Open Access Publishing in Neurosurgery: From Voices to Action

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Introduction

Lack of access to scientific information is one of the main determinants of research disparities globally (1, 2). Access to scholarly literature should not be based on the user's ability to pay as this sets a premise for inequity. Open access (OA) publishing is one of methods used by journals and publishers to mitigate this inequity in access to information, crucial for the advancement of scientific frontiers. Recently, in neurosurgery, OA publishing is burgeoning along with traditional publishing methods (3). By facilitating access, OA publishing contributes to the building of global research capacity and therefore mitigating disparities in neurosurgery research globally. However, OA comes with cost and poses a challenge especially to neurosurgeons from low-and-middle-income countries (LMICs) where per capita income is generally low.

In this editorial, we will discuss the concept of OA publishing based on the current trends, and moving beyond the merits and challenges to formulate recommendations for the future prospect of OA publishing in neurosurgery.

What is Open Access Publishing?

Neurosurgical journals classically publish as open access, hybrid or fee-based access (subscription-based).

Open access (OA) publishing is "the practice of making scholarly research readily available online, free of charge, to anyone, anywhere" (1). OA enables scientific research after publication to be made immediately available online, and free, coupled with the rights to use these articles fully in the digital environment.

Open access journals (OAJ) are periodicals whose articles are available and reusable worldwide free of charge and without restrictions immediately on publication (https://inajns.id/index.php/inajns/Openaccesspolicy). Authors, their institutions or their research funders usually pay an article publication fee (APC) to cover the costs of reviewing, editing, and publishing the article. In neurosurgery, there are a limited number of OAJ despite an increase in recent years. There exists two main types of OA: Gold Open Access and Green Open Access (4). Gold OA (the "Gold" road to OA) make all their content available online free, but authors may have to pay an APC. Articles are typically published using Creative Commons licenses, which allow readers to freely read, use, and distribute research with certain restrictions. Green OA (the "Green" road to OA) provides for the placement of already published or planned research in an open repository (self-archiving) in conformity to Open Archives Initiative standards(4).
Hybrid publishing journals offer authors the choice to publish their work as OA (if a publication fee is paid) as well as traditional publishing.

Closed access journals (CAJ) are the traditional peer-reviewed neurosurgical journals based on paid subscriptions. They run on a pay per view policy. CAJ rely on subscription fees, charging readers to pay a fee to access the full text of an article. Authors publish their articles for free, but only those who subscribe (individual researchers, libraries, or research institutes) to the journal have access to them. These subscription-based journals are regularly offering fewer publication options for researchers pushing authors to OA journals (5). They also have limitations, as most articles are inaccessible to the majority of LMICs researchers, where journal subscriptions or one-time access fees are cost prohibitive.

OA publishing breaks this barrier and allows unrestricted access to scientific and scholarly information to researchers all over the globe. This makes OA a more accessible model than subscription-based publishing. However, the major limitation to OA is the high publishing cost placed on authors. OAJ often require authors to pay publication fees, (article processing charges), albeit access for readers is free.

Nonetheless, there has been a recent significant push toward OA publishing in neurosurgery with major journals adhering to this OA advocacy. The goal of OA publishing is the timely, rapid and free dissemination of published scientific work to the global scientific community.

What are the Current Voices and trends for Open Access publishing in Neurosurgery?

Publishing in neurosurgery has evolved from the focal distribution of few physical copies of journal issues (volumes) to widespread and rapid electronic dissemination of research publications via internet in the 21st century. This has resulted in a significant improvement in readers' access to scientific publications mainly via OA policies. Recently, the realm of neurosurgery is witnessing a surge in OA journals albeit small. World Neurosurgery and Acta Neurochirurgica respectively published by Elsevier and Springers are the most recent to announce the transition to OA publishing policies. This renewed drive is an impetus for other journals to join the train of advocacy for OA publishing in neurosurgery.

Currently, the top three countries that account for 56.7% of the total OA contributions are HICs while LMICs are < 8% of the total OA publications (6). The overwhelming majority of OA repositories and funding organizations with OA policies are based in HICs. This geographic pattern of OA publication widens and aggravates the research gap between HICs and LMICs. This disparity in academic voice in the neurosurgical literature potentially affect neurosurgery practice and knowledge dissemination (6).

Perusing a recent article by Vacek and Kaliaperumal (5) to identify access policy from 53 neurosurgical journals (publishing neurosurgery research) revealed that: only one (1.92%) journal did not offer any form of OA publishing; 40 (76.92%) were hybrid and 12 (23.08%) published all their articles as OA. Thus, OA publishing is still relatively nascent in the field of neurosurgery and warrants promotion.

The Journal of Global Neurosurgery (JGNS) has since its foundation, adopted a non-profit model for OA publishing with no cost incurred by the researchers nor readers. JGNS is championing the cause for research equity of which OA publishing is one of its advocacies. Created in 2021, JGNS has as main mission to empower researchers from LMICs and freely disseminate ideas and knowledge about global neurosurgery (7). Hence, JGNS is one of the rare neurosurgical journals having a complete open access policy with no paywall (submission costs, article processing charges and color-print fees). However, it runs on a mode of volunteerism leaving room for questions on its economy and sustainability.

What are the merits, demerits and challenges of open access in neurosurgery?

OA publishing has revolutionized the paradigm of dissemination of scientific research. Although LMICs are benefitting more from AO, this gain has been counterbalanced by exorbitant article processing charges (APC) (8) and paywalls. These charges are paid to journals owned by prominent publication houses most often from high-income countries (HICs) (9). These journals published by the major academic publishers contribute to creating a monopoly that pushes publication fees higher.

It has been reported that certain medical domains, such as surgery and nursing, have a greater proportion of fee-for-access publications. This creates barriers preventing researchers and practitioners in LMICs from accessing the literature in those fields(10).

Limiting accessibility to knowledge is not without dire consequences. It reduces information propagation toward public health actors resulting to lack of information for patient management and unpreparedness towards crises (9). Higher publishing and access costs aggravate the gap in research output between HICs and LMICs.

Cost of OA

Open access (OA) publication allows for increased access to global neurosurgery research. This offers more publishing options, necessary for trainees' and neurosurgeons' portfolios, and career success. Nevertheless, OA offers more benefits for readers (end users) than

researchers as the push for OA has also resulted to an increase in costs related to publishing(5). Researchers bear the burden of these submission processing and publication charges. Aspiring and early researchers in LMICs find this an impediment as these charges are high and most LMICs institutions are devoid of resources to cover these costs.

There is variability amongst the different publication fees for OA articles. Generally, publishing costs include submission and open access charges, color print fees, and subscription prices. To illustrate, the publication fees for Acta Neurochirurgica is 3990 USD while that of World Neurosurgery is 3200 USD. In a recent review (> 40 journals), the median OA charge was $3286, median fee print fees for color figures was $422 per figure, median subscription for 1 year was $344 (personal) and $2082 (institutional) (5). These fees are exorbitant for neurosurgeons in LMICs with low wages on a background of an already challenging research environment. These authors usually end up paying extortionate publishing charges, out-of-pocket, to get their quality scientific research published (11). An immediate consequence is the deterioration of science in LMICs as some neurosurgeons who cannot afford for these skyrocketing charges, consider cheap and quick publishing OA predatory journals to meet up with the pressure from academic promotion committees:-the publish or perish doctrine in academia. It is worth noting that predatory publishing is not only a wasteful publishing practice but also a threat to science. These predatory journals and their publishers with soft or non-existent quality checks have a huge commercial interest rather than science. They are corrupting OA publishing. Alternatively, some LMICs researchers resort to research piracy. Millions of scientific articles are pirated annually, with 69% of download requests coming LMICs (6).

Therefore, for LMICs researchers, the publication charges are prohibitive, and a barrier to the publication of research being conducted in and relevant to these countries(12).

Impact of OA on Citation and quality

Publication policies have an impact on citations (9). It is propounded that OA publishing has a negative effect on the peer review process and research quality (8). Researchers from LMICs generally cite less expensive types of OA, while researchers in HICs cite the most expensive OA (9). However some authors posit that OA journals (indexed in Web of Science and/or Scopus) do not differ from CA journals in terms of citation indices and the evidence quality, particularly in biomedicine and for funded journals (13). In Orthopedic surgery for example OAJ did not differ from traditional subscription-based journals in terms of impact factor, citation number, self-citation proportion or the volume of level I evidence published (8). In neurosurgery, a mild positive correlation between Journal Impact Factor and OA fees has been reported (5). This is because OA articles are easily downloaded, often more cited thus enhancing visibility and impact.

Future prospects for open access publishing in neurosurgery

Neurosurgery researchers, journals, publishers are called upon to recognize the emerging presence and the potential benefits of OA publishing to keep the specialty abreast with other fields of medicine. Multidisciplinary, concerted efforts are needed to foster access to

published research. Global stakeholders are taking steps to address these disparities stemming from various publishing policies.

International Health agencies should support, promote and foster OA publishing. World Health Organization is facilitating free access to significant numbers of journals in LMICs via initiatives such as HINARI (Health Inter Network Access to Research Initiative) program that grants free electronic access to more than 3000 journals to institutions in LMICs (14). More neurosurgical journals could be granted access to via such an initiative. Similar organizations are called upon to consistently advocate for access to published research by supporting LMICs institutions negotiate for waivers or discounted access to journals, hosting local OA journals, and supporting capacity building for researchers.

Grant funding agencies need to increase the quota or to allocate finances for publication of research from their grants. They can support publishing entities by subsidizing the cost of publication.

International collaborative initiatives that promote OA should be encouraged as most international collaborative research is published OA(10) with the publication charges usually covered by the grants, most often from the HIC.

Journals and their publishers should strongly consider revising pricing for more equitable access for researchers from LMICs by putting in place stronger policies to curb or waive APC charges for LMICS researchers.

A Global Editorial Association can be created for neurosurgery to set practical guidelines for OA. We call for urgent action by neurosurgical journals to follow the suit of OA publishing journals like JGNS, World Neurosurgery, and Acta Neurochirurgica.

Lastly, governments should encourage and even mandate OA for publicly funded research in their countries. Government funding agencies should devise and put in place explicit policies supporting OA framework.

The goal is to “maximizing access” to information and “minimizing barriers” to publishing as earlier underscored by Saloojee and Pettifor (12). No science should be locked behind paywalls.

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