



Female Representation in the Gastroenterology and Hepatology Literature



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Introduction

Overall female involvement in medicine has increased significantly over recent decades, with females currently making up approximately 50 percent of medical students.¹ Nevertheless, certain specialties, including gastroenterology, exhibit a notable, persistent gender disparity with a male predominance.² Previous research has established that females are less likely to be represented in more senior roles in academic gastroenterology, perhaps due to the high demand of gastroenterology as an occupation in addition to familial obligations that often fall disproportionately on women. Previous research has evaluated the difference in research productivity of male and female gastroenterology faculty members, as well as the difference in male versus female authors of different fields in medicine. This the first study to quantify the differing gender representation across three different author types in gastroenterology, each of which has unique implications about the trends of female involvement in the field.³

Therefore, we set out to evaluate the differential gender representation in first, supplemental and senior authors in the gastroenterology and hepatology literature in 2012 and 2017.

Methods

We reviewed all original articles published in 2012 and 2017 in four national gastroenterology and hepatology journals (Gut, Journal of Crohn's and Colitis, Hepatology, and Clinical Gastroenterology and Hepatology). We utilized internet search and first-name cultural clues to determine the sex of the first, supplemental, and principal authors of each article published in these years and journals. Online search consisted of searching the author's name and affiliation; gender was frequently determined from faculty webpages associated with the individual's institution, ResearchGate profiles, LinkedIn profiles, etc. Individuals were excluded from analysis if these methods did not definitively elucidate his or her gender.

Results

In total over the two years, 1,414 articles were reviewed (n=738, 2012; n=676, 2017). Author sex could not be determined for 8 first authors, 9 supplemental authors, and 6 senior authors. These articles were excluded from analyses that included the specific author subtype. Results are shown in table 1 and figures 1-3. Overall, our analysis revealed a male predominance in first and last authorship in this field in both 2012 and 2017. However, within the female gender, female last and supplemental authorship increased significantly from 2012 to 2017. Female first authorship did increase from 2012 to 2017, but this was not statistically significant.

The trends of female authorship from 2012 to 2017 in various anatomic areas and subspecialties are shown in Figures 2-3.

Results: Tables & Figures

First authors			Supplemental authors			Last authors		
Female	Male	P-value	Female	Male	P-value	Female	Male	P-value
91.28	97.90	0.36	96.19	87.18	0.22	92.53	96.15	0.59

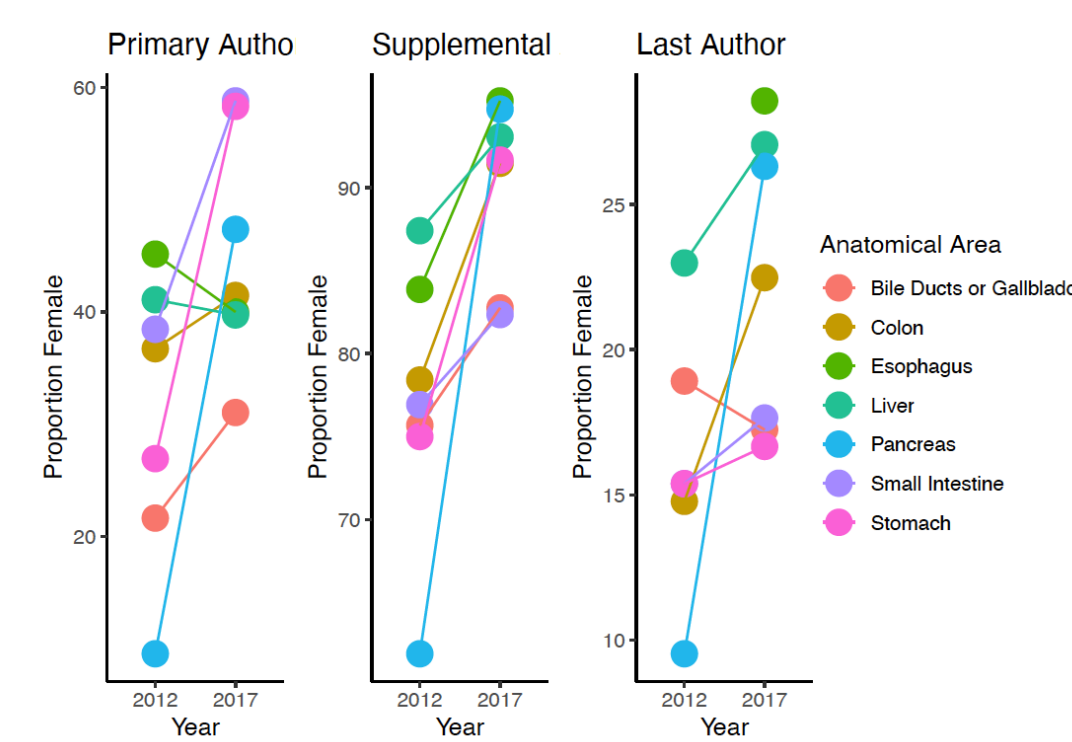
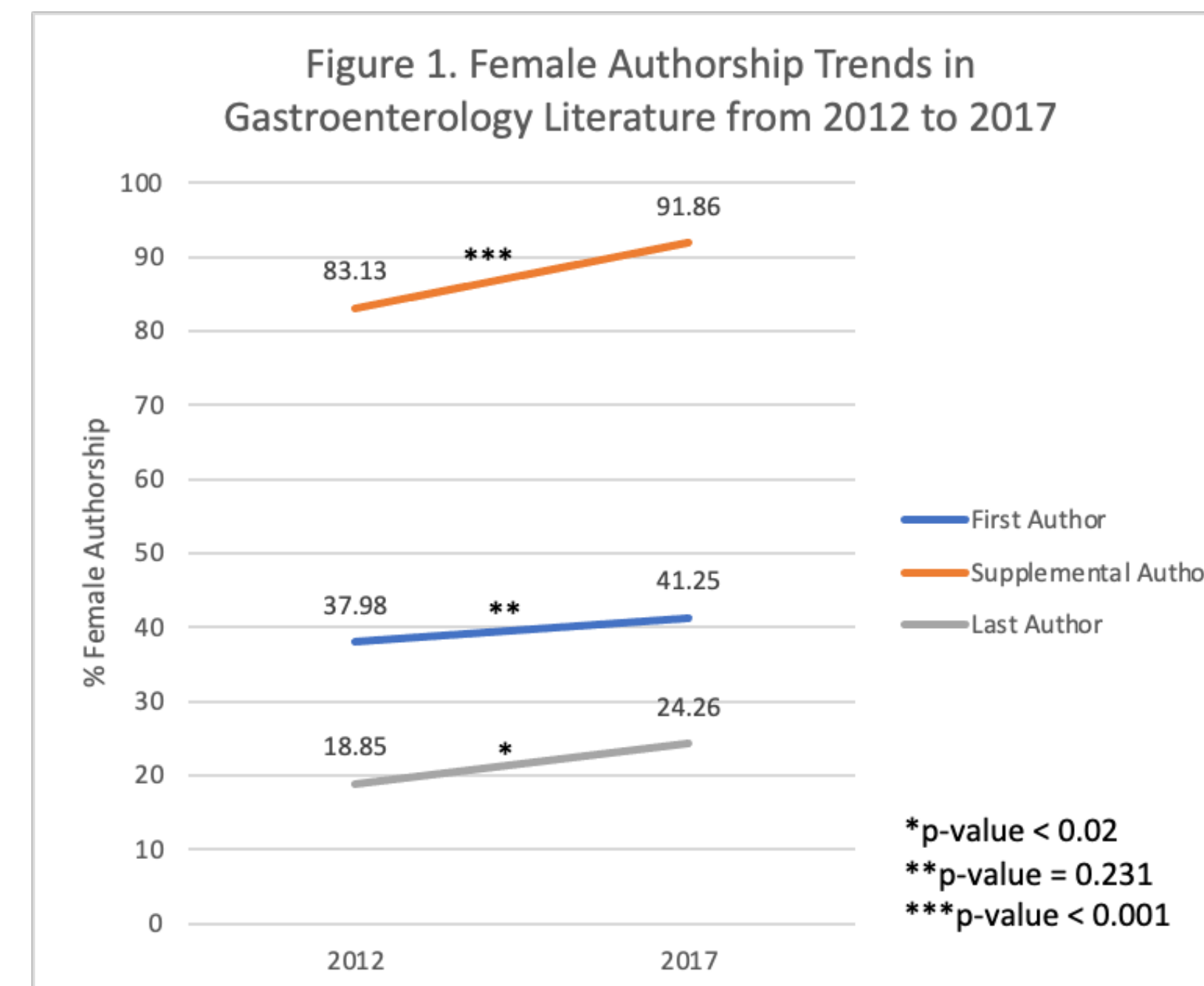


Figure 2. Change from 2012-2017 in the percentage of studies with female first, supplemental, and last authors in various anatomic areas within the gastrointestinal tract

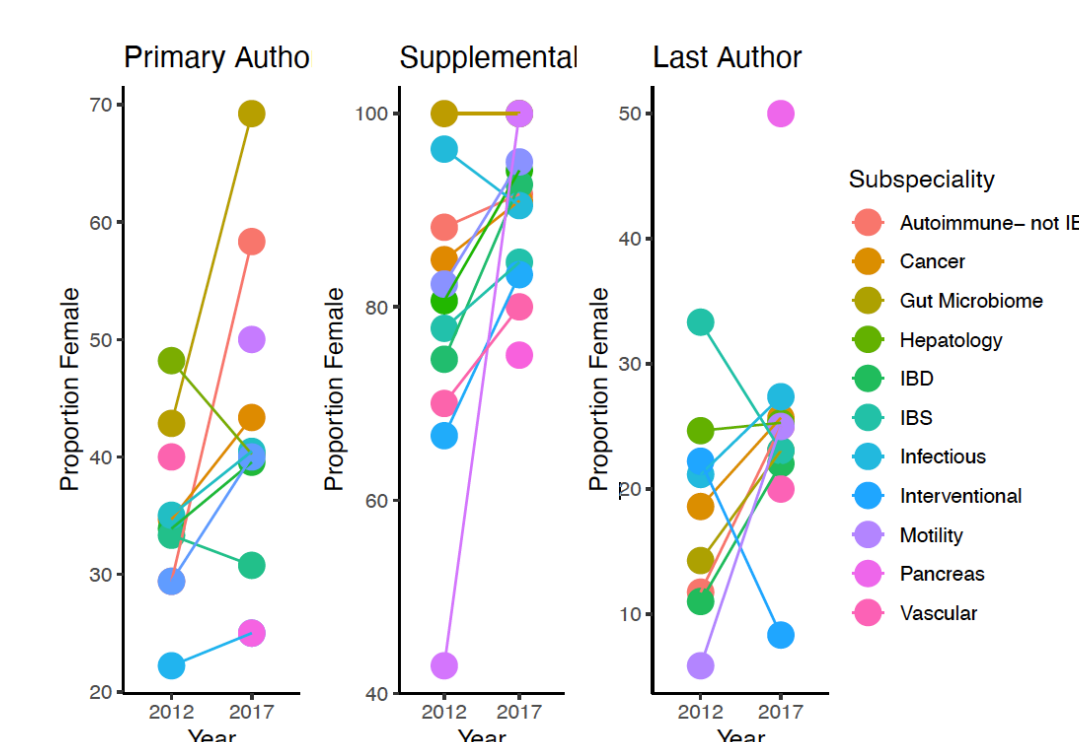


Figure 3. Change from 2012-2017 in the percentage of studies with female first, supplemental, and last authors by gastroenterology subspecialty

Discussion

The proportions of male first and senior authors were significantly greater than female first and senior authors in the examined literature and time points. However, the proportion of female supplemental and last authors significantly increased from 2012 to 2017. Previous research found a possible plateauing of female involvement in various topics in the medical literature in the time range of 2010-2020.⁴⁻⁶ While a persistent gender gap does exist and should be addressed, we did demonstrate a positive trend of increasing female involvement, at least in the gastroenterology literature.

Notable strengths of this study include the breadth of variables measured. We analyzed the proportion of female first, supplemental, and last authors, while most previous studies only evaluate one of these author types. Furthermore, we utilized a detailed method of gender determination with internet search to ensure accuracy. Other research methods in this realm frequently employ online gender-determining databases that exclusively determine gender based on authors' first names. Especially in cases of unisex first names, we believe our approach confers a greater degree of accuracy.

Limitations of this study include its descriptive nature and the small degree of subjectivity that may have been conferred with our method of data collection. Future research efforts will be made to elucidate the reasons behind the demonstrated gender gap and to validate our data with an online gender database.

Conclusions

1. There is a persistent gender gap with more male than female first and last authors, demonstrated in both 2012 and 2017. However, this gap decreased for supplemental and last authors over this time period, indicating an improvement in female representation in more senior roles.

2. The insignificant increase of female first authors from 2012 to 2017 points to barriers that preclude females from being the primary drivers of gastroenterology research endeavors. Continued efforts should be to elucidate and mitigate these barriers and ultimately close the gender gap in academic gastroenterology.

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