

Race/Ethnicity and Gender Representation in Hematology and Oncology Editorial Boards: What is the State of Diversity?

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Abstract

Introduction: Women and underrepresented groups in medicine hold few academic leadership positions in the field of hematology/oncology. In this study, we assessed gender and race/ethnicity representation in editorial board positions in hematology/oncology journals.

Materials and Methods: Editorial leadership board members from 60 major journals in hematology and oncology were reviewed; 54 journals were included in the final analysis. Gender and race/ethnicity were determined based on publicly available data for Editor-in-Chief (EiC) and Second-in-Command (SiC) (including deputy, senior, or associate editors). Descriptive statistics and chi-squared were estimated. In the second phase of the study, editors were emailed a 4-item survey to self-identify their demographics.

Results: Out of 793 editorial board members, 72.6% were men and 27.4% were women. Editorial leadership were non-Hispanic white (71.1%) with Asian editorial board members representing the second largest majority at 22.5%. Women comprised only 15.9% of the EiC positions (90% White and 10% Asian). Women were about half as likely to be in the EiC position compared with men [pOR 0.47 (95% CI, 0.23–0.95, $P = .03$)]. Women represented 28.3% of SiC editorial positions. Surgical oncology had the lowest female representation at 2.3%.

Conclusion: Women and minorities are significantly underrepresented in leadership roles on Editorial Boards in hematology/oncology journals. Importantly, the representation of minority women physicians in EiC positions is at an inexorable zero.

Key words: women; underrepresented in medicine; oncology; editorial boards; journals; editors.

Implications for Practice

Actionable steps toward more diverse and inclusive editorial boards are imperative to ensure that critical perspectives are heard and to provide equitable academic opportunities for underrepresented individuals.

Introduction

The proportion of women and underrepresented groups in medicine (URM) in the field of hematology and oncology remains low, particularly in academic leadership positions

despite the growing number of minorities entering the field.¹ Editorial board appointments, especially in major medical journals, allow physicians to have a substantial impact on the nature of the published scholarly work and serve as a

Received: 2 December 2022; Accepted: 23 March 2023.

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platform for academic opportunities and promotion.¹ Recent studies indicate that, despite the rise in women entering the medical profession over the last decade, women remain substantially underrepresented in senior leadership positions, including editorial boards in biomedical journals.^{1,2} This barrier contributes to disparities in publishing and career advancement, which in turn affects academic promotion, grant funding, and economic compensation.³ Furthermore, women and minorities are less likely to receive recognition awards from medical societies when compared with men and non-minorities, and this was evident across all oncology subspecialties.⁴

There are ongoing efforts over the past decade to diversify the physician workforce. While there have been some notable successes, such as in 2017, when for the first time in history more women than men matriculated into US medical schools,⁵ women remain unrepresented in academic medicine.¹ The workforce of academic oncology is also unbalanced when it comes to gender diversity. A recent study that examined 6030 faculty from 265 academic medical oncology, radiation oncology, and surgical oncology programs found that women constitute 35.9% of total faculty.⁶ This disparity is further magnified at the leadership level and when considering race and ethnicity.^{6,7}

Women in medicine face numerous challenges in academia, including a lack of mentorship, discrimination, gender bias, imposter syndrome, unrealistic societal expectations, unequal pay, and the need for a better work-life balance.⁸ Moreover, as URM faculty members work to advance their careers, they often face a lack of mentorship/sponsorship, unrecognized diversity efforts, and hostile work environments.⁹ The effects of discrimination and inequities related to compensation and career advancement are amplified for women from minoritized backgrounds due to their intersectional identities,⁸ explained as how gender, ethnicity, race, sexual orientation, disability, class, and other features overlap to create unique dynamics and effects. Ensuring diversity in the leadership roles is essential for career advancement, grant funding, and academic promotion.³ Moreover, URM physicians play a crucial role in healthcare access and quality and optimize patient care while mirroring the ethnically and racially diverse US population and closing the existing care gap.¹⁰

In academic medicine, editorial board involvement confers leadership and influence within a field as journals are the gatekeepers of academic discourse. Often, selection of these positions is based on academic rank and scholarly achievement, and can subsequently influence hiring, tenure, or promotion decisions. A diverse editorial board may elicit a wider pool of peer reviewers and encourage submissions from researchers of diverse backgrounds, thereby driving innovation and publishing of unique ideas, perspectives, and values.¹¹ Moreover, having a gender-balanced and diverse editorial team promotes collaboration and decreases the publication bias against women.¹²

Physicians and researchers specializing in hematology, medical oncology, surgical oncology, and radiation oncology represent a large proportion of the scientific and clinical workforce. Today, women make up 40% of the oncology workforce, and increasing numbers of oncologists identify as a URM, including, but not limited to their race, ethnicity, sexual orientation and/or gender identity, socioeconomic background, immigration status, and intersectional combinations.¹³ With the pace of innovation and prolific publication

rates in the field, assessing gender and race representation in leadership editorial board positions in major journals is critical in furthering equity. Herein, we examined the gender and race/ethnicity representation in editorial board positions at the leading medical and scientific hematology and oncology journals.

Materials and Methods

Study Design and Selection of Participants

We conducted a cross-sectional study evaluating the editorial board gender and race/ethnicity composition 60 journals with the highest impacts of each 4 subject categories including (1) medical oncology, (2) Hematology, (3) surgical oncology, and (4) radiation oncology. We identified journals with the highest SCImago Journal Rank for Medical Oncology and Hematology by manually searching through “Oncology” and “Hematology” in the SCImago database. Given the narrow focus of Radiation Oncology and Surgical Oncology specific journals, these were extracted by making a general search of subspecialties by subject category. Impact factor for the journals was then verified as calculated by Clarivate which reflects the yearly mean number of citations of articles published in the last 2 years in a given journal. Journals were selected according to their impact factor listed in the Journal Citation Reports (JCR) (2019), which was the latest version published at the time of the study. Journals without an impact factor were not included in the search. Only journals published in English language were included. Editorial board members were identified from each journal’s publicly available website through the first issue of 2021. Editorial leadership positions were obtained in 2 groups: (1) Editor-in-Chief, defined explicitly as responsible for providing scientific content for the journal, and (2) Second-in-Command editors who immediately assist the chief editor in overseeing the editorial process, such as Associated Editor, Deputy Editor, and/or Senior Editor. We excluded other editorial positions including Editorial Advisory Board, International Advisory Board, Honorary Academic Editor, Scientific Editor, Executive Editor, Managing Editor, Production Editor, Editorial Assistant, Senior Director, Editorial Manager, Web Editor, Executive Editor, and Social Media Editor. The final analysis excluded 6 journals for not meeting inclusion criteria; the editorial board of one journal was composed only of multiple academic editors and no Editor-in-Chief was identified, another has only guest editors without an established editorial board, and 4 journals were published in non-English languages (Fig. 1). This study was approved by the Institutional Review Board at the University of Wisconsin-Madison.

Data Collection and Processing

Journals were randomly assigned by study leads (I.R. and S.P.) to the 10 coders from diverse backgrounds. A data extraction tool was developed on a Google Forms platform to capture the editorial board members’ characteristics including (1) editor’s position, (2) gender, (3) race/ethnicity, (4) editor’s academic rank, (5) editor’s degree, (6) editor’s specialty, (7) year of training completion, (8) editor’s email address, and (9) journal’s geographic location.

Data were obtained from the journals’ official websites. Gender and race were determined by initial inspection of the editor’s full name and public data (Institutional website, available photos, and published media); for cases in which

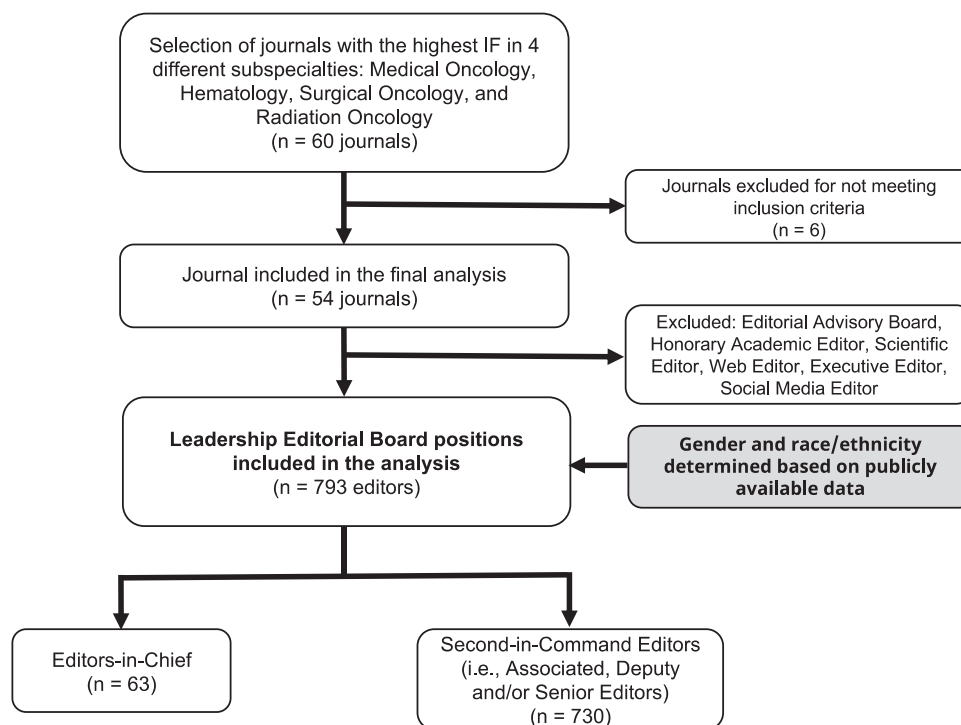


Figure 1. Schematic of study design.

gender and race were not certain, attempts were made to discern gender through Internet searches using photographs, pronouns used to describe the editor, and other publicly available information. The National Institutes of Health (NIH) Office of Management and Budget (OMB) Directive No. 15 was used as a framework to define racial and ethnic categories. Historically, those deemed URM were defined as Black, Hispanic/Latino, American Indian/Alaska Native, and Native Hawaiian/Pacific Islander, based on the Association of American Medical Colleges (AAMC) classification.¹⁴ Data were assigned at the discretion of the coders and public information was found through institutional websites. Editors' email addresses were extracted from the journals' website, and if not available, were queried from biomedical repositories.

To ensure uniformity in coding strategy, coders were trained by study leads (I.R. and S.P.) about recognizing different editorial board positions. Coders were part of the investigational team and did not receive monetary incentives. The study leads (I.R. and S.P.) reviewed and re-extracted the first 10% of editors' data from each coder, and this information was subsequently matched with the original data to confirm accuracy.

Study data were managed using Google Forms and were downloaded to Microsoft Excel and transferred to R software.

Participant Survey

Reporting on disparities is strongly influenced by the methodology used to collect race/ethnicity and gender data. Incorporating gender and race into research has its challenges, as these variables are difficult to define. As underrepresentation of minorities and women continues to persist in many facets of academia, it is important to assess the accuracy of differing methodologies. While asking individuals to self-identify their race and gender remains the gold standard of reporting, low response rates and response bias have been shown to affect results. We aimed to add to our study by

asking editors to self-report their gender and race in hopes to validate our methodology given the importance of considering gender and race in academia.

In the second phase of the study, Editor-in-Chief and Second-in-Command editors of the included journals were emailed a 4-item survey to self-identify their baseline demographics including age, gender, race/ethnicity, and the length of time in the current editorial position. The survey data was collected between October and November 2021. Participation in this study was voluntary. Steps were taken to ensure that the study participants could provide their information in a secure setting, and they were reminded not to share identifiable information. Surveys were sent to editorial board members on 2 occasions to increase response rate. Before data analysis, the data collected via the questionnaire was reviewed by study leaders (I.R. and S.P.), and all personal information accidentally shared by the participants was removed. The contents of the survey can be found in [Appendix A](#).

Data Analysis

Descriptive statistics (frequencies for central tendency and dispersion) were estimated for each editorial position (ie, Editor-in-Chief, Second-in-Command editors) stratified by gender, race/ethnicity ancestry, education attainment, and the intersection of these. Pearson and Spearman's correlations were used to quantify pairwise relationships. Chi-square and *t*-tests were used to test differences in proportions, when there were more than 2 samples, ANOVA was used to assess between-group differences for each position. When data were not normally distributed, non-parametric tests were used accordingly. To estimate the effects conveyed by gender and ethnicity/race, we fitted multivariate logistic regression models to determine the unconfounded association between explanatory variables and "holding a chief or senior editorial tenure" (Yes/No) within

oncology-related journals. A 2-sided P value $< .05$ was considered statistically significant. Statistical analysis was conducted in R software version 3.5.2.

Results

A total of 54 out of 60 high-impact journals were included in the study. The analysis included 793 editorial board members from major journals in Medical Oncology, Hematology, Surgical Oncology, and Radiation Oncology. Table 1 provides the demographic summary information about the journals and editorial board members. Regarding geography location, journals were predominately based on the U.S. and Canada (50.2%) followed by Europe at 45.5%. Fifty-four percent of the journals were Oncology-specific, followed by Hematology at 24.5% and Radiation Oncology at 12.6%.

The gender distribution of editors were 72.6% ($n = 576$) for men and 27.4% ($n = 217$) for women. The race/ethnicity representation in leadership editorial board positions was 71.1% for non-Hispanic White with Asian (including South Asian) members representing the second largest majority at 22.5%. Only 2.9% of editors were Hispanic, 2.0% were Middle Eastern and North Africa, and 1.0% were Black. The editorial position was significantly different among men and women ($P = .038$) with women filling only 15.9% (10/63) of the Editor-in-Chief positions. Of these 10 women, the racial breakdown was 90% White and 10% Asian (Table 2). In the prevalence odds ratio (pOR), women

were about half as likely to be in the Editor-in-Chief position compared with men [pOR: 0.47, 95%CI (0.23, 0.95, $P = .03$)].

Women represented 28.3% (207/730) of Second-in-Command editorial positions. Of the 523/730 editors' men in the senior editorial positions, Non-Hispanic White had the highest representation at 69.4% followed by Asian editors at 23.3% (including South Asian), 3.1% Hispanic, 2.3% Middle Eastern and North Africa, and 1.2% Black. Notable differences were seen in gender proportions between journal specialties ($P = .001$); with Surgical Oncology, Radiation Oncology, and Hematology having the lowest female representation at 2.3%, 18.4%, and 20.3%, respectively.

Black and Hispanic editorial members represented 1% (8/793) and 2.9% (23/793) of the total board members, respectively. Of the 31 Black and Hispanic editorial board members, 4 (7.6%) were in the Editor-in-Chief position, while the remaining 27 (7%) were in the Second-in-Command editorial position. Of this URM, zero women were Chief-in-Editors. Race/ethnicity and gender distribution by editorial position are outlined in Table 2.

Results From the Survey: Self-Identification of Gender and Race/Ethnicity

A total of 66 out of 793 editorial board members responded to the self-identification survey. Baseline characteristics stratified by gender are presented in Table 3. Gender breakdown of respondents was 36 (54.5%) men and 30 (45.8%) women.

Table 1. Baseline characteristics of the journals and editorial boards based on available publicly data.

	Overall n (%)	Female n (%)	Male n (%)	P^{**}
	793	217 (27.4)	576 (72.6)	
Editor's position in journal				.038
Editor-in-chief	63	10 (15.9)	53 (84.1)	
Second-in-command editors*	730	207 (28.4)	523 (71.6)	
Editor's race				.344
White	564 (71.1)	164 (75.6)	400 (69.4)	
Black	8 (1.0)	1 (0.5)	7 (1.2)	
Asia	122 (15.4)	34 (15.7)	88 (15.3)	
South Asia	56 (7.1)	10 (4.6)	46 (8.0)	
Middle Eastern and North Africa	16 (2.0)	3 (1.4)	13 (2.3)	
Hispanic	23 (2.9)	5 (2.3)	18 (3.1)	
Unknown	4 (0.5)	0 (0.0)	4 (0.7)	
Journal specialty				.001
Oncology	428 (54.0)	124 (57.1)	304 (52.8)	
Hematology	194 (24.5)	44 (20.3)	150 (26.0)	
Hematology and oncology, combined	29 (3.7)	4 (1.8)	25 (4.3)	
Radiation oncology	100 (12.6)	40 (18.4)	60 (10.4)	
Surgical oncology	42 (5.3)	5 (2.3)	37 (6.4)	
Journal's geographic location				.198
US & Canada	398 (50.2)	99 (45.6)	299 (51.9)	
Europe	360 (45.4)	106 (48.8)	254 (44.1)	
Australia	32 (4.0)	12 (5.5)	20 (3.5)	
Asia	3 (0.4)	0 (0.0)	3 (0.5)	

*Includes: associated editors; deputy editors; senior editors.

**Proportions were tested with chi-2 otherwise Fisher's exact test.

Table 2. Editorial leadership team stratified by gender and race/ethnicity based on available publicly data.

	Editor-in-Chief		Second-in-Command*		P**
	Female <i>n</i> (%)	Male <i>n</i> (%)	Female <i>n</i> (%)	Male <i>n</i> (%)	
<i>N</i>	10	53	207	523	
Editor's race (%)					.419
White	9 (90.0)	37 (69.8)	155 (74.9)	363 (69.4)	
Black	0 (0.0)	2 (3.8)	1 (0.5)	5 (1.0)	
Asia	0 (0.0)	5 (9.4)	34 (16.4)	83 (15.9)	
South Asia	1 (10.0)	4 (7.5)	9 (4.3)	42 (8.0)	
Middle Eastern and North Africa	0 (0.0)	3 (5.7)	3 (1.4)	10 (1.9)	
Hispanic	0 (0.0)	2 (3.8)	5 (2.4)	16 (3.1)	
Unknown	0 (0.0)	0 (0.0)	0 (0.0)	4 (0.8)	
Journal specialty (%)					.007
Oncology	6 (60.0)	21 (39.6)	118 (57.0)	283 (54.1)	
Hematology	2 (20.0)	18 (34.0)	42 (20.3)	132 (25.2)	
Hematology and Oncology, combined	0 (0.0)	2 (3.8)	4 (1.9)	23 (4.4)	
Radiation oncology	2 (20.0)	5 (9.4)	38 (18.4)	55 (10.5)	
Surgical oncology	0 (0.0)	7 (13.2)	5 (2.4)	30 (5.7)	
Journal's geographic location (%)					.428
US & Canada	5 (50.0)	26 (49.1)	94 (45.4)	273 (52.2)	
Europe	5 (50.0)	25 (47.2)	101 (48.8)	229 (43.8)	
Australia	0 (0.0)	1 (1.9)	12 (5.8)	19 (3.6)	
Asia	0 (0.0)	1 (1.9)	0 (0.0)	2 (0.4)	

*Includes: Associated editors; Deputy editors; Senior editors.

**P corresponds to ANOVA.

Table 3. Self-identification of gender and race/ethnicity in editorial board members obtained via a survey.

<i>n</i>	Overall	Female	Male
	66	30	36
Editor's position in journal			
Editor-in-chief	7	3 (10.0)	4 (11.2)
Second-in-command editors*	59	27 (90.0)	32 (88.9)
Editor's race			
White	44	23 (76.7)	21 (58.3)
Black	1	0 (0.0)	1 (2.8)
Asia	9	4 (13.3)	5 (13.9)
South Asia	5	2 (6.7)	3 (8.3)
Middle Eastern and North Africa	2	0 (0.0)	2 (5.6)
Hispanic	3	0 (0.0)	3 (8.3)
Native Hawaiian or other Pacific Islander	1	1 (3.3)	0 (0.0)
Do not identify with any racial category	1	0 (0.0)	1 (2.8)
Journal specialty (%)			
Hematology	11	7 (23.3)	4 (11.1)
Hematology and oncology, combined	3	1 (3.3)	2 (5.6)
Oncology	37	16 (53.3)	21 (58.3)
Radiation oncology	13	6 (20.0)	7 (19.4)
Surgical oncology	2	0 (0.0)	2 (5.6)
Journal's geographic location (%)			
Australia	1	1 (3.3)	0 (0.0)
Europe	23	11 (36.7)	12 (33.3)
US and Canada	42	18 (60.0)	24 (66.7)

Forty-four (66.7%) self-identified as non-Hispanic White, followed by 14 (21.2%) as Asian (including South Asia), and 3 (4.5%) as Hispanic. Only 1/66 (1.5%) editors self-identified as Black or Native Hawaiian/Other Pacific Islander, and 1/66 (1.5%) did not identify themselves with a racial group. Most respondents were between the ages of 40 and 60 (69.7%). Thirty-eight (57.6%) of the editors had ≤ 5 years of editorial experience.

Of the 66 respondents, gender was assigned correctly 100% (66/66) of the time and race/ethnicity was assigned correctly 95.5% (63/66) of the time. A significantly lower proportion of men responded to the survey compared to the gender breakdown of the 793 editorial board members (54.5% vs. 72.6%, respectively; $P = .000279$). The 3 individuals whose race/ethnicity was incorrectly categorized (3/66) self-identified as Native Hawaiian, White, and Middle Eastern. Notably, this data from our study support the methodology of a diverse coding team assigning gender and race/ethnicity based on publicly available data and the NIH's OMB Directive 15 as a framework as an alternative to self-report.

Discussion

We observed a significant lack of representation of women and URM in leadership roles on editorial boards in Hematology, Medical Oncology, Surgical Oncology, and Radiation Oncology journals. Despite the growing number of women and ethnic minority groups in the fields of hematology and oncology, including radiation oncology and surgical oncology, academic leadership positions remain predominantly filled by non-Hispanic White men. To our knowledge, this study is the first to assess the gender and race/ethnicity composition of leadership roles in editorial boards of major hematology and oncology-related journals. Our study design is novel as we provided editors the opportunity to complete a survey of self-identification which demonstrated 100% concordance with assigned gender and 95.5% concordance with assigned race. Our study is consistent with the work of many other researchers that have shown similar gender disparities in fields such as Cardiology, Gastroenterology and Hepatology, and Plastic Surgery to name a few.¹⁵⁻¹⁷ Additionally, our study builds on these data by demonstrating inequity in the representation of women on editorial boards in hematology and oncology subspecialties and adds the additional perspective of race with a self-survey verification. This data was collected in the year after the death of George Floyd and sparked a movement to improve diversity within academia with many journals expressing a commitment to improving the diversity of editorial boards. It appears that many journals did not take swift action.

As evidenced in Table 1, URM and women occupied a minority of leadership roles on editorial boards in high-impact hematology and oncology journals. We further divided the databased on subspecialty. Since 2019, the average proportion of women hematologists/oncologists and radiation oncologists was 34.3% and 27.4%, respectively, per the AAMC. The gender distribution of surgical oncologists is not publicly available. Women hematologists/oncologists represent 26.4% of all editorial board members within their field, suggesting the proportion of editorial board members included in the study period do not represent the proportion of women in the field and they continue to be disparately excluded from editorial leadership positions ($P < .0001$). We found that

women editorial board members in radiation oncology were represented at a higher proportion compared to the proportion of women in the specialty, at 40.0% ($P = .005$). Surgical oncology had the lowest number of female editorial board members at 11.9%, but the information on the proportion of women in the field remains unavailable. Disciplines that are male predominant, such as Surgical Oncology, tend to show unusually slow improvements in the gender ratio over time.¹⁸ These disciplines require a more directed and intentional approach if parity is to be reached. Fostering more women in surgical oncology may benefit representation by women at many levels of academia and improve productivity, collaboration, and recruitment. "Our results are consistent with a recent study that evaluated the gender breakdown of editorial boards of top oncology journals with the highest impact factor, which revealed only 24% were women. Among 71 editors-in-chief of the top oncology journals, 14 (20%) were women, a percentage similar to our study (16%)."

Several studies have demonstrated that women are underrepresented in editorial boards of biomedical journals across different specialties.^{1,15,19-23} For instance, women accounted for only 4% of editors-in-chief positions in the 100 most influential journals in clinical medicine before 1994.¹⁵ A recent study on gendered publication trends in oncology suggests that women comprised a smaller percentage of first (26.5%) and senior (19.9%) authors.²⁴

We also analyzed race by editorial board position and found that it was significantly different among men and women, with women filling roughly one-seventh of the editor-in-chief positions. Women were about half as likely to be in the editor-in-chief position compared with men. In regard to race, a majority of editorial leadership was non-Hispanic White with next largest majority, Asian/South Asian. Of the women in editorial leadership, 9 of them were non-Hispanic White and 1 was Asian. The representation of underrepresented minority women physicians in editor-in-chief positions is at an inexorable zero, which is a sign of unconscious attitudes that may exclude minority women from certain positions. It is imperative that a diverse and inclusive board includes equity beyond gender. Historically, efforts for gender equity have focused on disparities experienced by White, middle-class women. Women of color experience discrimination based on their multiple identities,²⁵ which is evidenced in our data with the inexorable zero of underrepresented minority women in editor-in-chief positions. We must work toward a more diverse and inclusive editorial board to ensure critical perspectives are heard and scientific discovery is fostered.

Regarding geography location, journals were predominately based on the US and Canada, followed by Europe. Given that the highest impact journals are from Western countries likely affects the diversity of our results and diversity of thought in disseminated research. These data highlight the need for international collaboration in editorial positions regardless of geographic location of the journal. Additionally, editorial board diversity should be evaluated in lower-middle-income countries as the disparities may be worse based on prior studies.²⁶

Importantly, external factors may also influence the gender composition of editorial boards. Recent data in hematology and oncology demonstrated that men had a higher H-index than women, which typically acts as a marker to describe the quantity and quality of research output, which may in turn influence selection to these positions.⁴ Although H-index is

an objective measure of this, it does not take into account the reality that literature shows that women are disadvantaged when applying for research funding and obtaining high-impact publications.^{4,27,28} As demonstrated here, it can be difficult to translate merit of an academic leadership position on objective measures such as number of publications or H-index alone. Objective research metrics do not reflect academic service, including serving on committees, teaching, mentoring, or serving on boards of professional organizations. These activities add value to a candidate's leadership but take away from time and opportunity to conduct additional research. Furthermore, there have been observational studies that have not only demonstrated a confidence gap between women and men in medicine but also how confidence can be seen as a negative trait in women.²¹ Perception of confidence can directly affect academic promotion²⁹ and academic activities, including editorial board membership. All these external factors contribute to the growing trend seen in academic medicine with the increasing proportion of women in the workforce, but continued barriers to career advancement and leadership opportunities.

Efforts to diversify editorial boards are underway in many medical subspecialties and these efforts have been supported by national associations. The American Heart Association has created an optional self-reported survey within their manuscript tracking systems in which they measure the composition of editorial boards, invited authors, and invited reviewers for gender, racial, and ethnic diversity and made this information publicly available. Since the implementation, they have seen slight increases in individuals from underrepresented groups. This is a critical undertaking that should be standardized across academic medical journals to have concrete endpoints for the initiatives moving forward. Given that diversification of the oncology workforce has improved over time, it is critical that editors-in-chief intentionally approach early career researchers from groups not well-represented on their boards to fill vacant spots. Additionally, training for editorial staff to include modules on inclusion, diversity, and unconscious bias has also been thought to be an effective strategy. Some editorial boards have fixed terms to continue bringing varied perspectives every few years. Furthermore, it is important for journals to ensure that a comprehensive review of candidates is undertaken so that a candidate's full skills can be assessed. Objective metrics for assessing editorial board candidacy should include measures of academic service in conjunction with research metrics.

Incorporating gender and race into research on disparities has its challenges, as these variables are difficult to define. While asking individuals to self-identify their race and gender remains the gold standard of reporting, low response rates and response bias have been shown to affect results. In addition to determining gender and race/ethnicity based on publicly available data, we added to our study by asking editors to self-report their gender and race in hopes to validate our methodology given the importance of considering gender and race in academia. Notably, these data from our study support the methodology of a coding team assigning gender and race as an alternative to self-report.

Our study also shows the low response rates and significant discrepancies in the demographic of respondents seen in survey-based identification and supports the use of assigning gender and race to participants of a study. Results demonstrated that a majority of respondents were identified

correctly (63/66), and a significantly lower proportion of men responded to the survey compared to the gender breakdown of the editorial board members.

Our data demonstrate significant disparities in the proportion of minority editorial board members in all oncology subspecialties. Lack of representation of URM in leadership roles despite similar qualifying factors has been demonstrated in a variety of specialties.³⁰⁻³³ This disparity is likely multifactorial, although some part of this disparity is compounded by a low representation in the medical workforce at large. Leadership roles contribute to visibility and opportunities, which, in turn, can help with career advancement and recognition. In addition, minority faculty are often given additional responsibilities in the workplace that often detract from time spent on scholarly productivity, which is commonly used as a benchmark for editorial board leadership.

Our study has several limitations, including its retrospective design. Our study represents a cross-sectional view of the current state of diversity of the editorial boards and cannot be used to determine the efficacy of any changing patterns over time. In our study, gender assignment was binary, which could have led to the misclassification of editorial board members from gender minorities. Similarly, our methodology for race assignment had limitations as awardees were assigned at the discretion of the coder, and multi-racial classifications were not included. Self-identification is recognized as the most reliable method and preferred method for compiling information about a person's gender, race, and ethnicity, however, investigator observation is an acceptable method for identifying demographic data. A recent study outlining race/ethnicity reporting in medical journals recognizes the various ways in which race/ethnicity can be identified including self-report, investigator observation, database, electronic health record, or survey instrument. Furthermore, biomedical studies that analyze race and ethnicity depend on self-reporting of those factors and have been shown to contain inaccuracies as well. We ensured our coders were from diverse backgrounds to mitigate potential bias and self-survey was sent out in hopes to mitigate this limitation, although we acknowledge that all of our coders were of one gender which may contribute to bias. As incorporating race into research has its challenges, coders were instructed to use the NIH's OMB Directive 15 as a framework. Of the multiple studies which have evaluated diversity in editorial boards, this study is the first to characterize the racial/ethnic disparities. It is essential to characterize racial disparities in conjunction with gender disparities as it exposes critical deficiencies within our system (ie, inexorable zero representation of minority women physicians in Editor-in-Chief positions).

As the field is moving toward making a commitment to diversifying the workforce, editorial board leadership must be responsible for ensuring diversity within their editorial boards. Editorial boards should be assessed on an ongoing basis to see if the efforts to improve diversity are working. The simplest approach to reviewing this data would be through self-identification through the editorial manager websites so data can be automatically extracted for internal review.

As URM and women occupy a minority of leadership roles on editorial boards in high-impact hematology and oncology journals, there need to be efforts to improve the current state of diversity in editorial boards. Moving forward, intentional efforts need to be made to bring in editorial board members with a variety of academic strengths and ensure criteria that do not disproportionately favor one gender or race over others.

Further studies should aim to determine the gender and racial bias behind selection criteria for editorial board members. Efforts should be made to encompass different types of academic strengths and ensure criteria that do not disproportionately favor one gender or race over others. To further research in this area to reach parity, journals should make a concerted effort to evaluate their policies internally and act accordingly to increase the diversity of their leadership. It is imperative that we work to move toward a more diverse and inclusive editorial board to ensure critical perspectives are heard and scientific discovery is fostered.

Funding

The author indicated no financial relationships.

Conflict of Interest

Narjust Florez reported consulting/advisory relationships with Merck, AstraZeneca, Pfizer, DSI, BMS, Novartis, Neogenomics, and Janssen. The other authors indicated no financial relationships.

Author Contributions

Conception/design: S.R.P., I.R., N.F. Provision of study material or patients: S.R.P., I.R., I.A., A.A., G.G., J.P., A.R.R., N.Dhawan, N.Dizman, A.L.S., N.F. Collection and/or assembly of data: S.R.P., I.R., I.A., A.A., G.G., J.P., A.R.R., N.Dhawan, N.Dizman, A.L.S., N.F. Data analysis and interpretation: S.R.P., I.R., H.P.-M., N.F. Manuscript writing: S.R.P., I.R., I.A., A.A., N.F. Final approval of manuscript: all authors.

Data Availability

The data underlying this article will be shared on reasonable request to the corresponding author.

Editorial Boards in Hematology & Oncology Specialties

Appendix A: Editorial Boards in Hematology & Oncology Specialties

Thank you for agreeing to participate in our study! Please answer the 3 questions below and submit your responses. Your responses to this survey will be kept confidential and anonymous.

Gender:

- Female
- Male
- Non-binary
- Transgender
- Gender non-conforming
- Other:

Which category describes you best? (Check all that apply.)

- American Indian or Alaska Native (ex. Navajo Nation, Blackfeet Tribe, Mayan, Aztec, Nome Eskimo Community, etc.)
- Black or African American (ex. Jamaican, Haitian, Nigerian, Ethiopian, Somalian, etc.)

- Asian (ex. Korean, Chinese, Filipino, Vietnamese, Japanese, Cambodian, Thai etc.)
- South Asian (ex. Indian, Pakistani, Nepali, etc.)
- White (ex. German, Irish, English, Italian, Polish, French)
- Hispanic, Latino, or Spanish origin (ex. Mexican, Puerto Rican, Cuban, Salvadoran, Dominican, Colombian, etc.)
- Native Hawaiian or Other Pacific Islander (ex. Native Hawaiian, Samoan, Chamorro, Tongan, Fijian, etc.)
- Middle Eastern or North African (ex. Lebanese, Iranian, Egyptian, Syrian, Moroccan, Algerian, etc.)
- Unknown
- Other:

Current age

- 21-30
- 31-40
- 41-50
- 51-60
- 61-70
- 71-80
- >80

What year were you appointed to your current editorial position?

- _____

What is your email address?

- _____

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