# Bibliometrics

- Landmarks in facial reanimation - a bibliometric analysis of the 50 most cited papers in dynamic facial reconstruction
- SankeyNetwork: A clear and concise visualization tool for bibliometric data
- Bibliometric analysis of NMDA receptors: 2015-2024
- Research progress in intracranial artery dissections over past 25 years: a review and bibliometric analysis
- Current status, hotspots and frontiers of ion channel-related research in glioblastoma: a bibliometric analysis from 2005 to 2024
- AO Spine Knowledge Forums Promote Collaboration and Elevate the Impact of Research: A Bibliometric Analysis
- Knowledge Mapping of intracranial artery dissection: A Bibliometric Analysis (2014-2024)
- Unilateral biportal endoscopic in spine surgery: a global bibliometric analysis of research trends and influences

Bibliometrics is defined as the study of statistical and mathematical methods used to quantitatively analyze scientific literature. The application of bibliometrics in neurosurgery continues to evolve.

---

Bibliometric analysis is a widely used research method for detecting the state of the art for a particular field. The method is capable of utilizing quantitative analysis and statistics to describe patterns of publications within a given period or body of literature.

---

Interest in bibliometrics is growing throughout academic medicine [1) 2) 3) 4) 5)]. and in academic neurosurgery [6) 7) 8) 9) 10) 11) 12) 13) 14) 15)]

Bibliometric tools can be used to identify the authors, topics and research institutions that have made the greatest impact in a field of medicine.

The application of bibliometrics in neurosurgery is in its infancy.

An example is the calculation of a number of publication productivity measures for almost all academic neurosurgeons.

Currently available citation databases.

Google Scholar

Scopus

Web of Science.

The top 5 programs for publication productivity are University of California, San Francisco; Barrow Neurological Institute; Johns Hopkins University; University of Pittsburgh; and University of California, Los Angeles.

The results for the metrics should be viewed as benchmarks for comparison purposes [16)].

## Bibliometric indices

see Bibliometric indices

## Woman

Medicine and the field of neurology are not immune to gender and racial disparities present more broadly in society. Even within academia there remains a persistent lack of representation of women and racial minorities, but with the recent spotlight on discrimination it is more necessary than ever that prevailing disparities are acknowledged by medical journals and reflected in their publication priorities. This bibliometric study assesses whether social justice trends have influenced the number of articles published that discuss gender and racial disparity in the past 5 years within the top three leading neurological journals.

Data suggest an inadequate publication priority for scholarly work on gender and racial disparity in the chosen journals, over the latest 5 years reviewed [17].

## Great Britain and Ireland

Bibliometrics were used to quantify the scientific output of neurosurgical departments throughout Great Britain and Ireland. METHODS A list of neurosurgical departments was obtained from the Society of British Neurological Surgeons website. Individual departments were contacted for an up-to-date list of consultant (attending) neurosurgeons practicing in these departments. Scopus was used to determine the h-index and m-quotient for each neurosurgeon. Indices were measured by surgeon and by departmental mean and total. Additional information was collected about the surgeon's sex, title, listed superspecialties, higher research degrees, and year of medical qualification. RESULTS Data were analyzed for 315 neurosurgeons (25 female). The median h-index and m-quotient were 6.00 and 0.41, respectively. These were significantly higher for professors (h-index 21.50; m-quotient 0.71) and for those with an additional MD or PhD (11.0; 0.57). There was no significant difference in h-index, m-quotient, or higher research degrees between the sexes. However, none of the 16 British neurosurgery professors were female. Neurosurgeons who specialized in functional/epilepsy surgery ranked highest in terms of publication productivity. The 5 top-scoring departments were those in Addenbrooke's Hospital, Cambridge; St. George's Hospital, London; Great Ormond Street Hospital, London; National Hospital for Neurology and Neurosurgery, Queen Square, London; and John Radcliffe Hospital, Oxford. CONCLUSIONS The h-index is a useful bibliometric marker, particularly when comparing between studies and individuals. The m-quotient reduces bias toward established researchers. British academic neurosurgeons face considerable challenges, and women remain underrepresented in both clinical and academic neurosurgery in Britain and Ireland.

1)
Pagel PS, Hudetz JA. An analysis of scholarly productivity in United States academic anaesthesiologists by citation bibliometrics. Anaesthesia. 2011;66(10):873-878.
2)
Rad AE, Brinjikji W, Cloft HJ, Kallmes DF. The H-index in academic radiology. Acad Radiol. 2010;17(7):817-821.
3)
Svider PF, Choudhry ZA, Choudhry OJ, Baredes S, Liu JK, Eloy JA. The use of the h-index in academic otolaryngology. Laryngoscope. 2013;123(1):103-106.

4)
Turaga KK, Gamblin TC. Measuring the surgical academic output of an institution: the “institutional” H-index. J Surg Educ. 2012;69(4):499-503.
5)
Pagni M, Khan NR, Cohen HL, Choudhri AF. Highly cited works in radiology. Acad Radiol. 2014;21(8):1056-1066
6)
Khan NR, Thompson CJ, Taylor DR, et al. An analysis of publication productivity for 1225 academic neurosurgeons and 99 departments in the United States. J Neurosurg. 2014;120(3):746-755.
7)
Khan N, Thompson CJ, Choudhri AF, Boop FA, Klimo P, Jr. Part I: the application of the h-Index to groups of individuals and departments in academic neurosurgery. World Neurosurg. 2013;80(6):759-765.e3.
8)
Khan NR, Thompson CJ, Taylor DR, et al. Part II: Should the h-index be modified? An analysis of the m-quotient, contemporary h-index, authorship value, and impact factor. World Neurosurg. 2013;80(6):766-774.
9)
Spearman CM, Quigley MJ, Quigley MR, Wilberger JE. Survey of the h index for all of academic neurosurgery: another power-law phenomenon? J Neurosurg. 2010;113(5):929-933.
10)
Aoun SG, Bendok BR, Rahme RJ, Dacey RG, Jr, Batjer HH. Standardizing the evaluation of scientific and academic performance in neurosurgery– critical review of the “h” index and its variants. World Neurosurg. 2013;80(5): e85-e90.
11)
Wilcox MA, Khan NR, McAbee JH, Boop FA, Klimo P, Jr. Highly cited publications in pediatric neurosurgery. Childs Nerv Syst. 2013; 29(12):2201-2213.
12)
Venable GT, Khan NR, Taylor DR, Thompson CJ, Michael LM, Klimo P, Jr. A correlation between NIH funding and bibliometrics in neurosurgery. World Neurosurg. 2013;81(3-4):468-472.
13)
Lee J, Kraus KL, Couldwell WT. Use of the h index in neurosurgery. Clinical article. J Neurosurg. 2009;111(2):387-392.
14)
Ponce FA, Lozano AM. Highly cited works in neurosurgery. Part I: the 100 topcited papers in neurosurgical journals. J Neurosurg. 2010;112(2):223-232.
15)
Ponce FA, Lozano AM. Highly cited works in neurosurgery. Part II: the citation classics. J Neurosurg. 2010;112(2):233-246.
16)
Khan NR, Thompson CJ, Taylor DR, Venable GT, Wham RM, Michael LM 2nd, Klimo P Jr. An analysis of publication productivity for 1225 academic neurosurgeons and 99 departments in the United States. J Neurosurg. 2013 Dec 20. [Epub ahead of print] PubMed PMID: 24359012.
17)
Mohammed S, Siddiqi J. Priority of Gender and Racial Disparity in Neurology Journals: A Bibliometric Analysis, 2016-2021. Neuroepidemiology. 2022 Mar 8:1-4. doi: 10.1159/000521688. Epub ahead of print. PMID: 35259754.