Decade Analysis of Female Authorship Trends in Major Orthopaedic Journals

Caitlin Grant, Taylor Stauffer, Christine J Wu, Zoe Wiatt Hinton, Thorsten M Seyler

INTRODUCTION:

Orthopaedic surgery has historically had low female representation relative to other medical and surgical fields, with less than 6% of practicing surgeons identifying as female. Although prior literature has illustrated gender disparity in first and last authors as well as changes in author gender over time, less attention has been paid to middle authorship gender and differences in representation between orthopaedic subspecialties. We hypothesized that trends in female authorship would be reflective of increasing female participation in orthopaedic surgery and (individual) subspecialties, with an increase in female authorship, including middle authorship.

METHODS:

Bibliometric information from articles of 7 orthopaedic journals, The Bone and Joint Journal (BJJ), The Journal of Bone and Joint Surgery (JBJS), Clinical Orthopedics and Related Research (CORR), The Journal of Arthroplasty (JOA), The Journal of Pediatric Orthopaedics, American Journal of Sports Medicine (AJSM), and Foot and Ankle International (FAI) between 2011-2021 were extracted using Web of Science. Data collected included author order, author names, institution, and corresponding author address. Author names were assigned a gender using a validated software, Genderize. Statistical analysis was performed with ANOVA for each journal, and linear regression was performed to determine trends, controlling for year.

RESULTS:

Among all orthopaedic subspecialty journals, female middle authorship increased 5%, while first authorship and last authorship increased by 4% and 1%, respectively. By 2021, the highest percentage of female middle authorship was seen among pediatrics (28%), while the lowest female middle authorship participation was observed among arthroplasty (16%). We found that the top five highest-producing female last authors were cited on average significantly less per publication when compared to males in all but two journals.

DISCUSSION AND CONCLUSION:

Gender gaps exist both within orthopaedic surgery as well as within the body of literature the field produces. While this study highlights areas of growth, it also reveals disparities that remain in research productivity for trainees, junior and senior attendings. The increases in middle authorship demonstrate momentum for forward growth for women in the field of orthopaedic surgery.

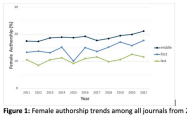

Figure 1: Female authorship trends among all journals from 2011 to 2021

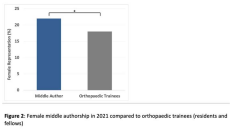

Figure 2: Female middle authorship in 2021 compared to orthopaedic trainees (residents and fellows)

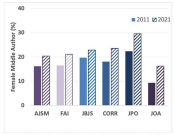

Figure 3: Female middle authorship in 2011 vs. 2021 stratified by journal

Figure 4: Demographic breakdown of all authorship levels for all journals, standardized by total publications per region