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## Letter to the Editor Regarding “A Bibliographic Analysis of the Most Cited Articles in Global Neurosurgery”

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Letter:

The article by Niquen-Jimenez et al<sup>1</sup> is a timely audit to identify the most cited articles related to global neurosurgery and provides us with much needed insights into the current status, challenges, and future directions required for propagating global neurosurgery. It is encouraging that there has been an increase in the number of articles relating to the topic of global neurosurgery in the past few years. Niquen-Jimenez et al<sup>1</sup> identified 17 relevant articles and discovered that the common primary focus for discussion in the majority of these articles is neurosurgery capacity building, followed by treatment aspects, followed by volunteerism. The authors rightly point out that most of the highly cited articles were published in core neurosurgical journals such as *Journal of Neurosurgery*, *Neurosurgery*, and *World Neurosurgery*, followed by focused neurosurgical subspecialty journals like *Epilepsy* and *Paediatric Neurosurgery*.<sup>1</sup> On the basis of their observations, Niquen-Jimenez et al<sup>1</sup> recommended potential solutions to overcome the existing disparity in neurosurgical teaching and patient care delivery between high-income countries (HICs) and low- and middle-income countries (LMICs).

Global neurosurgery is facing barriers similar to those faced by other global surgery academic collaborations (GASCs), at the individual, community, and system levels.<sup>2</sup> In the multicenter study by Fallah et al, more than half of the participants were neurosurgeons and therefore the findings reported by researchers may be of particular significance and relevance to global neurosurgery.<sup>2</sup> However, more studies investigating hindrances specific

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to the development of global neurosurgery are essential for formulating practical solutions. Ethical considerations in teaching, certification, funding, patient care delivery, mentoring, collaborations, and research are significant issues in global surgery initiatives and need to be addressed by stakeholders and participants from LMICs to overcome these barriers.<sup>3</sup> Similar challenges were reported by Davis et al<sup>4</sup> in a survey on the state of pediatric neurosurgery outreach services. However, they also noted that 61% of the participants had taught/treated in developing countries and 71% of the participants believed that such experience has improved their practice.<sup>4</sup> This gives hope that coordination of ongoing outreach activities with organized endeavors can help greatly in propagating global neurosurgery. Westwick et al<sup>5</sup> reported that although 64% of neurosurgery residents showed high interest in participation, only 7% of them had actually taken part in any LMIC neurosurgery initiatives. The most important barrier to their participation was availability of time and funds, with the majority of respondents further acknowledging that a structured dedicated program during residency would increase their interest in global neurosurgery.<sup>5</sup>

Significant, positive efforts toward global activities have already been achieved since from the creation of the World Federation of Neurosurgical Societies (WFNS). Activities by WFNS over the decades have expanded the transfer of knowledge and contributed to the growth of neurosurgical specialties and subspecialties in numerous LMICs. A similar effort by designated leaders and dedicated staff, with availability of specifically earmarked funds, are expected to carry global neurosurgery to its fullest potential. William B. Scoville<sup>6</sup> and historian A. Earl Walker<sup>7</sup> gave a magnificent historical account of WFNS and pointed toward the shift from national gatherings to global gatherings in diverse natural and cultural settings. A position paper to review academic career in global surgery highlights the important role played by academic institutions in these initiatives.<sup>8</sup> In this bibliographic analysis by Niquen-Jimenez et al,<sup>1</sup> only 2 of the selected articles had international collaborations between HICs and LMICs and only 15% of the authors in the included articles were affiliated with LMICs. Underrepresentation of LMICs and improving the participation of researchers from LMICs in the consortium of global neurosurgery need to be addressed.<sup>1</sup> Studies of global surgery initiatives mirror similar findings, with 80% of authors being from HICs.<sup>3</sup> Global cooperation will, in general, result in research articles that may have a higher impact on practice and development.<sup>9</sup>

The availability of only a small number of articles related to volunteerism, as well as fewer citations per year, probably indicate less enthusiasm by neurosurgeons in LMIC neurosurgery outreach activities and attitudes toward global neurosurgery. Systematic and focused endeavors are required to sort out, facilitate, and report scholarly exercises that are identifiable with global neurosurgery, even when such a term is not used or when studies include participation with the subspecialty. We consider that collaboration for global neurosurgery needs to be committed, sustainable, and long term and not simply for publicity. Active participation of academic institutions and world leaders in neurosurgery will help to define this developing field and also help individual neurosurgeons carve out a position of expertise in global neurosurgery. This will also improve the quality of research activities and their practical utilization for the development of neurosurgery in LMICs. Globalizing neurosurgery ought to be the mission for global neurosurgical efforts. Chen et al<sup>10</sup> have proposed 3 stages in international research cooperation, namely emergence, fermentation,

and take-off. We take this opportunity to highlight the important issues raised in the reported literature. These probably reflect the variable patterns, practices, and access to neurosurgical care, which is mostly due to available infrastructure, workforce, service delivery mechanisms, financing options, information management, and governance, preventing delivery of optimal neurosurgical care.<sup>11</sup> Impact of global efforts to make the world a better place is found in the quote by Mr. Bill Gates: “The global fund is a central player in the progress being achieved on human immunodeficiency virus, tuberculosis, and malaria. It channels resources to help countries fight these diseases. I believe in its impact because I have seen it firsthand.”

## REFERENCES

1. Niquen-Jimenez M, Wishart D, Garcia RM, et al. A bibliographic analysis of the most cited articles in global neurosurgery. *World Neurosurg.* 2020;144:e195–e203. [PubMed: 32829020]
2. Fallah PN, Bernstein M. Barriers to participation in global surgery academic collaborations, and possible solutions: a qualitative study. *J Neurosurg.* 2020;130: 1157–1165.
3. Grant CL, Robinson T, Al Hinai A, Mack C, Guilfoyle R, Saleh A. Ethical considerations in global surgery: a scoping review. *BMJ Glob Health.* 2020;5:e002319.
4. Davis MC, Rocque BG, Singhal A, Ridder T, Pattisapu JV, Johnston JM Jr. State of global pediatric neurosurgery outreach: survey by the International Education Subcommittee. *J Neurosurg Pediatr.* 2017;20:204–210. [PubMed: 28524788]
5. Westwick HJ, Elkaim LM, Obaid S, et al. Interest and participation in global neurosurgery: a survey of Canadian neurosurgery residents. *Neurosurg Focus.* 2020; 48:E21. [PubMed: 32114558]
6. Scoville WB. The World Federation of Neurosurgical Societies. A brief history. *Surg Neurol* 1977;7:185–188. [PubMed: 322351]
7. Walker AE. The evolution of the World Federation of Neurosurgical Societies. *Acta Neurochir (Wien).* 1988;94:99–102. [PubMed: 2905574]
8. Krishnaswami S, Stephens CQ, Yang GP, et al. An academic career in global surgery: a position paper from the Society of University Surgeons Committee on Academic Global Surgery. *Surgery.* 2018;163:954–960. [PubMed: 29254606]
9. Breugelmans JG, Roberge G, Tippett C, Durning M, Struck DB, Makanga MM. Scientific impact increases when researchers publish in open access and international collaboration: a bibliometric analysis on poverty-related disease papers. *PLoS One.* 2018;13:e0203156. [PubMed: 30231044]
10. Chen K, Zhang Y, Fu X. International research collaboration: an emerging domain of innovation studies? *Res Policy.* 2019;48:149–168.
11. Kanmounye US, Ghomsi NC, Djiofack D, et al. The implications of global neurosurgery for low- and middle-income countries. The case of Cameroon. *Iranian J Neurosurg* 2020;6:2.