

## Letter

### Authorship Trends in the Rheumatology Literature, 1990–2020

To the Editor:

The number of cited authors per publication has increased substantially over time in the field of medicine.<sup>1,2</sup> This trend of “authorship inflation” has been observed in high-impact medical journals<sup>1</sup> and multiple medical subspecialties,<sup>2</sup> but to our knowledge has yet to be assessed in the field of rheumatology. In this analysis, we describe the number of cited authors in rheumatology publications over a 30-year period.

A search of PubMed (NLM) MEDLINE-indexed rheumatology publications from January 1, 1990, to January 11, 2020, was designed by an experienced research librarian and conducted to identify rheumatology clinical practice guidelines, randomized controlled trials (RCTs), systematic reviews and metaanalyses (SRMAs), non-SRMA review articles, and case reports (see Supplementary Data for search terms and strategy, available with the online version of this article). Bibliographic data were accessed using the R package “RISmed” on R studio version 1.3.1073 (R Foundation for Statistical Computing). A detailed description of the methodology is in the Supplementary Data (available with the online version of this article).

The search identified 393,469 authors from 85,273 publications. In 5 separate linear regression models with average authors per year as the dependent variable and time as the independent variable, the average number of authors significantly increased over time and a high positive correlation between authorship and time was found for guidelines (0.79 author increase

per year with a correlation of 0.89,  $P < 0.001$ ), RCTs (0.25 author increase per year with a correlation of 0.95,  $P < 0.001$ ), SRMAs (0.20 author increase per year with a correlation of 0.94,  $P < 0.001$ ), reviews (0.10 author increase per year with a correlation of 0.94,  $P < 0.001$ ), and case reports (0.05 author increase per year with a correlation of 0.96,  $P < 0.001$ ; Figure 1). The average number of authors by publication type was significantly different ( $P < 0.001$ ) in a 1-way ANOVA that assessed guidelines (16.1), RCTs (8.50), SRMAs (6.87), reviews (3.39), and case reports (4.78). A posthoc test of 15 pairwise  $t$  tests using Bonferroni correction resulted in all publication types being significantly different from one another (adjusted  $P < 0.001$  for all comparisons).

Authorship inflation has affected all publication types in the field of rheumatology, with the greatest increases in guidelines, RCTs, and SRMAs. Optimistically, this may be driven by increased collaboration, methodologic rigor, or trainee involvement. Large international collaborations, for instance, are required to produce high-quality guidelines and to conduct multicenter RCTs. Designing trials, conducting literature searches, and adhering to reporting guidelines may require expertise from statisticians, research librarians, or methodology experts, many of whom meet authorship criteria.<sup>3</sup> A greater emphasis on trainee involvement in research has also been noted.<sup>4</sup> All 3 of these trends should be commended and encouraged. Notably, this short letter benefited from the involvement of 2 trainees, a research librarian, and a statistician. Less optimistically, authorship inflation may be related to “gift” authorship,<sup>5,6</sup> whereby credit is given to those who had little part in conception, design, or authorship of the manuscript. Such practices devalue the hard work of those who do meet authorship criteria and should be discouraged.

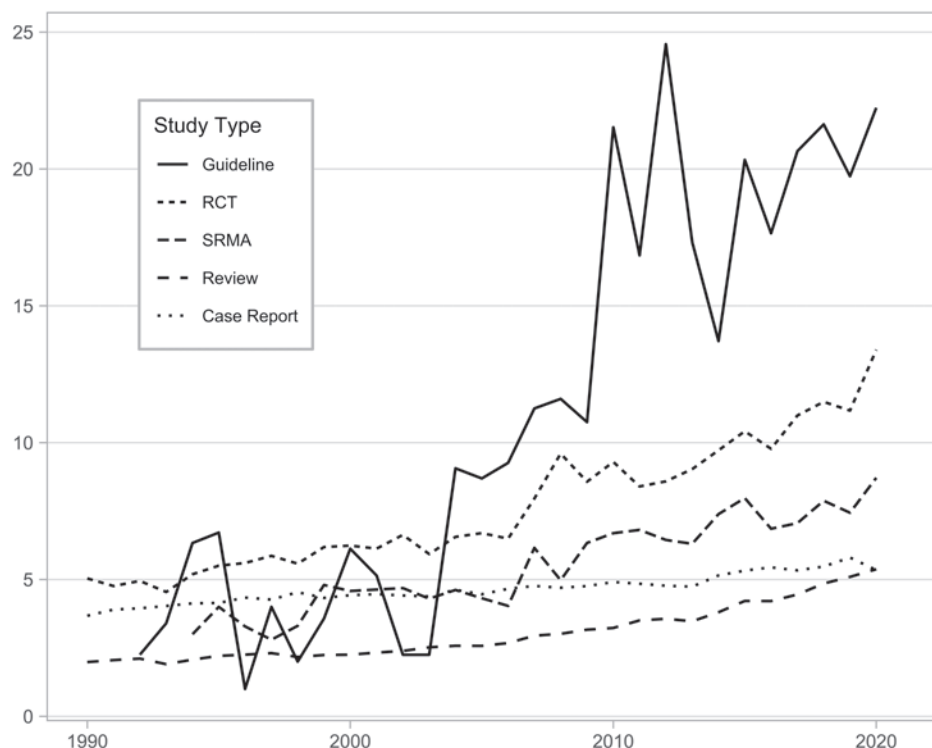



Figure 1. Yearly average number of authors per publication. Data from 85,273 NCBI-indexed publications and 393,469 cited authors. RCT: randomized controlled trial; SRMA: systematic review and metaanalysis.

Our approach only retrieved articles that were indexed for MEDLINE and utilized medical subject headings (MeSH) terms, which may be inconsistently applied. These limitations notwithstanding, authorship inflation appears to be common among rheumatology publication types and most pronounced in clinical practice guidelines, RCTs, and SRMAs.

Ikechukwu V. Mbonu<sup>1</sup>, MD  
Iryna Nemesh<sup>1</sup>, MD  
Elizabeth Suelzer<sup>2</sup>, MLIS  
Abigail Thorgerson<sup>4</sup>, MPH  
Michael Putman<sup>1</sup> , MD, MSci

<sup>1</sup>Division of Rheumatology, Department of Medicine, Medical College of Wisconsin;

<sup>2</sup>MCW Libraries, Medical College of Wisconsin;

<sup>3</sup>Center for Advancing Population Science, Medical College of Wisconsin, Milwaukee, Wisconsin, USA.

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Address correspondence to Dr. M. Putman, Medical College of Wisconsin, Hub for Collaborative Medicine, 8701 Watertown Plank Rd, Rheumatology 8th Floor, Milwaukee, WI 53226, USA.  
Email: mputman@mcw.edu.

#### DATA AVAILABILITY

Data will be made available upon reasonable request.

#### ONLINE SUPPLEMENT

Supplementary material accompanies the online version of this article.

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