ASSESSMENT OF THE NIH-SUPPORTED RELATIVE CITATION RATIO AS A MEASURE OF RESEARCH PRODUCTIVITY AMONG 1687 ACADEMIC NEUROLOGICAL SURGEONS

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DISCLOSURE

Funding Statement

- This research received no specific grant from any funding agency.

Competing Interests Statement

- No relevant disclosures.
The h-index is not a field-normalized statistic, and therefore can be dependent on overall rates of publication and citation within specific fields.

- A metric that adjusts for this while measuring individual contributions would be preferable.

The National Institutes of Health (NIH) has developed a new, field-normalized article-level metric called the relative citation ratio (RCR) that can be used to more accurately compare author productivity between fields.
A retrospective data analysis was performed using the iCite database.

All physician faculty members affiliated with ACGME-accredited neurological surgery programs received from AANS as of March 1, 2019.

Gender, career duration, academic rank, additional degrees, total publications, RCR, and weighted RCR were collected for each person.

- RCR is calculated as the total number of citations per year of that publication divided by the average field specific citations per year.
- Weighted RCR is a sum of all citations of each publication over an author’s career.

RCR and weighted RCR were compared between variables to assess patterns of analysis using SAS v9.4.
# RESULTS

Table 1. Overview of Demographics for All Academic Neurosurgeons (n=1687)

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Note: “Assistant professor” includes clinical assistant professor, instructor and lecturer.
RESULTS
RESULTS
## Results

### Stratified Mean RCR

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Note: p-values are based on Wilcoxon rank sum test.
**DISCUSSION**

- Longer career duration, calculated via residency start date, had a significant impact on both mean and weighted RCR scores (p=0.031 and p=0.006, respectively).

- Positive correlation between increasing academic rank and higher research productivity was found using RCR.

- Academic neurosurgeons with a Ph.D. were more productive and impactful than those without a Ph.D.

- Research impact of academic neurosurgeons is relatively influential compared to the general scientific literature as evidenced by RCR values well above the benchmark ratio of 1.
The RCR and its derivatives are new metrics which help fill in the gaps of other indices for research output.

Mean advanced academic rank, longer career duration, and Ph.D. acquisition were all associated with increased mean and weighted RCR.

Current academic neurosurgeons are exceptionally productive compared to physicians in other specialties, as well as to the general scientific community.