Academic productivity

Bibliometrics assessing academic productivity plays a significant role in neurosurgeon career advancement. This study aimed to evaluate the influence of multiple author profiles on SCOPUS® on neurosurgeon author-level metrics (h-index, document number, citation number).

Methods: A list of 1671 academic neurosurgeons was compiled through public searches of hospital and faculty websites for the 115 neurosurgical residency training programs. H-index, document number, and citation number for each neurosurgeon were collected using the SCOPUS® algorithm. For surgeons with multiple profiles, the total document number and citation number were calculated by summing the results of each profile. Cumulative h-indices were calculated manually. Comparisons were made between surgeons with a single SCOPUS® profile and those with multiple profiles.

Results: 124 neurosurgeons with multiple profiles were identified. Gender distribution (p=0.47), years in practice (p=0.06), subspecialty (p=0.32), and academic rank (p=0.16) between neurosurgeons with single profiles vs. multiple profiles were similar. The primary profile h-index median was 16 (8-34), combined profiles median was 20 (11-36), and percent loss median was 17.3% (3%-33%) (p<0.001). For document number, the primary profile median was 46 (16-127), combined profiles median was 55 (22-148), and percent loss median was 16.2% (7%-36%) (p<0.001). For citation number, the primary profile median was 1030 (333-4082), combined profiles median was 1319 (546-4439), and percent loss median was 14.1% (4%-32%) (p<0.001).

Conclusion: Academic neurosurgeons in the United States with multiple existing profiles on SCOPUS® experience a 17.3%-loss in h-index, a 16.2%-loss in document number, and a 14.1%-loss in citations, heavily undercounting their perceived academic productivity [1)]

—- In a investigation, Jean and Felbaum from the MedStar Georgetown University Hospital, retrospectively reviewed a cohort of early-career neurosurgeons to determine if their medical education, residency training, or academic employer had the most influence on a young academician's productivity.

They studied early-career neurosurgeons who completed residency in US-based neurosurgical training programs between 2010 and 2014. The ranking of an individual subject's medical school, residency and current academic employer were analyzed for correlation with his/her current h index.

The neurosurgeons with the highest h-indexes are more likely to have attended elite medical schools, trained in high-ranking residency programs and work for prestigious university departments (p< 0.0001). Furthermore, they identified a positive correlation between the subjects' academic productivity and the ranking of all the institutions throughout their medical education, training, and current employment. The strongest correlation was with the rank of their residency program (ρ = 0.52).

There is a correlation between the early-career academic neurosurgeons' h-indexes and the ranking of all the institutions throughout their education, training and current employment, but the strongest correlation was with the academic productivity of their residency program [2)].

Sonig et al., published the first study that has used departmental h index-and e index-based matrices to assess the academic output of neuroendovascular intervention fellowship programs across the

continental US.

Fellowship program listings were identified from academic and organization websites. Details for 37 programs were available. Bibliometric data for these programs were gathered from the Thomson Reuters Web of Science database. Citations for each publication from the fellowship's parent department were screened, and the h and e indices were calculated from non-open-surgical, central nervous system vascular publications. Variables including “high-productivity” centers, fellowship-comprehensive stroke center affiliation, fellowship accreditation status, neuroendovascular h index, e index (h index supplement), h10 index (publications during the last 10 years), and departmental faculty-based h indices were created and analyzed.

A positive correlation was seen between the neuroendovascular fellowship h index and corresponding h10 index ($R = 0.885$; $p < 0.0001$). The mean, median, and highest faculty-based h indices exhibited positive correlations with the neuroendovascular fellowship h index ($R = 0.662$, $p < 0.0001$; $R = 0.617$, $p < 0.0001$; and $R = 0.649$, $p < 0.0001$, respectively). There was no significant difference ($p = 0.824$) in the median values for the fellowship h index based on comprehensive stroke center affiliation (30 of 37 programs had such affiliations) or accreditation (18 of 37 programs had accreditation) ($p = 0.223$). Based on the quartile analysis of the fellowship h index, 10 of 37 departments had an neuroendovascular h index of ≥ 54 (“high-productivity” centers); these centers had significantly more faculty ($p = 0.013$) and a significantly higher mean faculty h index ($p = 0.0001$).

The departmental h index and analysis of its publication topics can be used to calculate the h index of an associated subspecialty. The analysis was focused on the neuroendovascular specialty, and this methodology can be extended to other neurosurgical subspecialties. Individual faculty research interest is directly reflected in the research productivity of a department. High-productivity centers had significantly more faculty with significantly higher individual h indices. The current systems for neuroendovascular fellowship program accreditation do not have a meaningful impact on academic productivity [3].

1)
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2)
Jean WC, Felbaum DR. The impact of training and practice environment on academic productivity of early career academic neurosurgeons. World Neurosurg. 2018 Oct 10. pii: S1878-8750(18)32297-6. doi: 10.1016/j.wneu.2018.10.005. [Epub ahead of print] PubMed PMID: 30315984.

3)
Sonig A, Shallwani H, Levy BR, Shakir HJ, Siddiqui AH. Academic impact and rankings of neuroendovascular fellowship programs across the United States. J Neurosurg. 2017 Jan 13:1-9. doi: 10.3171/2016.9.JNS161857. [Epub ahead of print] PubMed PMID: 28084907.