https://icite.od.nih.gov/

iCite is a tool to access a dashboard of bibliometrics for papers associated with a portfolio. Users type in a PubMed query or upload the PubMed IDs of articles of interest. iCite has three modules: Influence, Translation, and Open Citations.

Calculation

https://icite.od.nih.gov/analysis

[Publication metrics]] such as the Hirsch index (h-index) are often used to evaluate and compare research productivity in academia. The h-index is not a field-normalized statistic and can, therefore, be dependent on overall rates of publication and citation within specific fields. Thus, a metric that adjusts for this while measuring individual contributions would be preferable.

The National Institutes of Health (NIH) developed a field-normalized, article-level metric called the "relative citation ratio" (RCR) that can be used to more accurately compare author productivity between fields. The mean RCR is calculated as the total number of citations per year of a publication divided by the average field-specific citations per year, whereas the weighted RCR is the sum of all article-level RCR scores over an author's career.

The spine represents a distinct subset of neurosurgery with a designated fellowship and distinct differences in the RCR metrics. The authors look to analyze the unique results found in the academic spine neurosurgeon RCR values compared with all academic neurosurgeons.

Purpose: The assessment of academic physicians should use field-independent publication metrics to measure the improvement of grant outcomes, promotion, and continued evaluation of research productivity. Here, we provide an analysis of RCR indices for 358 academic spine neurosurgeons in the United States, including the mean RCR of each author's total publications and the weighted RCR, which is the sum of all publication-level RCR values of an author. We further assess the impact of gender, career duration, academic rank, and Ph.D. acquisition on the RCR scores of U.S. academic spine neurosurgeons.

Methods: The mean RCR is the total citations per year of a publication divided by the average citations per year received by NIH-funded papers in the same field. A value of 1 is the normal NIH-funded standard. iCite database searches were performed for all physician faculty members affiliated with accredited neurological surgery programs who have subspecialized in the spine as of November 1, 2019. Gender, career duration, academic rank, additional degrees, total publications, mean RCR, and weighted RCR were collected for each individual. RCR and weighted RCR were compared between variables to assess patterns of analysis.

Results: A total of 358 fellowship-trained academic spine neurosurgeons from 125 institutions were included in the analysis. Exceptional research productivity was noted, with a median RCR of 1.38 (interquartile range = 0.94-1.95) and a weighted median RCR of 25.28 (interquartile range = 6.87-79.93). Overall, gender and academic rank were associated with increased mean RCR and weighted RCR values. Career duration and Ph.D. acquisition were not. All subgroups analyzed had an

RCR value above 1.0, with professor-level faculty or department chair having the highest mean and weighted RCR values overall.

Current academic spine neurosurgeons have high median RCR values relative to the NIH standard RCR value of 1.0. Relative to the field of neurological surgery overall, RCR values for the spine subspecialty are comparable. These data offer a more accurate means for self-evaluation of academic neurosurgeons as well as evaluation of faculty by institutional and departmental leaders [1)]

A study was performed to determine how various factors, such as academic rank, career duration, a Doctor of Philosophy (PhD) degree, and sex, impact the RCR to analyze research productivity among academic neurosurgeons.

A retrospective data analysis was performed using the iCite database. All physician faculty affiliated with Accreditation Council for Graduate Medical Education (ACGME)-accredited neurological surgery programs were eligible for analysis. Sex, career duration, academic rank, additional degrees, total publications, mean RCR, and weighted RCR were collected for each individual. Mean RCR and weighted RCR were compared between variables to assess patterns of analysis by using SAS software version 9.4.

A total of 1687 neurosurgery faculty members from 125 institutions were included in the analysis. Advanced academic rank, longer career duration, and PhD acquisition were all associated with increased mean and weighted RCRs. Male sex was associated with having an increased weighted RCR but not an increased mean RCR score. Overall, neurological surgeons were highly productive, with a median RCR of 1.37 (IQR 0.93-1.97) and a median weighted RCR of 28.56 (IQR 7.99-85.65).

The RCR and its derivatives are new metrics that help fill in the gaps of other indices for research output. Here, the authors found that advanced academic rank, longer career duration, and PhD acquisition were all associated with increased mean and weighted RCRs. Male sex was associated with having an increased weighted, but not mean, RCR score, most likely because of historically unequal opportunities for women within the field. Furthermore, the data showed that current academic neurosurgeons are exceptionally productive compared to both physicians in other specialties and the general scientific community. [2)].

1)
Grogan D, Reddy V, Gupta A, Chang YF, Fields D, Agarwal N. Trends in Academic Spine Neurosurgeon Productivity as Measured by the Relative Citation Ratio. World Neurosurg. 2021 Mar;147:e40-e46. doi: 10.1016/j.wneu.2020.11.097. Epub 2020 Nov 26. PMID: 33248304.
2)
Reddy V, Gupta A, White MD, Gupta R, Agarwal P, Prabhu AV, Lieber B, Chang YF, Agarwal N. Assessment of the NIH-supported relative citation ratio as a measure of research productivity among 1687 academic neurological surgeons. J Neurosurg. 2020 Jan 31:1-8. doi: 10.3171/2019.11.JNS192679. [Epub ahead of print] PubMed PMID: 32005024.