

Gender distribution in emergency medicine journals: editorial board memberships in top-ranked academic journals

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Objective Despite an established gender gap in academic medicine, evidence on gender diversity in emergency medicine is scarce. In the present study, gender distribution of editorial boards and among editors-in-chief of 31 emergency medicine journals was investigated in 2020/2021 and compared to 2015 and 2010. Additionally, gender distribution in editorial boards of emergency medicine journals was compared to editorial boards in five different medical specialties.

Methods In this cross-sectional analysis, gender of editorial board members and editors-in-chief of journals ranked in the Clarivate Analytics 'Journal Citation Report' (JCR) of 2019 in the sections 'Emergency Medicine', 'Medicine General and Internal', 'Surgery', 'Obstetrics and Gynecology', 'Pediatrics' and 'Orthopedics' were analyzed.

Results In the investigated 31 emergency medicine journals, three out of 35 editors-in-chief (9%) and 299 out of 1810 editorial board members (17%) were women in 2020/2021. In 2015 and 2010, two editors-in-chief were women (13% vs. 15%). In 2015, 19% of editorial board members were women and in 2010 it was 18%, respectively. There was no significant difference in gender distribution among editors-in-chief and editorial board members comparing 2020/2021 with 2015 and 2010

($P = 0.76$ vs. $P = 0.40$, respectively). There was a lower percentage of women in editorial boards of emergency medicine journals compared to the top five JCR-ranked journals in the categories 'Medicine General and Internal', 'Surgery', 'Gynecology and Obstetrics' and 'Pediatrics'.

Conclusion The gender gap in editorial boards and among editors-in-chief of emergency medicine journals seems to be consistent for the last 10 years. Gender disparity appears to be substantial in academic emergency medicine: The percentage of women in emergency medicine editorial boards was lower compared to editorial boards of four other medical specialties. *European Journal of Emergency Medicine* 2021: 380–385 Copyright © 2021 Wolters Kluwer Health, Inc. All rights reserved.

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Keywords: disparities, editorial board, emergency medicine, gender

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Introduction

Gender medicine has become a growing field of interest over the last few years since women have been historically underrepresented in leading positions throughout medical specialties. In academic emergency medicine, gender disparity appears too, with fewer women holding positions of associate or full professors [1]. Similar differences have been investigated regarding publication rates: In an analysis of three high-impact medical journals, significantly fewer women were found to be first authors [2].

Gender disparity among editorial boards members has been demonstrated by various studies [3–6]. Already in 1998 it was shown by example of epidemiology journals that women were underrepresented in editorial boards compared to the proportion of women reviewers and authors of the respective journals [3]. In 2001, only five out of 12 investigated major medical scientific journals had parity between the respective percentage of women in editorial boards and among working physicians in the correlating medical specialty [4].

Regarding emergency medicine in particular, data on gender disparities are limited but show similar results. In 2019, only 12.7% of all emergency physicians in Korea were women, receiving lower salaries than men regardless of rank, clinical hours or training [7]. Among emergency medicine residency programs, the number of women in chair positions was disproportionately low in comparison to the number of women in practice or training [8]. An investigation of 10 emergency medicine journals resulted in only 13.2% of members being women [9]. In 2019, Kaji *et al.* found that only a total of 24% of editorial board members of 'Annals of Emergency Medicine' were women while only one woman was among the 10 highest-ranked editorial board positions of the journal [10]. Only recently, a notable sex disparity was found in emergency medicine journals with 8.7% of editors-in-chief and 16.3% of editorial board members being women in 2019 [11].

The present study focused on the development of gender distribution in emergency medicine editorial boards

over time and furthermore compared gender distribution in emergency medicine with editorial boards of five other medical specialties.

Terminology

We are well aware that the term ‘gender’ refers to the social identity of an individual and not its biological ‘sex’ assigned at birth. Furthermore, naturally both terms include more than two entities. However, in academic literature on gender medicine, ‘gender’ is an established term when comparing women and men. For reasons of simplicity, we will use the term ‘gender’ throughout this article in acknowledgement of the above-mentioned information and definitions.

Methods

Study design and setting

In this cross-sectional analysis, editorial board members and editors-in-chief of journals in the categories ‘Emergency Medicine’, ‘Medicine, General and Internal’, ‘Surgery’, ‘Obstetrics and Gynecology’, ‘Pediatrics’ and ‘Orthopedics’ of the Clarivate Analytics ‘Journal Citation Report’ (JCR) of 2019 were assessed. In ‘Emergency Medicine’, a total of 31 journals were listed and editorial boards and editors-in-chief were analyzed in 2020/2021, 2015 and 2010. For detailed information on the included emergency medicine journals see Table 1. In all remaining selected categories, the editorial boards and editors-in-chief of the five top-ranked journals from the JCR 2019 were analyzed. Review-only journals were excluded. Information on investigated journals is given in Table 2.

Data analysis

First and last names of editorial board members including editors-in-chief of all categories were obtained online as published on the journal websites. In the category ‘Emergency Medicine’, data on editorial board members of 2015 and 2010 were either obtained online when journals published in the respective year were available or from the journal archives by contacting the editorial staff.

The gender of each editor was assessed by examination of the first name. In ambiguous cases where gender could not be determined by first name or picture, an internet search was performed to identify the corresponding individual. Individuals whose gender could not be determined with the above-mentioned methods were classified as ‘unknown’. To achieve a high level of accuracy in gender determination, this process was performed by two study authors blinded from the other author’s results (S.R. and A.R.). Editores emeriti, past and founding editors, statistical and editorial consultants, statistical advisors, editorial staff or office, board of trustees, associate administrators and correspondents were excluded from the analysis.

Statistical analysis

After completion of data collection, data were exported to a statistical software package (SPSS for Windows, version 23; SPSS Inc; Chicago, IL) for analysis. Continuous data are presented as median and interquartile ranges or as mean and SD. Distribution of continuous variables was assessed using normal plots and logarithm transformation was performed when appropriate. Categorical variables are presented as numbers and were compared using the χ^2 test or Fisher’s exact test.

Ethical considerations

All extracted data were publicly available either as print or online version and therefore no institutional review board approval was required. Since no patients participated in this study and no individual patient data were analyzed, the need for approval by the ethics committee was waived. There was no patient or public involvement in the design, conduct, reporting or dissemination of this research. There was no funding for this study.

Results

In the JCR report of 2019, a total of 31 journals were listed in the category of ‘Emergency Medicine’. In 2020/2021, 35 individuals were listed as editors-in-chief for the analyzed journals. In two journals, namely ‘Emergency Medicine International’ and ‘Turkish Journal of Trauma and Emergency Surgery’ no editor-in-chief was listed, while four journals had more than one listed editor-in-chief: two journals with two editors-in-chief and two journals with three, respectively. Thirty-two of all editors-in-chief were men (91%) while three were women (9%).

In 2020/2021, a total of 1810 editorial board members were listed and analyzed. Of these, 299 were women (17%) and 1463 were men (81%). Of 48 individuals (2%), gender was not determinable by the above-stated methods. Table 1 gives an overview of gender distribution among all analyzed emergency medicine journals.

Subgroup analysis resulted in a higher percentage of women editors-in-chief in the top 10 JCR-ranked emergency medicine journals, namely two out of 11 (18%) compared to all 31 journals. On the contrary, subgroup analysis of editorial board members showed the identical gender ratio, namely 84 out of 498 women (17%).

Comparison of editorial boards over time

Data on editorial board members and editors-in-chief were available for 13 journals in 2015 and for 10 journals in 2010, respectively. In 2015 and 2010, two editors-in-chief were women (13% vs. 15%, respectively). No significant difference in gender distribution among editors-in-chief was detectable comparing 2020/2021 with 2015 and 2010 ($P = 0.76$).

In 2015, 673 editorial board members were listed, whereof 126 were women (19%) and 528 were men

Table 1 Gender distributions in editorial boards and editors-in-chief of emergency medicine journals

Journal	Access date	Editor-in-chief						Editorial board members								
		2020/21		2015		2010		2020/21		2015		2010				
		W	M	W	M	W	M	W	M	U	W	M	U			
Annals of EM	12.11.20	0	1	0	1	0	1	14 (21%)	52 (79%)	0 (0%)	19 (29%)	46 (71%)	0 (0%)	14 (25%)	42 (75%)	0 (0%)
Resuscitation	12.11.20	0	1	0	1	ND	ND	13 (16%)	66 (84%)	0 (0%)	16 (21%)	58 (76%)	2 (3%)	ND	ND	0 (0%)
World Journal of Emergency Surgery	12.11.20	0	2	ND	ND	ND	ND	2 (4%)	52 (96%)	0 (0%)	ND	ND	0 (0%)	ND	ND	0 (0%)
Emergencias	12.11.20	0	1	ND	ND	ND	ND	0 (0%)	8 (100%)	0 (0%)	ND	ND	0 (0%)	ND	ND	0 (0%)
Burns & Trauma	12.11.20	0	1	ND	ND	ND	ND	6 (9%)	48 (75%)	10 (16%)	ND	ND	0 (0%)	ND	ND	0 (0%)
Academic EM	06.01.21	0	1	0	1	ND	ND	16 (30%)	38 (70%)	0 (0%)	15 (22%)	52 (78%)	0 (0%)	ND	ND	5 (14%)
EM Journal	06.01.21	1	0	1	0	0	2	10 (20%)	41 (80%)	0 (0%)	5 (11%)	35 (78%)	5 (11%)	2 (6%)	27 (80%)	5 (14%)
Scandinavian Journal of Trauma, Resuscitation and EM	06.01.21	1	0	ND	ND	ND	ND	5 (19%)	22 (81%)	0 (0%)	ND	ND	0 (0%)	ND	ND	0 (0%)
Prehospital Emergency Care	16.11.20	0	1	ND	ND	ND	ND	13 (17%)	63 (83%)	0 (0%)	ND	ND	0 (0%)	ND	ND	0 (0%)
European Journal of EM	06.01.21	0	1	ND	ND	ND	ND	5 (26%)	14 (74%)	0 (0%)	ND	ND	0 (0%)	ND	ND	0 (0%)
European Journal of Trauma and Emergency Surgery	15.01.21	0	1	0	1	ND	ND	3 (3%)	84 (97%)	0 (0%)	5 (6%)	80 (90%)	4 (4%)	ND	ND	0 (0%)
Injury – International Journal of the Care of the Injured	15.01.21	0	1	0	1	0	1	7 (6%)	94 (86%)	8 (8%)	5 (5%)	82 (87%)	7 (7%)	4 (6%)	58 (83%)	8 (11%)
American Journal of EM	15.01.21	0	1	0	1	0	1	0 (0%)	107 (78%)	0 (0%)	0 (0%)	10 (100%)	0 (0%)	0 (0%)	11 (100%)	0 (0%)
Western Journal of EM	15.01.21	0	1	ND	ND	ND	ND	30 (22%)	107 (78%)	0 (0%)	ND	ND	0 (0%)	ND	ND	0 (0%)
World Journal of EM	15.01.21	0	1	ND	ND	ND	ND	12 (17%)	45 (63%)	14 (20%)	ND	ND	0 (0%)	ND	ND	0 (0%)
Canadian Journal of EM	24.11.20	0	1	0	1	0	1	11 (30%)	26 (70%)	0 (0%)	7 (18%)	32 (82%)	0 (0%)	4 (12%)	30 (88%)	0 (0%)
EM Australasia	24.11.20	0	1	ND	ND	ND	ND	15 (31%)	31 (65%)	2 (4%)	ND	ND	0 (0%)	ND	ND	0 (0%)
EM Clinics of North America	24.11.20	0	1	0	1	0	1	1 (17%)	5 (83%)	0 (0%)	3 (38%)	5 (62%)	0 (0%)	2 (50%)	2 (50%)	0 (0%)
BMC EM	24.11.20	0	1	ND	ND	ND	ND	10 (26%)	29 (74%)	0 (0%)	ND	ND	0 (0%)	ND	ND	0 (0%)
Journal of Emergency Nursing	30.01.21	1	0	1	0	1	0	30 (65%)	15 (33%)	1 (2%)	30 (94%)	2 (6%)	0 (0%)	29 (78%)	7 (19%)	1 (3%)
Prehospital and Disaster Medicine	16.11.20	0	1	0	1	0	1	9 (20%)	37 (80%)	0 (0%)	7 (16%)	36 (82%)	1 (2%)	4 (9%)	38 (88%)	1 (2%)
Journal of EM	30.01.21	0	1	0	1	0	1	11 (15%)	63 (85%)	0 (0%)	13 (14%)	82 (86%)	0 (0%)	7 (8%)	80 (92%)	0 (0%)
Pediatric Emergency Care	26.11.20	0	2	ND	ND	ND	ND	10 (23%)	33 (77%)	0 (0%)	ND	ND	0 (0%)	ND	ND	0 (0%)
EM International	26.11.20	ND	ND	ND	ND	ND	ND	3 (20%)	9 (60%)	3 (20%)	ND	ND	0 (0%)	ND	ND	0 (0%)
Unfallchirurg	26.11.20	0	3	ND	ND	ND	ND	0 (0%)	13 (100%)	0 (0%)	ND	ND	0 (0%)	ND	ND	0 (0%)
Turkish Journal of Trauma & Emergency Surgery	26.11.20	ND	ND	ND	ND	ND	ND	40 (11%)	313 (88%)	3 (1%)	ND	ND	0 (0%)	ND	ND	0 (0%)
Australasian Emergency Care	30.01.21	0	1	ND	ND	ND	ND	13 (62%)	8 (38%)	0 (0%)	ND	ND	0 (0%)	ND	ND	0 (0%)
Notfall & Rettungsmedizin	03.12.20	0	3	ND	ND	ND	ND	0 (0%)	39 (100%)	0 (0%)	ND	ND	0 (0%)	ND	ND	0 (0%)
Notarzt	30.01.21	0	1	0	3	1	2	3 (17%)	15 (83%)	0 (0%)	ND	ND	0 (0%)	ND	ND	0 (0%)
Signa Vitae	31.01.21	0	1	ND	ND	ND	ND	5 (8%)	55 (92%)	0 (0%)	ND	ND	0 (0%)	ND	ND	0 (0%)
Hong Kong Journal of EM	30.01.21	0	1	ND	ND	ND	ND	2 (5%)	28 (76%)	7 (19%)	ND	ND	0 (0%)	ND	ND	0 (0%)

Date, date of access; EM, emergency medicine; M, men; ND, no data; W, women.

(78%). Of 19 individuals (3%), gender was not determinable by the above-mentioned methods. In 2010, 382 editorial board members were listed with 67 being women (18%), 300 being men (79%) and 15 with not determinable gender (3%). There was no significant difference in gender distribution among editorial board members comparing all 3 years ($P = 0.40$). Figure 1 depicts the development of gender distribution among

editorial boards of emergency medicine journals in the last decade.

Comparison of editorial boards in emergency medicine journals with other categories

In the category of ‘Medicine General and Internal’, two of the five editors-in-chief were women (40%). The editorial boards counted 283 individuals whereof 147 were women (52%). In ‘Surgery’, one editor-in-chief was a woman (20%). A total of 398 editorial board members were analyzed and thereof 95 were women (24%). In ‘Gynecology and Obstetrics’, seven editors-in-chief were listed whereof one was a woman (14%). The editorial boards included 340 listed individuals, whereof 145 were women (43%) and 192 were men (56%). Among the top five JCR-ranked journals in ‘Pediatrics’, one editor-in-chief was a woman (20%) and 69 out of 150 listed editorial board members were women (46%) while 81 were men (54%). In ‘Orthopedics’, all five editors-in-chief were men (100%). Of all 478 editorial board members, 87 were women (18%) and 384 were men (80%).

Comparing gender diversity among editors-in-chief in ‘Emergency Medicine’ with all other selected academic medical categories showed no significant difference ($P = 0.41$). On the contrary, there was a lower percentage of women in comparison to men when comparing editorial boards of journals in ‘Emergency Medicine’ with ‘Medicine General and Internal’, ‘Surgery’, ‘Gynecology and Obstetrics’ and ‘Pediatrics’. Only the category of ‘Orthopedics’ showed a similar gender ratio compared to ‘Emergency Medicine’.

Discussion

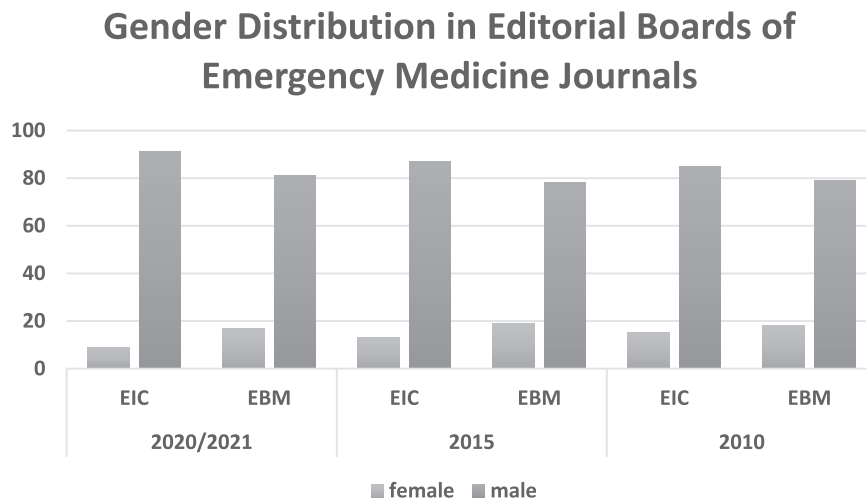
The present investigation of emergency medicine journals shows that women are underrepresented in editorial

Table 2 Top five JCR-ranked journals of respective categories

Category	Journal
Medicine general and internal	New England Journal of Medicine
	Lancet
	Journal of the American Medical Association
	British Medical Journal
	Annals of Internal Medicine
Surgery	JAMA Surgery
	Annals of Surgery
	Journal of Neurology, Neurosurgery and Psychiatry
	Endoscopy
	American Journal of Transplantation
Obstetrics and gynecology	American Journal of Obstetrics and Gynecology
	Fertility and Sterility
	Human Reproduction
	Ultrasound in Obstetrics & Gynecology
	Obstetrics and Gynecology
Pediatrics	JAMA Pediatrics
	The Lancet – Child & Adolescent Health
	Journal of the American Academy of Child and Adolescent Psychiatry
	Archives of Disease in Childhood - Fetal & Neonatal Edition
	Pediatrics
Orthopedics	American Journal of Sports Medicine
	Journal of Physiotherapy
	Osteoarthritis and Cartilage
	Journal of Joint and Bone Surgery
	Clinical Orthopedics and related research

JCR, journal citation report.

Fig. 1



Gender distributions in editorial boards and editors-in-chief of emergency medicine journals. EBM, editorial board members; EIC, editor-in-chief.

boards as well as among editors-in-chief. These findings are consistent with the results of a recently published study on 37 emergency journals, using the 'Scimago Journal & Country Rank' rather than the JCR for journal selection, identifying 8.7% of editors-in-chief and 16.3% of editorial boards being women [11]. Our study additionally analyzed the development of gender distribution in emergency medicine editorial boards over the years, comparing 2020/2021 with 2015 and 2010. As expected, women were also underrepresented among editorial board members and editors-in-chief in the previous years. Interestingly, there was no tendency toward a smaller gender gap in the composition of editorial boards over the compared years. Since for 2015 and 2010 data were available for 13 and 10 journals, respectively, and in both years two of all investigated editors-in-chief were women, a selection bias must be discussed, indicating that the real percentage of women editors-in-chief was even smaller than implied by our research. This constantly low representation of women was already described in academic medicine before. In a cross-sectional analysis of 2011 investigating editorial board memberships of 60 major medical journals in 12 categories of the JCR, only 15.9% of the editors-in-chief were women. In addition, it was reported that in five major categories (critical care, anesthesiology, orthopedics, ophthalmology and radiology, nuclear medicine and medical imaging) not one single editor-in-chief position was held by a woman [5]. In a major anesthesiologic journal, gender disparity among editorial board members and first and last authors persisted, even though the proportion of women working in the editorial board had risen continuously over 30 years [6]. From 2001 to 2009, only 26% of all first authors of the 'Wiener Klinische Wochenschrift' were women [12]. While no difference in acceptance rates of articles submitted by women was found, they had a higher likelihood of rapid rejection compared to articles submitted by men [12]. Only recently, the rate of women authors in two major emergency medicine journals was found to be low [13] and a relevant gender disparity was found for emergency medicine societies worldwide with notable regional differences [14].

Emergency medicine appears to be more susceptible to gender disparities due to several characteristics of the specialty [15]. In 2018, only 28% of academic emergency physicians in the United States were women and they were similarly underrepresented among first and last authors in three prominent American emergency medicine journals [16]. Stagnation was described for salary and salary increase in women compared to men in emergency medicine [17]. From 2014 to 2018, women made up 28% of all national awardees in emergency medicine in the United States [18]. In a 3-year-analysis of gender disparity among speakers at a major academic emergency medicine conference, men outnumbered women every time [19]. These findings altogether suggest that even though

gender disparity has become an acknowledged problem in academic medicine, there is still little to no notable change in favor for women throughout the last years. On the other hand, a notable upward trend for women was seen in the editorial board of the 'European Journal of Emergency Medicine'.

Gender gaps in academic medicine seem to vary among different medical specialties [3–5,12]. In the present study, gender distribution in editorial boards and among editors-in-chief of emergency medicine journals was compared to other academic medical specialties. According to this analysis, the gender gap in academic emergency medicine seems to be substantial: there was a lower percentage of women in editorial boards of emergency medicine journals compared to journals in 'Medicine General and Internal', 'Surgery', 'Gynecology and Obstetrics' and 'Pediatrics'. In 'Orthopedics', women were similarly underrepresented.

In view of the above-stated findings, interventions are required in order to increase gender diversity in academic emergency medicine, especially in editorial boards and among leading positions such as editors-in-chief. Only few studies investigating specific interventions to improve gender equity in academic medicine exist so far. However, some of them reported promising results [20–22].

Limitations

Selection of analyzed journals was based on the JCR of 2019 and therefore, newer journals or changes in prominence among different medical categories might have changed. Concerning classification of editorial board members into the respective gender categories, we are well aware that gender is no binary term but for reasons of statistical analysis the classification 'woman', 'man' and 'unknown' were chosen. To identify gender-identity, we used secondary determinants such as intense internet research to identify individuals and photos or faculty profiles on institutional websites if available. Two authors performed classification independently and all ambiguous cases were classified as unknown. However, there is a remaining likelihood of incorrect gender attribution by the chosen methods but asking individual editorial board members to identify their gender would not have been feasible in this setting. Since the analyses of the present study are based on data published online, gender distribution may be incorrect if published data on editorial boards was outdated. A rapid change in editorial board composition was noted when conducting this study and in several journals gender distribution even changed within months.

Conclusion

The gender gap in editorial boards and among editors-in-chief of emergency medicine journals seems to be consistent for the last 10 years. Gender disparity appears to be substantial in academic emergency medicine:

The percentage of women in emergency medicine editorial boards was lower compared to four other medical specialties.

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Conflicts of interest

None in relation to the present work. G.L. reports personal fees from Bayer, personal fees from Daiichi-Sankyo, personal fees and nonfinancial support from Otsuka, non-financial support from GSK, nonfinancial support from Pierre Fabre. For the remaining authors, there are no conflicts of interest.

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