

ARTICLE



Gender distribution of editors and authors of reference textbooks in anatomic pathology: further edits are required

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Compared to other medical specialties, pathology has a significant number of women in the academic workforce (43%). Gender disparities, particularly those disadvantaging women, are a reality in academic medicine with documented inequalities in salary, leadership opportunities, and faculty promotion. One important element of academic advancement is the recognition obtained when serving as editor or main author of reference textbooks. We aimed to document the gender distribution of editors/authors in anatomic pathology by surveying 205 subspecialty publications over a 20-year period. Gender of each editor/author was recorded after surveying their institutional or other professional biographies. When biography was non-contributory, gender was extracted from the National Provider Identifier Database. A total of 462 editors/authors were identified: 275 (59.5%) men and 187 (40.5%) women. This distribution was similar to the 2015 (39% women) and 2019 (43.4% women) Association of American Medical Colleges (AAMC) benchmark for US academic pathologists. The gender distribution in each of the main anatomic pathology subspecialties was estimated by surveying the websites of 20 North American academic pathology departments (totaling 1893 listed individuals). Compared to this benchmark, some subspecialties had more men in editor/author roles than their representation in academic departments including Dermatopathology (observed vs expected difference, $\Delta = 41.3\%$), Genitourinary Pathology ($\Delta = 29.4\%$), Renal & Transplant Pathology ($\Delta = 22.4\%$) and Head & Neck Pathology ($\Delta = 21.6\%$). Other subspecialties had more women in editor/author roles than their representation in academic departments including Molecular Pathology ($\Delta = 31.4\%$), Gastrointestinal Pathology ($\Delta = 21.4\%$), and Bone & Soft Tissue Pathology ($\Delta = 19.4\%$). Editors/authors of multiple (>1) publications were frequent and skewed gender representation in most specialties. The overall gender distribution of editor/author roles is similar to that of the US pathology workforce. However, significant disparities exist in certain subspecialties affecting both women and men. This landscape can guide efforts by editors, publishers, and academic institutions to bring equity to the academic field by providing fair editorial and authorship opportunities to academic pathologists.

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INTRODUCTION

Recent years have seen a surge in Diversity, Equity, and Inclusion initiatives in academic medicine, aimed to address gaps in representation based on gender, race, ethnicity, and sexual orientation, among other factors. Regarding gender, inequalities affecting women have been documented on multiple fronts including gender-based discrimination and harassment, salary inequity, and professional isolation^{1–3}. It is also known that women are less likely to succeed in academic promotion to associate and full professor levels compared to men⁴. Likewise, women represent a very small minority of those appointed as editors of scientific peer-reviewed pathology journals, roles largely dominated by men⁵. In the field of pathology, disparities between men and women pathologists have also been reported in terms of academic advancement, unequal salary^{6,7}, speaker engagements, leadership opportunities in medical societies^{8,9}, and faculty promotion¹⁰. Moreover, a recent study by our group documented underrepresentation of women physicians as recipients of

recognition awards by pathology medical societies compared to men, particularly prestigious awards¹¹.

In addition to peer-reviewed journal publications, pathologists have opportunities to serve as editors and authors of reference textbooks. Editing or primarily authoring a reference textbook in pathology is complex and highly demanding. Fortunately, there are direct career benefits of creating reference textbook material, particularly for those working in academic settings. First, the editorial role is ostensibly based on the person's expertise and scholarly work in the field, leading to recognition that is often instrumental in academic promotion and career advancement towards leadership and senior positions. Second, the resultant published material positions the editor/author as an expert, which in turn leads to other academic opportunities (e.g., to invitations to participate as faculty or keynote speaker at conferences or courses, expert panels, and invited reviews, among others), as well as referrals of cases from other pathologists for expert opinion. Lastly, most

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publishing agreements include monetary compensation for the authorship and/or editorial work.

To our knowledge, evaluation of potential gender gaps in the distribution of pathology reference textbook authorship and editorial roles has not been documented in the literature, nor has this been reported in any other medical specialty to date. In this study, we document the gender distribution of editors and main authors of a representative cohort of reference textbooks in anatomic pathology, aiming to identify fluctuations in such distribution over time and across pathology subspecialties, as well as deviations from the benchmark gender distribution of pathologists in academic medicine using published data from the Association of American Medical Colleges (AAMC).

MATERIALS AND METHODS

Our cohort includes editors and primary authors of reference textbooks in anatomic pathology with representation of most subspecialties. To this end, we concentrated on book series, defined as a collection of two or more individual books with a similar format and/or an overarching series editor. The following series were included: Atlases of Tumor Pathology, 4th edition (American Registry of Pathology), Atlases of Non-Tumor Pathology, 1st edition (American Registry of Pathology), Atlases of Tumor and Non-Tumor Pathology, 5th edition (American Registry of Pathology), Diagnostic Pathology Series 1st edition (Elsevier), Diagnostic Pathology Series 2nd edition (Elsevier), Foundations of Diagnostic Pathology (Elsevier), Surgical Pathology Clinics (Elsevier), Biopsy Interpretation Series (Wolters Kluwer), Differential Diagnoses in Surgical Pathology (Wolters Kluwer), Pattern-Based Approach Atlases (Wolters Kluwer) and Survival Guides (Innovative Science Press). We ensured that each subspecialty had a total of least six textbooks included for analysis; therefore, for certain subspecialties, additional textbook references were selected using the search engine on amazon.com. These included placental, pediatric, cardiovascular, molecular, and renal pathology (search performed on April 10th, 2022). The complete list of textbooks included can be found in Supplementary Table 1.

The list of textbooks from each series, the year of publication, and the name of the editors/authors from each textbook were obtained from the publicly available publisher websites. For the purposes of this study, we only identified individuals that appear on the book cover and title page as the main authors or editors of the textbook. In this context, "author" was defined as the person(s) producing the entire textbook content. "Editor" was defined as the person(s) in charge of the organization and content of the textbook including editing the work of contributing authors, who are tasked to produce the content of one or more chapters of the textbook. Contributing authors from publications with one or more editors were excluded from analysis.

Names of the editors/authors, as defined above, were recorded for each publication. Gender of each editor/author was determined by documentation of the following: 1) Publicly available biography on the website of their affiliated medical or academic institution, with particular attention to the use of explicit gender denomination and/or gender pronouns (he/his/him for men, she/her/her for women, they/their/them for non-binary). 2) Gender as explicitly stated in either the editor/author's institutional website or the National Provider Identifier (NPI) database, which uses sex terms male/female (<https://npiprofile.com/>). 3) Publicly available portrait photograph on the website of their affiliated medical or academic institution or any other professional organization. Specifically, determination of gender required identification of gender pronouns in the editor/author's institutional biography; if such biography was not available or used only first singular person pronouns (I/me/my), the sex stated in the NPI database was used. For editors/authors outside the United States, determination of gender relied on institutional biographies. All our data are reported in gender terminology: woman, man, non-binary. This information was collected between 12-27-2021 and 01-10-2022, and between 04-10-2022 and 04-11-2022.

Gender distribution of editors/authors of publications in our cohort was compared to publicly available physician specialty data from the AAMC published in 2015¹² (category "Pathology (Clinical)") and 2019¹³ (category "Anatomic/Clinical Pathology"). The benchmark for academic/medical school faculty ("AAMC Academic") is the main denominator for the purposes of this analysis, as most editors/authors are affiliated with an academic hospital and/or university. To analyze observed gender

distribution in each pathology subspecialty, a benchmark of subspecialty gender distribution was generated. To this end, 20 academic pathology departments in which the members of each subspecialty group were clearly identified on the departmental website (as of 04-10-2022) were surveyed (See Supplementary Table 2). The departments selected represent all geographic regions in the United States as well as Canada. In order to increase representation, preference was given to academic departments with 30 or more anatomic pathology faculty, however smaller departments with explicit subspecialty breakdown in their websites were also included. Gender was determined for each pathologist following the same strategy outlined above, and the number of men and women in each subspecialty was recorded. Gender representation by subspecialty was determined by fraction of women and men within a subspecialty relative to the number of all persons in that specialty. This subspecialty gender distribution (expected percentage) served as the benchmark to which the distribution of editors/authors of subspecialty textbooks (observed percentage) was compared. Comparison involved calculation of the difference between expected and observed percentage by subspecialty, as well as Fisher's exact test comparing expected versus observed percentage of women editors/authors per subspecialty (GraphPad, La Jolla, CA). Comparisons were also made across time periods and between publishers.

RESULTS

Table 1 shows the gender distribution of pathologists in each of the major 18 anatomic pathology subspecialties surveyed, using 20 academic subspecialized departments as sample. A total of 1893 entries were recorded (not equal to individual pathologists, as a pathologist could be listed in more than one subspecialty). The 18 subspecialties match those identified in the categorization of the textbooks included in this analysis.

In total, 205 publications were included with a total of 462 editors/authors associated with them. All individuals were coded as "man" or "woman" based on our methodology. There were no instances of "they/their/them" pronoun use in institutional biographies and or publicly available repositories in our cohort. Among the 462 editors/authors, 275 (59.5%) were men and 187 (40.5%) were women. This distribution was similar to the AAMC benchmarks for academic pathologists published in 2015 (61% men vs 39% women US academic pathologists, $p = 0.8$) and 2019 (56.6% men vs 43.4% women US academic pathologists, $p = 0.5$). Similarly, there was no difference when compared to the gender distribution among the 20 academic departments surveyed (53.6% men vs 46.4% women academic pathologists, $p = 0.2$).

Table 2 shows the number of textbooks in each anatomic pathology subspecialty, as well as the gender distribution of editors/authors grouped by subspecialty of the textbook edited/authored. In addition to the 18 categories in Table 1, 10 publications in the category of "Miscellaneous" are listed. These correspond to the fields of Infectious Diseases ($n = 2$), Intraoperative Consultation ($n = 2$), Ophthalmic Pathology ($n = 2$), Autopsy ($n = 1$), Syndromic Pathology ($n = 1$), Histology ($n = 1$) and Informatics ($n = 1$). The breakdown of men vs women representation by subspecialty is also shown in Fig. 1.

Table 3 shows comparisons between the percentage of men and women editors/authors (the "observed") and the percentage of men and women in each subspecialty across the sample of academic pathology departments shown in Table 1 (the "expected"). Based on differences in expected versus observed percentages and Fisher's exact test calculations, several specialties showed significant deviations. These can also be observed in Fig. 1. The following subspecialties were skewed towards more men in editor/author roles than their representation in academic departments: Dermatopathology (42.4% difference), Genitourinary Pathology (29.4%), Renal & Transplant Pathology (22.4%) and Head & Neck Pathology (21.6%). The following subspecialties were skewed towards more women in editor/author roles than their representation in academic departments: Molecular Pathology

Table 1. Distribution of academic anatomic pathologists in selected North American institutions by gender.

Specialty	Men	%	Women	%	Total
Dermatopathology (DRM)	45	53.6	39	46.4	84
Genitourinary pathology (GU)	55	52.4	50	47.6	105
Renal pathology (RTX)	27	56.3	21	43.8	48
Neuropathology (NEU)	72	67.9	34	32.1	106
Head & Neck Pathology (HN)	38	54.3	32	45.7	70
Pancreatobiliary pathology (PHB)	67	48.6	71	51.4	138
Cardiovascular pathology (CV)	35	74.5	12	25.5	47
Endocrine pathology (END)	36	55.4	29	44.6	65
Pulmonary pathology (PUL)	41	62.1	25	37.9	66
Hematopathology (HEM)	115	57.8	84	42.2	199
Bone & soft tissue pathology (BST)	39	75.0	13	25.0	52
Gynecologic pathology (GYN)	95	56.2	74	43.8	169
Pediatric pathology (PED)	38	48.1	41	51.9	79
Cytopathology (CYT)	69	40.4	102	59.6	171
Placental pathology (PLC)	27	48.2	29	51.8	56
Molecular pathology (MOL)	90	60.0	60	40.0	150
Gastrointestinal pathology (GI)	82	50.0	82	50.0	164
Breast pathology (BRT)	43	34.7	81	65.3	124
TOTAL	1014	53.6	879	46.4	1893

Table 2. Number of anatomic pathology textbooks surveyed and gender distribution of editors/authors by subspecialty.

Subspecialty	# of publications	Men	%	Women	%	Total
Dermatopathology (DRM)	14	24	96	1	4	25
Renal & transplant pathology (RTX)	6	36	81.8	8	18.2	44
Genitourinary pathology (GU)	19	11	78.6	3	21.4	14
Neuropathology (NEU)	9	16	76.2	5	23.8	21
Head & Neck Pathology (HN)	13	22	75.9	7	24.1	29
Pancreas & hepatobiliary pathology (PHB)	14	20	64.5	11	35.5	31
Cardiovascular pathology (CV)	6	7	63.6	4	36.4	11
Endocrine pathology (END)	10	11	61.1	7	38.9	18
Pulmonary pathology (PUL)	11	20	61	9	39	29
Hematopathology (HEM)	15	21	60	14	40	35
Bone & soft tissue pathology (BST)	17	25	55.6	20	44.4	45
Gynecologic pathology (GYN)	12	13	54.2	11	45.8	24
Cytopathology (CYT)	6	7	50	7	50	14
Molecular pathology (MOL)	6	6	46.2	7	53.8	13
Placental pathology (PLC)	6	6	35.7	11	64.3	17
Pediatric pathology (PED)	6	4	28.6	10	71.4	14
Gastrointestinal pathology (GI)	16	12	28.6	30	71.4	42
Breast pathology (BRT)	9	4	25	12	75	16
Miscellaneous (MIS)	10	50	10	50	20	20
TOTAL	196	265	60.1	177	39.9	462

(31.4%), Gastrointestinal Pathology (21.4%), and Bone & Soft Tissue Pathology (19.4%).

While most of the editors/authors were associated with only one publication, several individuals were identified twice or more. The prevalence of editors/authors with more than one publication in each subspecialty is shown in Table 4. This prevalence, relative to the total number of entries for their gender in any given subspecialty, ranged from 0 to 63%. Subspecialties with a predominance of either men or women in editor/author roles

often had individuals with more than one publication. Remarkably, Gastrointestinal Pathology had one woman editor/author with eight publications (which accounted for 27% of all women editor/author entries in that subspecialty). Head & Neck Pathology had two men editors/authors with five publications each, and Genitourinary Pathology had one man editor/author with five entries. Bone & Soft Tissue Pathology had one man editor/author with five entries, and one woman editor/author with four publications. Pancreas & Hepatobiliary Pathology had one man

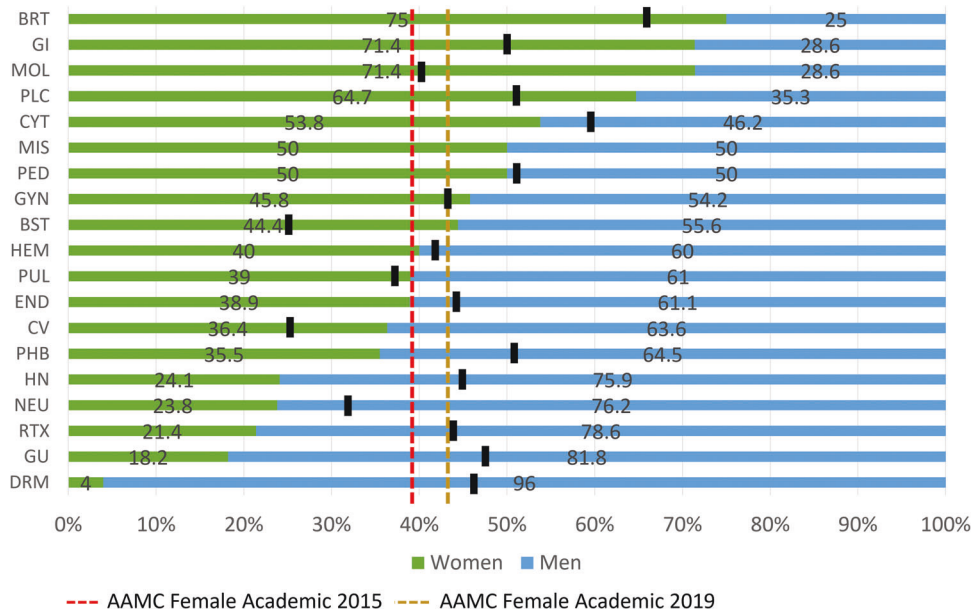


Fig. 1 Percentage of women and men as editors/authors of reference textbooks in anatomic pathology. Each horizontal bar represents a subspecialty. In each, the black short vertical bar indicates the benchmark percentage of women (left of bar) and men (right of bar) in each subspecialty as per survey of 20 academic pathology departments. The dotted vertical lines represent the Association of American Medical Colleges (AAMC) benchmark of academic pathologists in 2015 and 2019. Acronyms for each specialty can be found in Table 1.

Table 3. Difference in actual percentage of women editor/author roles (see Table 2) versus the expected percentage based on the proportion of women in each subspecialty (see Table 1).

Specialty	Difference in %	Fisher's exact test
Dermatopathology (DRM)	42.4	<0.0001
Genitourinary pathology (GU)	29.4	<0.0001
Renal pathology (RTX)	22.4	<0.0001
Head & Neck Pathology (HN)	21.6	<0.0001
Pancreatobiliary pathology (PHB)	15.9	0.003
Neuropathology (NEU)	8.3	0.06
Cytopathology (CYT)	5.8	<0.0001
Endocrine pathology (END)	5.7	0.3
Hematopathology (HEM)	2.2	0.6
Pediatric pathology (PED)	1.9	0.7
Pulmonary pathology (PUL)	-1.1	0.7
Gynecologic pathology (GYN)	-2.0	0.5
Breast pathology (BRT)	-9.7	0.1
Cardiovascular pathology (CV)	-10.8	0.01
Placental pathology (PLC)	-12.5	0.01
Bone & soft tissue pathology (BST)	-19.4	<0.0001
Gastrointestinal pathology (GI)	-21.4	<0.0001
Molecular pathology (MOL)	-31.4	<0.0001
TOTAL	6.5	0.2

A positive difference represents an excess of men representation compared to the expected. A negative difference represents an excess of women representation compared to the expected. Fisher's exact test was used to compare observed and expected frequencies (one degree of freedom). Two-tailed *p* values <0.05 were considered statistically significant.

editor/author with five entries, whereas Endocrine Pathology had one woman editor/author with four entries.

We analyzed the collected data to identify "repeat" editors/authors between current and previous editions of a book. We were unable to perform this analysis in most of the book series included in the study, either because the series is new and only has one edition (e.g., Survival Guide Series), each series is intended to have different editors than previous ones (e.g., Surgical Pathology Clinics), or previous editions of the series were not readily available through online search. However, we were able to explore shifts between editions in two series: in the Atlas of Tumor and Non-Tumor Pathology (American Registry of Pathology), only 5 out of 34 authors (14%) of the 5th series were repeats from equivalent books of the 4th series (tumor) or 1st series (non-tumor). In contrast, in the Diagnostic Pathology series (Elsevier) 15 out of 20 authors (75%) of the 2nd edition were repeats from equivalent books of the 1st edition of the series.

As seen in Fig. 2, the distribution of editor/author roles by gender has shifted over time, with a progressive narrowing of the gap between men and women. This is more pronounced when comparing the 2002–2007 period (in which only 21.4% of editors/authors were women) to the 2017–2022 period (in which 45% of editors/authors were women). This difference in gender distribution between the two time periods was statistically significant (*p* < 0.001). Figure 3 shows the distribution of editor/author roles by gender in each of the major publishers included in our study.

DISCUSSION

In this study, we demonstrate that editor and author opportunities in anatomic pathology reflect, overall, the gender distribution among the academic pathologist workforce (using the United States AAMC data as reference metric). Nevertheless, unequitable gender distribution was observed in several subspecialties, not only when compared to the AAMC benchmark but also to the gender distribution of academic pathologists within the subspecialty.

Editorial and authorship roles are considered prestigious and are often extended to accomplished and dedicated physicians

Table 4. Number of editors/authors with more than one publication in their respective subspecialty.

Specialty	Men	Authors/editors with >1 publication	Women	Authors/editors with >1 publication
Dermatopathology (DRM)	24	42% (10 entries) 5 with 2 books/each	1	Not applicable
Renal & transplant pathology (RTX)	11	27% (3 entries) 1 with 3 books	3	66% (2 entries) 1 with 2 books
Genitourinary pathology (GU)	36	58% (21 entries) 1 with 5 books 3 with 3 books/each 5 with 2 books/each	8	25% (2 entries) 1 with 2 books
Neuropathology (NEU)	16	31% (5 entries) 1 with 3 books 1 with 2 books	5	40% (2 entries) 1 with 2 books
Head & Neck Pathology (HN)	22	63% (14 entries) 2 with 5 books/each 2 with 2 books/each	7	29% (2 entries) 1 with 2 books
Pancreas & Hepatobiliary pathology (PHB)	20	40% (8 entries) 1 with 4 books 2 with 2 books/each	11	36% (4 entries) 2 with 2 books/each
Cardiovascular pathology (CV)	7	Not applicable	4	Not applicable
Endocrine pathology (END)	11	Not applicable	7	57% (4 entries) 1 with 4 books
Pulmonary pathology (PUL)	20	10% (2 entries) 1 with 2 books	9	Not applicable
Hematopathology (HEM)	21	14% (3 entries) 1 with 3 books	14	21% (3 entries) 1 with 3 books
Bone & soft tissue pathology (BST)	25	40% (10 entries) 1 with 5 books 1 with 3 books 1 with 2 books	20	20% (4 entries) 1 with 4 books
Gynecologic pathology (GYN)	13	31% (4 entries) 2 with 2 books/each	11	45% (5 entries) 1 with 3 books 1 with 2 books
Cytopathology (CYT)	6	33% (2 entries) 1 with 2 books	7	Not applicable
Molecular pathology (MOL)	4	Not applicable	10	Not applicable
Placental pathology (PLC)	6	33% (2 entries) 1 with 2 books	11	27% (3 entries) 1 with 3 books
Pediatric pathology (PED)	7	Not applicable	7	57% (4 entries) 2 with 2 books/each
Gastrointestinal pathology (GI)	12	Not applicable	30	57% (17 entries) 1 with 8 books 1 with 3 books 3 with 2 books/each
Breast pathology (BRT)	4	50% (2 entries) 1 with 2 books	12	25% (3 entries) 1 with 3 books

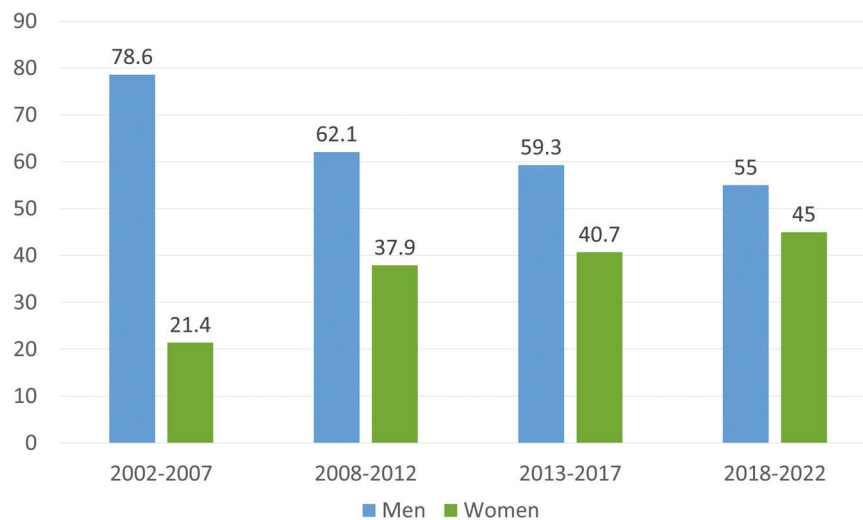


Fig. 2 Percentage of women and men as editors/authors of reference textbooks in anatomic pathology by time period. Textbooks were grouped according to their year of publication.

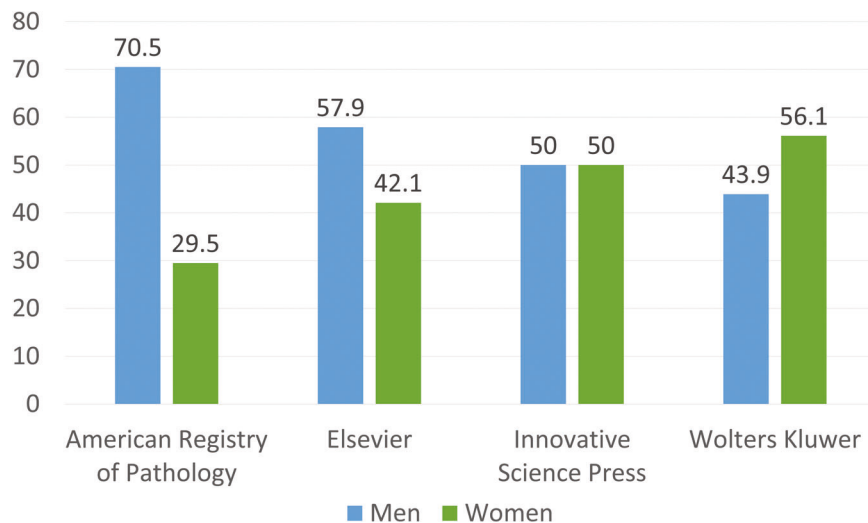


Fig. 3 Percentage of women and men as editors/authors of reference textbooks in anatomic pathology by publisher. Only pathology book series are depicted.

with a track record of significant contributions to the field. They represent one indicator of “national and/or international recognition” which is essential for the purposes of academic promotion and career advancement, a journey that has been historically more difficult for women. For instance, Pinho-Gomes et al. showed that women represented only 21% of all editors in chief at 410 leading medical journals; of these, among the 11 pathology journals surveyed only 2 (18%) had women editors in chief⁵. Similarly, Richter et al. studied a large number (559,098) of medical graduates documenting that women achieved academic promotion to associate or full professor ranks at lower rates than the expected, with no apparent narrowing of the gap over an observation period of 35 years⁴. The low number of women in leadership roles of professional societies and organizations is also a reflection of this disparity in career advancement⁹. To this end, Lipscomb et al. surveyed 38 women with a Departmental Pathology Chair role: 31% of them identified gender bias as an obstacle to their career advancement¹⁰. Gender bias in the field can be recognized not only by the current but also the future workforce: its perception by medical students and other trainees may negatively impact the number of those students choosing a career in pathology and laboratory medicine, a worrisome trend already identified in recent years^{14,15}.

Our study does not intend to explain the reasons behind the observed trends. We, however, hypothesize that multiple factors are at play. Selection of individuals for editorial/authorship tasks requires thoughtful consideration of their expertise, communication skills, and responsibility. This task is often performed by a series editor or by the lead editor/author(s). They may often gravitate toward those that are already known for their productivity and the quality of their written work, as well as those who are known through previous collaborative work or academic experiences. The findings of our study should not substitute good judgment or the use of important metrics in the selection of editors/authors (namely, expertise, academic track record, professionalism), but can be used to inform the selection process within the current landscape of gender distribution among editors/authors. The disparities observed in our study suggest that there are implicit biases against gender in at least some anatomic pathology subspecialties. Awareness of these disparities is the first step towards a system in which academic pathologists have a fair chance to access textbook editorial/authorship opportunities regardless of their gender.

Currently, pathology is a field with major representation of women¹⁶. The 2016 Association of Pathology Chairs survey

indicated that 49% of respondents identified as women¹⁷. We recognize that there is a shift in gender distribution over time which likely reflects not only the increasing proportion of women in the academic pathology workforce^{12,13} but also the increasing recognition of disparities in women representation and action to increase access to editorial and authorship opportunities by women. However, certain pathology subspecialties have significant underrepresentation of women as editors/authors of reference textbooks. This requires prompt analysis and action by the academic pathology community, as women practicing in those specialties require fair and equitable access to publishing opportunities in order to achieve career advancement. Likewise, our study shows that inequality in editor/author distribution also occurs towards men in certain specialties, a reality that needs to be equally explored and monitored.

One factor likely influencing gender representation is the high frequency of individual editors/authors with multiple publications as seen in our study. This phenomenon is important because there is no true representation or equitable opportunity in editor/author opportunities if only one or a few individuals are accessing them, even if the proportion of gender representation overall approaches the expected. Individuals heavily represented in the editorial/authorship landscape can give the false impression that the field is equitable in terms of gender and other factors, when it really is not. On the other hand, disparities in gender will appear more pronounced when one or more editors/authors have multiple publications, examples being Gastrointestinal Pathology and Head & Neck Pathology both with large overrepresentation of entries by a few individuals. A contributing factor is a practice of inviting back editors/authors from previous editions of a book to write a new one. We were able to identify this trend in one of the series analyzed, in which 75% of editors of the 2nd edition were repeats from equivalent books of the 1st edition. This is not necessarily reflective of gender bias; it may be explained by the nature of the series and by the logic of inviting the author of an already successful book to write a new edition of it. Nonetheless, we believe that in order to create a truly equitable and inclusive academic community, publishers and editors should consider extending opportunities to emerging or otherwise untapped talent in the field.

Our study has several limitations. First, we relied on publicly available information via publisher websites, academic pathology departmental websites, other professional websites, and the NPI database. Some of this information represents a “snapshot” of the period in which it was collected, for instance the proportion of

men and women in anatomic pathology subspecialties across a sample of academic pathology departments. A cumulative metric over time would be ideal to compare to our data on publication editor/author roles, which corresponds to a relatively long period. More importantly, our methodology is not sufficient to identify individuals that identify as non-binary (different from male-female). To maximize the capture of self-identified gender in our study, we used several steps in the assignation of gender as described in our methods. Particularly, we prioritized the gender and pronouns used in each person's institutional or professional biography, with the assumption that such biography is written or at least approved by the individual. Since not every editor/author had a biography with clear use of pronouns, we used the NPI database which does not allow individuals to select gender; rather it lists only sex terms, male or female. Consequently, we may have misclassified in our records a small proportion of editors/authors who identify as non-binary. Lastly, the list of publications is not exhaustive as it does not include every reference textbook available or ever published. To avoid selection bias and ensure specialty representation, we focused on textbook series rather than isolated publications (except for certain specialties in which the number of textbooks was small). Choosing book series brings homogeneity to our analysis, as series are often comprehensive and representative of most anatomic pathology subspecialties. Moreover, we believe series editors have the greatest opportunity to incorporate equity and diversity into the selection process, as they oversee many publications and are versed in the already existing literature. We considered hand-picking general surgical pathology reference textbooks and stand-alone subspecialty textbooks, but this would introduce considerable selection bias. Nonetheless, editors of stand-alone publications should also attempt to be inclusive in their co-editor and author selection; to this end, we hope our data is helpful in informing those processes.

In summary, we present herein the first analysis of gender in anatomic pathology textbook editor/author roles. In the last two decades, we observed a shift with increased representation of women over time. Although the overall gender distribution of editors/authors of publications mirrors the gender distribution seen in academic pathology departments, certain subspecialties have significant disparities in their pool of editors/authors, with either women underrepresentation (Dermatopathology, Genitourinary Pathology, Head & Neck Pathology) or men underrepresentation (Gastrointestinal Pathology, Bone & Soft Tissue Pathology). We hope that our data, as well as the above considerations, encourage the broader academic pathology community to make academic publishing a representative, equitable and inclusive environment for all pathologists, irrespective of gender.

DATA AVAILABILITY

The datasets used and/or analyzed during the current study are included in the manuscript and supplementary materials.

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AUTHOR CONTRIBUTIONS

C.P.H. was responsible for the concept and design, data collection and analysis, and drafting of the manuscript. FK and SEW contributed to the concept, as well as with data acquisition and analysis, and revision of the manuscript draft. All authors read, edited, and approved the final version of the manuscript.

COMPETING INTERESTS

The authors declare no competing interests.

ETHICS APPROVAL / CONSENT TO PARTICIPATE

This project met criteria for exempted status by the Brigham and Women's Hospital institutional Research Board system.

ADDITIONAL INFORMATION

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