

**Commentary on:**

*Social Media Metrics and Bibliometric Profiles of Neurosurgical Departments and Journals: Is There a Relationship?*

by Alotaibi et al. *World Neurosurg* 90:574-579, 2016

## Academic Output and Social Media: A Marriage of Opposites

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Academic recognition and its offspring, career promotion, depend heavily on contribution to and advancement of the general fund of human knowledge, whether scientific, cultural, or artistic. In medical fields, scientific contribution reigns supreme. The judgment of the value of that contribution, both qualitative and quantitative, is rendered by one's peers, or at least by those with knowledge of the science and control of the rewards for academic performance. To simplify and standardize the process of recognition and promotion in the academic enterprise, the ineffable (one's ideas, insights, reasoning, efforts, and claims, captured in the form of publications and citations) is reduced to a simple formula equating to a single number. On that magic number, the "h index," balances an academic neurosurgeon's career.<sup>1</sup>

Academic programs are judged by similar formulas that rank the quality of academic work by the faculty's annual numeric output of scientific peer-reviewed publications, and how many of those are cited by other publications, a proxy for the influence and stature of that program in the rarified air of the academic world. Academic publications themselves are in turn ranked by a different citation index, the impact factor, or how many of its published manuscripts are cited in subsequent articles during a 2-year period.

On top of these academic ranking scores has emerged during the past decade a more unruly and foreign ranking influence, a public nonacademic indicator represented by the academic program's network of contacts on social media sites, such as Facebook and Twitter. The merging of these disparate ranking methods in a single analysis marks a turning point in the evolution of academic practice. In a paper recently published in **WORLD NEUROSURGERY**, "Social Media Metrics and Bibliometric Profiles of Neurosurgical Departments and Journals: Is There a Relationship?" Alotaibi

et al. have proposed a quantum change in the concept and definition of academic reputation and success.

Online social media networks have had an explosive growth since the appearance of Facebook in February 2004. Within 6 months, it was a commercial startup in Palo Alto, surpassed 100 million users by 2008, and now in 2016 claims 1.5 billion users per month worldwide and a market capitalization value of \$255 billion.<sup>2</sup> Facebook's junior cousin, Twitter, appeared in 2006 and now has 300 million users per month and a market value of \$11 billion. Businesses recognized a value of social media as an advertising venue and opened Facebook pages in droves, more than 11 million small businesses by 2012, only to find that by 2015 that their number of contacts ("organic reach") was falling because of online information overload.<sup>3</sup>

Lozano et al. published a review of North American neurosurgical program academic bibliometrics (a statistical analysis of written publications) in 2015, finding that in examining 3 chosen metrics (h-index, total publications, total citations), the University of Toronto ranked first in academic output among all neurosurgery programs, far above the closest competitor.<sup>4</sup> They followed with a study of the online social media presence (Facebook, Twitter, YouTube) of all neurosurgical academic programs in 2015, again finding that the University of Toronto exceeded all other neurosurgery academic programs in Facebook contacts ("likes"), although fifth in Twitter "followers."<sup>5</sup> Finally, the pivotal third article in this triad, the study of the relationship between department bibliometric profiles and social media online presence, the topic of this Perspective, combined the 2 disparate features of academic program reputation into a conjunctive analysis, with speculation about whether the 2 metrics were related.

**Key words**

- Bibliometric
- Neurosurgery
- Social media

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The authors studied the correlation between social media presence and academic metrics both for neurosurgical academic journals and for neurosurgical academic training programs. For training programs, they identified 21 of 104 programs with Facebook or Twitter pages and found that for every bibliometric measure (h-index, total publications, total citations) those programs when averaged together had consistently greater scores. They speculated that “social networks are important tools for both researchers and health providers, allowing knowledge dissemination, open access to publications, fundraising opportunities, patient education and health promotion.” They further commented that their “data broadly suggest that increased social media presence is associated with increased academic productivity...these findings may not be causal, but rather reflect the trend that larger, more academically established neurosurgery institutions (who may be better positioned to have greater academic output) are able to allocate resources to the creation and maintenance of a social media presence.”

The purpose of a social media presence for an organization, as contrasted with an individual user, is to attract public attention and drive traffic to the organization’s own website. The reason may be altruistic, as a public service informational and educational site, or more commercial, to build reputation and influence, which presumably eventually translates into more business, or in medical terminology, referrals and practice. The programs’ motives for creating their organizational websites and using social media contacts to attract attention are not discussed, although the University of Toronto Department of Neurosurgery, from where the study originates, undoubtedly had a clearly articulable reason for both building and maintaining a social media presence. Motives are often mixed, and an entwined educational and practice promotional purpose would be easy to understand.

The proposition that an academic neurosurgery program’s social media presence bears a relationship to its academic success signals a transformation in either the mission or the means to meet the mission of an academic program. Research, training, and service are the traditional triad of an academic program’s *raison d’être*; however, as is often heard from institutional leaders, “no money, no mission,” and an academic program that cannot attract referrals can provide neither optimal training nor community service. The acknowledgement that social media and bibliometrics are related is a recognition that the old strategies for generating and sustaining referrals, even in an established and

successful program, are insufficient in a world in which electronic media saturate people’s lives and minds, and that hitching a ride on that informational highway may be a necessary strategy to ensure public attention, branding, message dissemination, public reputation, clinical practice, and revenue.

Arnold Relman wrote a cage-rattling article in the *NEW ENGLAND JOURNAL OF MEDICINE* in 1980 entitled “The New Medical-Industrial Complex,”<sup>6</sup> followed 3 years later by a jeremiad in *HEALTH AFFAIRS* entitled “The Future of Medical Practice,”<sup>7</sup> warning of the threat posed to physicians’ ethical character, moral standing, and public trust by growing commercialism, profit-seeking, and conflicts of interest in medical practice. Uwe Reinhardt, a health economist, responded to Relman’s fears in a brilliant retort in a *HEALTH AFFAIRS* article in 1986 entitled “Debating For-Profit Healthcare and the Ethics of Physicians,” in which he wrote that for-profit practice had always been a central feature of American medicine, endorsed by the American Medical Association Code of Ethics, and that the changing healthcare landscape of the 1980s, with for-profit hospitals on the rise, posed no new threat to physicians’ moral character, which itself was substantially no different from other “purveyors of goods and services,” despite the trust and dependency issues of the traditional physician–patient relationship.<sup>8</sup> The trend to commercialization of practice continued, drawing in massively expanded academic medical centers, leading Ken Ludmerer to write *A Time to Heal*, issuing a similar warning of the pending doom and dissolution of the academic social contract by revenue-driven commercialism in the era of managed care.<sup>9</sup>

The academic medical complex has not morally imploded. It fact, it thrives. Academic practice continues to adjust to a changing social, commercial, and educational climate. With personal mobile internet technology as prevalent as shoes and sunglasses, and a growing generation of adults now who never knew life without a cell phone or an online social network, academic practice outreach through social networks may be just a natural evolution in enterprise communication strategies. Commercial, professional, and academic perspectives have become indissolubly intertwined in today’s medical market. One can only make the best of it, and heed Rosemary Stevens’ admonition in 2002 to get over the cultural myth of American medicine as a morality play with fallen heroes after a Golden Age, and to forge a new understanding of its role in modern society, that of setting and ensuring the highest standards and quality of medical care.<sup>10</sup>

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