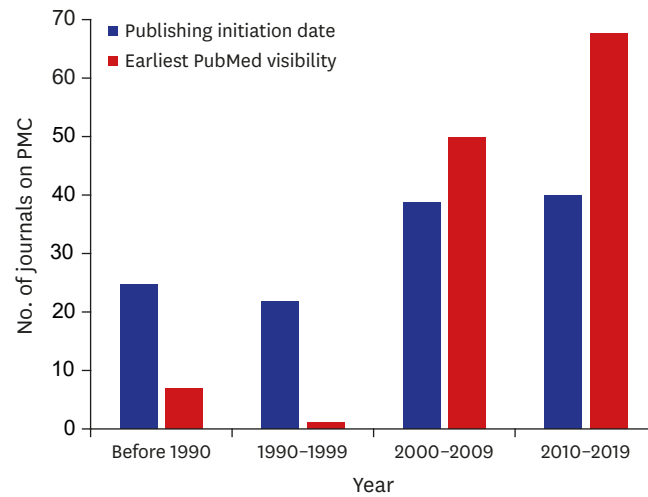


Fig. 1. Comparison of dates of initiation of publishing and visibility on PubMed, of journals from India in PMC, as of April 17, 2019. PMC = PubMed Central.

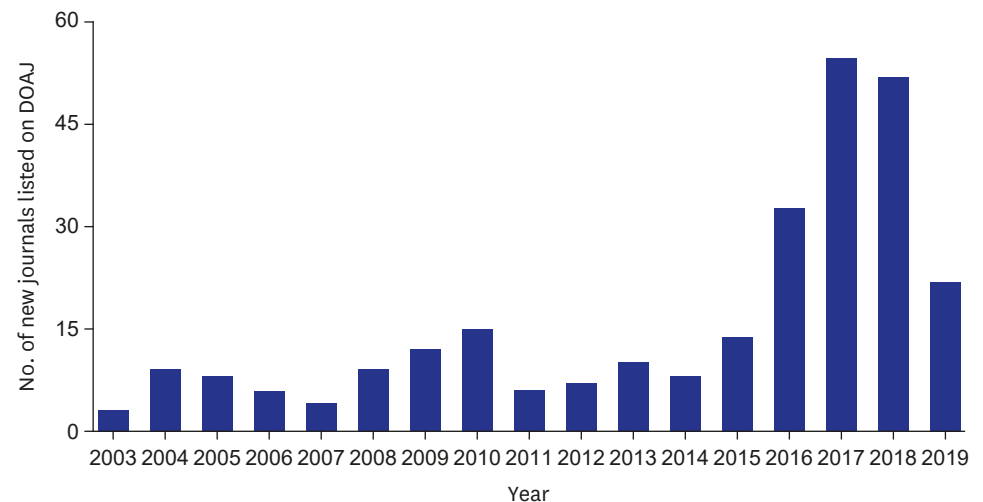


Fig. 2. Year of entry into the DOAJ of journals published from India and currently listed on DOAJ (as of April 17, 2019). DOAJ = Directory of Open Access Journals.

Also, we identified 273 Indian sources registered with the DOAJ. About two-thirds of these journals are listed from 2014 onwards (**Fig. 2**). Only 77 of these charge article-processing fees from authors. Surprisingly, only 1 journal has the DOAJ seal.

Our searches on PMC and DOAJ led us to infer that regionally relevant information published in most Indian society journals is freely available, and the trend is not to charge article-processing fees. Another important finding is that a significantly lesser number of journals published from India were listed in DOAJ when compared to a few years back,¹³ which may point to tightened indexing policies of the DOAJ over the last few years. A limitation of our analysis is that some of the journals from other regions are published in India.

CHALLENGES FOR ACADEMIC PROMOTION

We shall explore the requirements of the Indian Medical Council (IMC, formerly, the Medical Council of India) for academic promotion in the context of OA publishing. The entry level for academic physicians is assistant professor, followed by associate, and then full professor. The IMC lays down clear guidelines for recruitment as assistant, associate/additional, and full professor, prescribing the minimum basic postgraduate qualification required for each specialty, the amount of teaching experience garnered until that stage, and the number of scientific publications as first author and corresponding author. Importantly, only original articles are considered for recruitment and promotion. There is no requirement for publications to be recruited as assistant professor. As an associate professor, one must have at least two publications, and, for a full professor appointment, at least four publications, two of which must be after appointment as associate professor, are required. The regulations mention the need for these publications to be in indexed journals, without defining which indexing databases are considered. There is no specific prerequisite for a national or an international journal, and no mention of OA requirement.¹⁴ The University Grants Commission of India (UGC), which is an Indian federal body regulating higher education (not just medical education), has prescribed a list of journals, which is revised annually, from which publications may be considered for use in applications for academic recruitment or promotion. This list includes mostly journals indexed in Scopus, Web of Science, and the Indian Citation Index, which is a collection of more than a thousand journals published in India.^{9,15} Journals indexed in MEDLINE, Scopus and Web of Science, or those available on PMC and listed on the UGC journal list are considered for academic promotion.

The faculty responsibilities in an Indian medical academic institution involve the daily care of an increasing patient load (in understaffed practice settings without help from healthcare workers), and teaching of students.¹⁶ Research is sparingly funded. This is why even the best-intentioned researchers may struggle to attain the publication goals set by the IMC. In our opinion, future revisions of the promotion guidelines should not increase the publication requirements, for fear of pushing individuals into a race to publish or perish, with little emphasis on the quality. The prevailing situation in certain neighbouring regions, where publications are linked to the income of an academician, should be avoided in an Indian context.^{11,17,18} Another concern is that inordinate attention is paid to the journal impact factors, rather than the quality of the publication per se.¹⁹

Also, the faculty may publish in poor-quality local journals (a majority of which claim to be OA) owing to their unawareness of what constitute quality OA. What is required is an effort to educate undergraduate students the principles of research and ethical science, particularly in the changing world of publishing.^{9,11,16-19}

CURRENT SPECIFICS OF OA PUBLISHING

An editorial in a prominent Indian journal in 2004 discussed the OA concept and its relevance in an Indian scenario at a time when access to computers and the Internet was limited.²⁰ With time, the concept of OA publishing has gradually gained a foothold in India. A country-wise analysis of publications and publication models in Web of Science from 2006 to 2015 revealed that, although India ranked 10th in overall research output and 8th in research output following the gold OA model worldwide, it ranked 3rd when it came

to publications in OA journals. The number of Indian publications in OA journals was 2% higher than the global average.²¹ A majority of Indian authors covered the expenditure for OA out of their pockets.²² Another analysis of Indian journals registered with the DOAJ from 2003 to 2012 revealed that green (55%) and gold (45%) OA models were predominant.¹³

In 2015, a Web of Science-based analysis of more than 1000 papers from a conglomerate of Indian centres for advanced engineering training (known as the Indian Institutes of Technology or IITs) revealed that 69% of these were for OA, including 58% for green OA. Alarming, the papers posted on institutional repositories and on websites such as ResearchGate were not compliant with the green OA standards.²³

Traditional Indian journals, which recently switched to online publishing, have digitized their old issues, occasionally by manually scanning print papers.²⁴ The Indian scientific community has made significant efforts toward OA not only through journals, but also through institutional repositories at major scientific hubs such as the Indian Institute of Science. Also, OA repositories for theses, such as the Shodhganga initiative, are admirable government-funded efforts to promote the worldwide accessibility of Indian research.²⁵ Despite the efforts to develop such repositories, literature suggests that their utilisation remains sub-optimal. A survey of more than 500 researchers from India revealed that the major reason for the underutilization of such institutional repositories were concerns regarding plagiarism and copyright of articles submitted to such repositories.²⁶ This suggests that there is still an unmet need to sensitize stakeholders about unethical scientific practices.

CHALLENGES FOR OA

The 2013 paper in *Science*, known as the Bohannon sting, changed forever the landscape of publishing. The author of the paper exposed the breaches in OA across numerous established and start-up journals. The study exposed substandard or non-existent quality checks in journals claiming to be peer-reviewed. The experiment resulted in the acceptance of nearly half of 304 submitted dummy manuscripts. Alarming, more than 80% of the journals based in India accepted the dummy manuscript.²⁷ The hitherto identification of such poor quality OA journals was also highlighted by the work of Jeffrey Beall, a North American librarian who coined the term “predatory publishing.”²⁸

The high prevalence of publications in low-quality OA journals from India was also highlighted in another recent paper.²⁸ An analysis of responses from 480 corresponding authors from India who published in substandard journals pointed to the fact that more than half of these authors were not aware that the journals were ‘predatory.’ Only a fifth confessed having published articles in such journals without adequate knowledge of the problem. A majority of such authors bore the publication charges themselves.²²

There has been an increasing awareness of the dangers of publishing in substandard OA journals in Indian academic circles. However, much work remains to be done. A major step in this regard is the aforementioned UGC list of legitimate journals.¹⁵ In addition, there should be a greater awareness of which indexing services are reliable.²⁹

It is imperative to consider the challenges OA publishing faces in an Indian context. An analysis of more than 2,500 Indian researchers revealed awareness about the existence of

the OA publishing model in about 56% respondents. A majority (72%) professed a lack of willingness to consider journals with publication charges for their papers. A major impediment toward publishing in OA journals was a perceived lack of prestige of such journals which charged fees from authors.³⁰ In the personal experience of the authors, such negative sentiments regarding OA fees are not uncommon amongst Indian scientists.

RELEVANCE OF PLAN S

“Plan S (Science)” is a major recent development in scientific publishing. It emanated from 11 funding agencies in Europe.³¹ Plan S emphasizes the benefits of open science and mandates OA for publicly funded research.^{31,32} While its statements are filled with noble intentions, the global applicability of suggested radical changes remain highly debatable. The first major question is with whom does the responsibility of bearing OA fees rest? If all studies are published as OA, what would be the source of such massive OA publication charges, and what would be the sustainability of governmental support for such initiatives? Also, discarding subscription-based publishing, when there is a lack of compelling evidence that this modality is inferior to OA publishing, whether in terms of quality or citability, may not be appropriate.³³ Plan S differs from previous OA initiatives, such as that adopted by the National Institutes of Health, that the latter allows for both green OA and gold OA, whereas Plan S originally seemed to emphasise on purely gold OA, completely discarding traditional subscription-based publishing.³⁴ A recent notable amendment in Plan S clearly mentions that green OA shall be acceptable, at least for the initial few years, in hybrid journals, should the same be allowed by the journal immediately for articles funded by the organizations in the Plan S coalition.³⁵ Unless Plan S is carefully implemented with due consideration of stakeholders from all the world over, such a move might have an effect similar to jumping out of a frying pan into the fire. This is especially relevant in the Indian context, since a move to absolute gold OA could potentially be detrimental to scientists from lesser economically developed regions of the world, and hinder their ability to publish in journals of international repute.³⁶

Speaking from a regional standpoint, the present-day India is still a developing country. In such a scenario, where government funding for research and research publication is suboptimal, understandably so, due to greater priorities elsewhere, including healthcare and agriculture, it may be stretching too far to ask the government to cover OA publication charges for all such published work. Indian scientists who choose an academic career often do so at the cost of lucrative jobs in the private sector, where the pay is much higher. In the real life, Indian scientists have to struggle for access to research services which may be considered routine in other parts of the globe, such as plagiarism checks and access to Scopus, Web of Science, and subscription-based aggregators of information. Therefore, it is highly unlikely that Indian scientists or their institutions will be able to afford OA publication fees in the majority of instances. These considerations strengthen the viewpoint that Plan S is of little relevance in the current Indian scenario.

PERSPECTIVES FOR OA PUBLISHING

There exist myriad opportunities to provide OA to research in India, at an affordable cost. Opening institutional repositories should be encouraged, and their uptake promoted to the

faculty. This would enable at least full and free access to research from the locality. Since a previous paper identified the fear of inappropriate copyright and plagiarism issues as a major impediment for authors to submit their work to institutional repositories,²⁶ this reiterates the need to further inculcate the principles of scientific writing and ethical publishing in students right from an early age. Formally evaluated courses in these subjects may be made compulsory for all under- and postgraduate students. Further efforts should be made to teach students and faculty regarding publishing models. These would serve the dual purpose of making them aware about the dangers of predatory journals, as well as to dispel their myths about genuine OA publishing. Journal editors should follow updated editorial strategies to eliminate content of dubious scientific merit from their journals. Their overall efforts to improve scientific and technical standards may raise awareness of authors about proper scientific writing.³⁷ Authors and editors alike should be encouraged to conform to the standards of the International Committee of Medical Journal Editors and the Committee on Publication Ethics. All scholarly contributors should be encouraged to utilize Open Researcher and Contributor IDs to raise transparency and integrity of OA publications.³⁸ Overall, the principles espoused in two recent notable documents on the integrity of scholarly publishing (the OA Scholarly Publishers Association principles³⁹ and the Sarajevo Declaration⁴⁰) should be followed rigorously by the editors of all OA journals. Specifically, there should be transparency from journals as to their editorial practices, their publication processes, copyright, article processing charges, addresses of editorial offices, policies for dealing with potential misconduct, sources of journal revenue, and advertisement policies. Information regarding such issues should be clearly visible on the websites of such OA journals.^{39,40} It may also be considered good practice to endorse such declarations publicly on the journal websites, after implementing them.^{39,40} Revision of promotion criteria to incorporate an actual quality assessment of the published work by the assessor, rather than relying on bibliometric indicators, such as the impact factor, will also improve the overall standards of publishing. In an utopian future, there should be unlimited research funding and institutional support for funding OA publication charges for all Indian authors. However, the reality in India is quite distant from this, and efforts should instead focus on increasing the awareness of scientists about quality OA, with utilization of this model in an ethical manner whenever feasible.

ACKNOWLEDGMENTS

The authors would like to acknowledge Dr Armen Y Gasparyan for inputs during the planning and editing of the article.

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