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ASO Author Reflections: Towards Better Metrics for Judging Academic Productivity in Surgical Oncology

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Past:

Research productivity is often used as a criterion in determining faculty recruitment, promotion, compensation, tenure, and grant support¹. To standardize assessment of scholars' research output Dr. Jorge Hirsch developed the h-index, defined as the number of h papers published, each of which has been cited at least h times.² The h-index has been analyzed in the setting of various medical specialties though not specifically within academic surgical oncology. Thus, the aim of our study was: (1) to evaluate the h-index as a bibliometric predictor of academic rank; and (2) to characterize associations between the h-index and various personal and institutional factors including gender, number of additional degrees, number of National Institutes of Health (NIH) grants, National Cancer Institute Comprehensive Cancer Center (NCI CCC) affiliation, and Doximity ranking.³

Present:

We determined that h-index is a stronger predictor of academic rank ($r=0.648$) than total publications ($r=0.585$) or total citations ($r=0.450$). Increased h-index was associated with academic rank, male gender, and number of NIH grants (all $p<0.001$), as well as NCI CCC affiliation ($p=0.0018$), but not number of additional degrees ($p=0.661$) or Doximity ranking ($p=0.102$). Our findings highlight a previously unappreciated gender disparity in the academic productivity of U.S. surgical oncologists. The median h-index among male surgical oncologists was nearly double that of their female counterparts (21 vs. 11; $p<0.001$). Since males occupied more senior academic ranks in our study population, we wanted to determine whether academic rank was confounding the association between h-index and gender. Stratification of our study population revealed that males had higher h-indices at the levels of Assistant Professor, Associate Professor, and Professor.

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Future:

The utility of the h-index remains controversial with some arguing that it is limited by variation amongst different citation databases, lack of accountability for authorship order, and inflation via self-citation.⁴ In addition, given that gender, an unmodifiable demographic factor, independently predicts h-index, we argue that it should be exercised with caution. We propose a nationwide survey to identify perceived barriers and provide insight into institutional changes that can be enacted to nurture the careers of all young surgeons equally. For example, recognition of gender-based networks in which investigators tend to collaborate with peers of their same gender may promote efforts to augment mentorship opportunities for surgeons of both genders.⁵ Additionally, further studies are needed to explore the relationship between career length and h-index, especially given the high proportion of females (60%) at the Assistant Professor rank in our study.^{3,6} Overall, future studies are needed to counteract the factors contributing to this newly identified gender disparity in the academic productivity of surgical oncologists.

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