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Gender disparities in award recipients from surgical specialty societies

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ABSTRACT

Introduction: Women are underrepresented as recognition award recipients across several medical specialties. This phenomenon has not been investigated in surgery. This study investigates the prevalence of female award recipients among the major American surgical societies.

Methods: Publicly available lists of surgical society award recipients from 1998 to 2017 were analyzed. Awards intended primarily for physicians presented a minimum of five times were included. The primary outcome was the percentage of award recipients who were female. Trainee-specific and nontrainee-specific percentages of female award winners were compared with national percentages of female surgeons. Analysis was performed for awards based on the type of award (achievement, research, and service). Society-specific analyses were performed.

Results: Of the 1,222 awards presented by 20 societies studied, 420 (25.6%) were awarded to women. A total of 37.7% of trainee-specific awards and 20.6% of nontrainee-specific awards were presented to women. Women received 12.9% of achievement, 29.9% of research, and 24.0% of service awards. Society-specific rates of female award recipients ranged from 5.3% to 50.0%.

Conclusion: Overall, female trainees are proportionately represented as winners of awards from surgical societies, but nontrainees receive a disproportionately higher percentage of awards as compared with the national rates of female surgeons. However, there is significant variation among societies. Further research is warranted to elucidate why this variation exists and what can be done to remedy it.

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Introduction

Medical societies and academic physicians have a critical, symbiotic relationship. Societies provide resources, education, and career development opportunities for their members via journal publications, scientific presentations, and networking, as well as leadership opportunities. Society members, who are most often academic physicians; pay membership dues; advance the society by volunteering for leadership positions, committees, or task forces; and work to reap the benefits of membership. Because benefits, such as leadership opportunities and research funding, are not uniformly available to all

members, medical societies can be considered “gatekeepers” to academic success.¹ Gender disparities in the receipt of these benefits from medical societies, such as the underrepresentation of women as society presidents across a number of medical specialty societies, can contribute to gender disparities in the larger world of academia.²

Awards presented by medical societies are an indication of achievement and recognition in one's field. Some awards acknowledge previous accomplishments, and others recognize promise through financial support of future research. Accordingly, these awards enhance an individual's career and reputation.³ Compounding this effect is the important role awards play in consideration for academic promotion, an area in which female physicians are disadvantaged.^{4–6} A growing body of work demonstrates a consistent inequality in the gender distribution of medical society awards. The presence or absence of a gender disparity in the awards presented by surgical societies has not been investigated.

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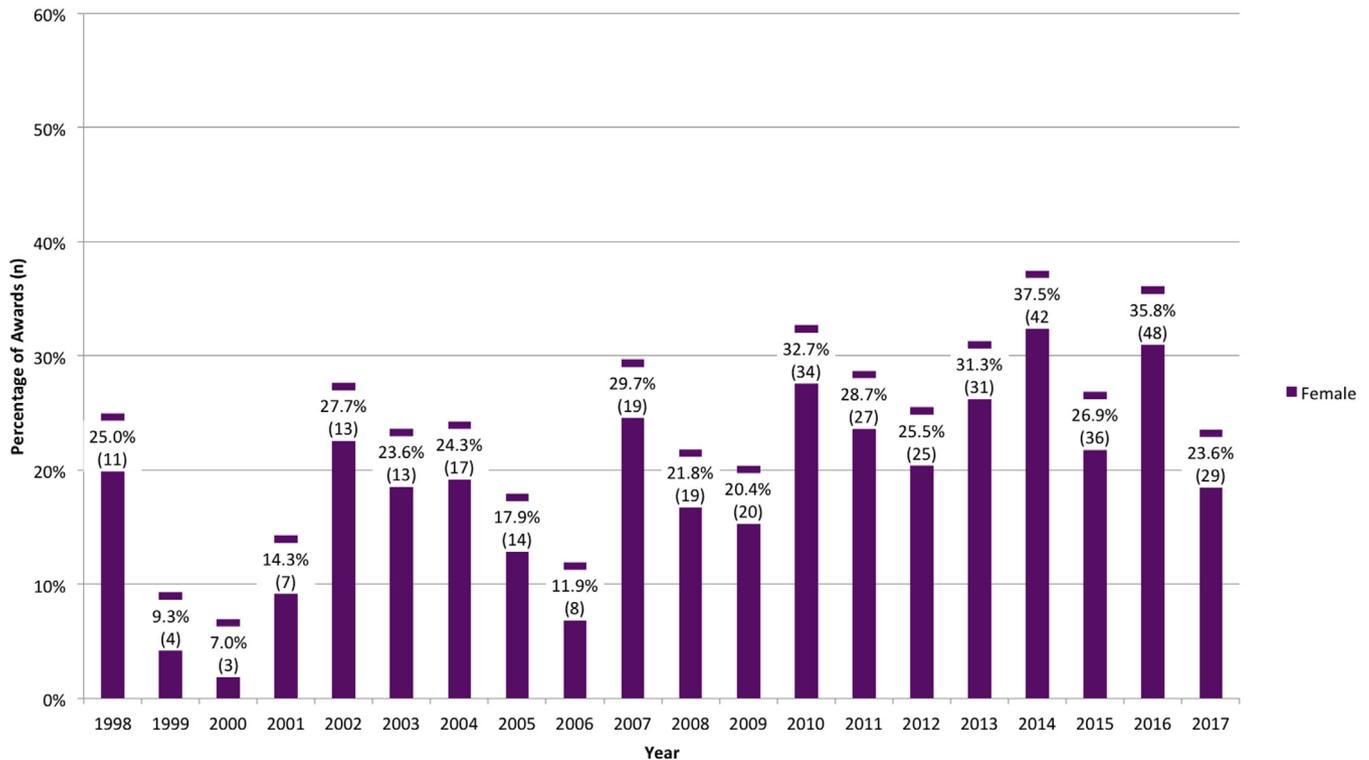


Fig 1. Percent of award winners who are female, 1998 to 2017.

This study is an examination of the gender of society award recipients across major American general surgical and subspecialty societies during the past 20 years.

Methods

Publicly available information on award winners from 22 surgical societies for the years 1998 to 2017 was collected. These data were obtained from surgical society or associated foundation websites between August 3, 2018, and October 31, 2018. Awards disbursed fewer than 5 times were excluded, as were awards presented primarily to nonphysicians.

For each award included, the award description (if available) and recipient name and gender for each year was noted. Award recipient gender was determined via internet query for a photo or gender-specific pronoun attached to each name.^{1,7} Any award recipient whose gender could not be determined was excluded and no award recipient was recorded. Data collection, gender determination, and award categorization for each society was performed by one investigator and independently verified by a second. Discordant categorizations were reviewed by a third investigator, if needed.

Awards intended specifically for trainees (residents or fellows) were categorized as such. Awards not intended specifically for trainees were considered nontrainee awards. Based on the award description, awards were categorized as “achievement,” recognizing an individual’s overall contribution to their field, “public service,” recognizing humanitarianism or volunteer efforts, or “research,” recognizing either scientific advancement (including the best abstract or publication of the year) or providing grants or funding for future research. If multiple authors were listed in association with a presentation or publication, the first author was considered to be the recipient.

The primary outcome measure was the percentage of award recipients who were female. This was calculated for all awards for the entire study period and then analyzed by decade (1998–2007 and 2008–2017). An independent two-sample *t* test compared the percentage of award winners who were female in the two study decades. The percentage of award winners who were female was calculated for categories of awards and for trainee-specific versus nontrainee-specific awards. The percentage of trainee award winners who were female was compared with published data on the national percentage of female surgical trainees at the midpoint of the study. This analysis was repeated for nontrainee awards as compared with the national percentage of female general surgeons.⁸ Decade comparison analysis was also performed for trainees and nontrainees.

Percentages of award winners who were female were also calculated for each society for the overall study period and by decade. Society-specific percentages for trainees and nontrainees were also calculated. If a society provided an award specifically intended for female recipients, this analysis was repeated, excluding the female-specific awards.

This study was approved by the Partners Human Research Committee.

Results

A total of 20 surgical societies were included in the study. The American Society of Breast Surgeons and the Society for Asian Academic Surgeons disbursed awards fewer than 5 times, so the awards and societies were excluded.

During the 20-year period examined, 1,642 awards were presented. A total of 1,222 (74.3%) of award recipients were male and 420 (25.6%) were female. During the period 1998 to 2007, 19.5% (109 of 560) of awards were presented to women. This

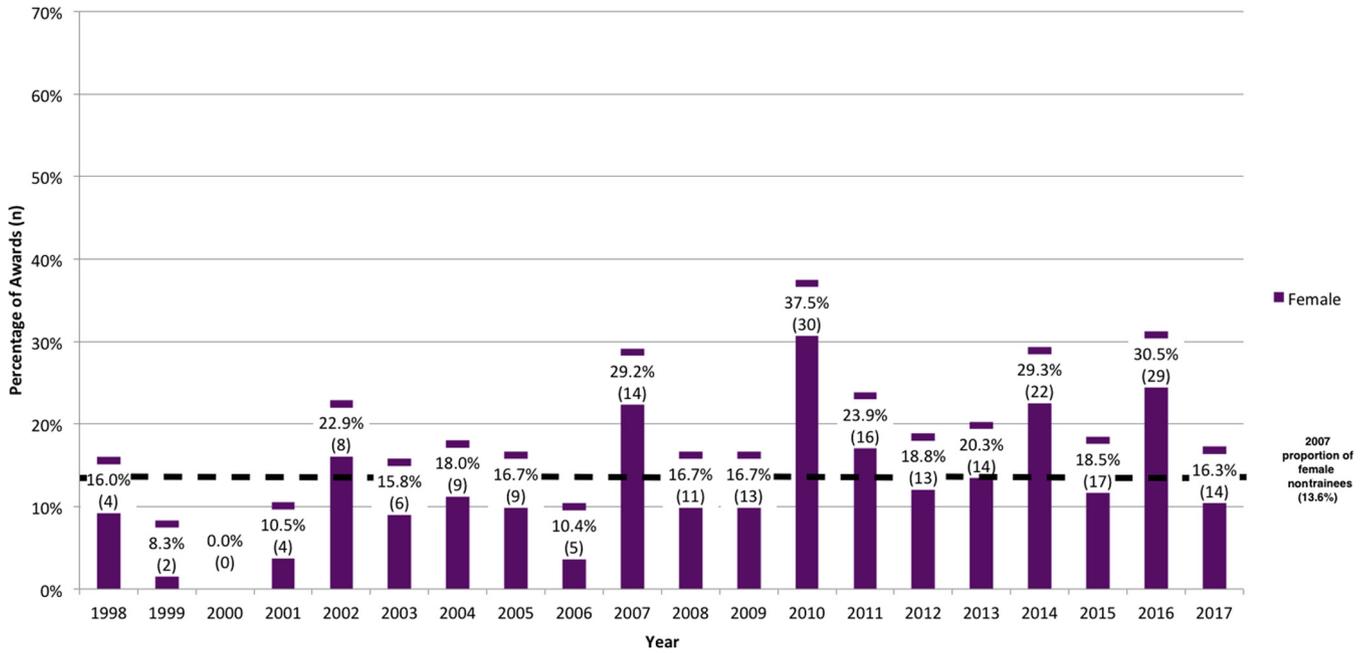


Fig 2. Percent of nontrainee-specific award winners who are female, 1998 to 2017.



Fig 3. Percent of trainee-specific award winners who are female, 1998 to 2017.

significantly improved to 28.7% (311 of 1082) during the period 2008 to 2017 ($P < .01$; Fig 1).

Trainee-specific and nontrainee-specific awards

Of awards not intended for trainees, 20.6% (240 of 1163) were presented to women. When examined by study decade, women received a significantly greater percentage of awards in the second decade (23.0%, 179 of 777) compared with the first decade (15.8%, 61 of 386, $P = .03$). The 20.6% of nontrainee awardees who were

women is significantly higher than the 13.6% of female general surgeons nationwide in 2007 ($P = .01$; Fig 2).

A total of 478 awards were intended exclusively for residents or fellows, and of these, 37.7% (180) were presented to women. In the first decade of the study, 27.1% (48 of 177) of trainee awards were presented to women. This increased significantly to 43.9% (132 of 301) in the second decade ($P < .01$). When compared with the 30.8% of general surgical trainees who were women in 2007, the overall 37.7% of trainee award winners who were female was not significantly different ($P = .12$; Fig 3).

Table
Representation of women award recipients among surgical societies

Society	Total number of awards 1998–2017	Percentage of female award winners (n) 1998–2017	Percentage of female award winners (n) 1998–2007	Percentage of female award winners (n), 2008–2017	Percentage change in female award winners
AAES	73	42.5 (31)	38.1 (8)	44.2 (23)	+6.1
AAS	57	21.1 (12)	20.0 (4)	21.6 (8)	+1.6
AAST	83	28.9 (24)	30.2 (13)	27.5 (11)	-2.7
AATS	35	8.6 (3)	0.0 (0)	12.0 (3)	+12
ACS	135	21.5 (29)	17.8 (8)	23.3 (21)	+5.5
AHPBA	34	26.5 (9)	36.4 (4)	21.7 (5)	-14.7
APSA	84	38.1 (32)	33.3 (4)	38.9 (28)	+5.6
ASA	99	18.2 (18)	8.1 (3)	24.2 (15)	+16.1
ASCRS	55	25.5 (14)	14.3 (1)	27.1 (13)	+12.8
ASMBS	19	5.3 (1)	10.0 (1)	0.0 (0)	-10
ASPS/PSF	123	12.2 (15)	4.1 (2)	17.6 (13)	+13.5
ASTS	67	7.5 (5)	8.0 (2)	7.1 (3)	-0.9
EAST	97	22.7 (22)	15.4 (4)	25.4 (18)	+10
SAGES	21	38.1 (8)	0.0 (0)	44.4 (8)	+44.4
SBAS	16	50.0 (8)	42.9 (3)	55.6 (8)	+12.7
SIS	196	42.3 (83)	26.1 (24)	56.7 (59)	+30.6
SSAT	99	16.2 (16)	11.8 (2)	17.1 (14)	+5.3
SSO	38	42.1 (16)	0.0 (0)	42.1 (16)	+42.1
STS/TSF	249	20.5 (51)	15.2 (14)	23.6 (37)	+8.4
SUS	61	37.7 (23)	36.4 (12)	39.3 (11)	+2.9
Total	1,641	(25.6) 420	19.5% (109)	28.8 (311)	+9.3%

AAES, American Association of Endocrine Surgeons; AAS, Association for Academic Surgery; AAST, American Association for the Surgery of Trauma; AATS, American Association for Thoracic Surgery; ACS, American College of Surgeons; AHPBA, Americas Hepato-Pancreato-Biliary Association; APSA, American Pediatric Surgical Association; ASA, American Surgical Association; ASCRS, American Society of Colon and Rectal Surgeons; ASMBS, American Society for Metabolic and Bariatric Surgery; ASP/PSF, American Society of Plastic Surgeons/The Plastic Surgery Foundation; ASTS, American Society of Transplant Surgeons; EAST, Eastern Association for the Surgery of Trauma; SAGES, Society of American Gastrointestinal and Endoscopic Surgeons; SBAS, Society of Black Academic Surgeons; SIS, Surgical Infection Society; SSAT, Society for Surgery of the Alimentary Tract; SSO, Society for Surgical Oncology; STS/TSF, Society of Thoracic Surgeons/The Thoracic Surgery Foundation; SUS, Society for University Surgeons.

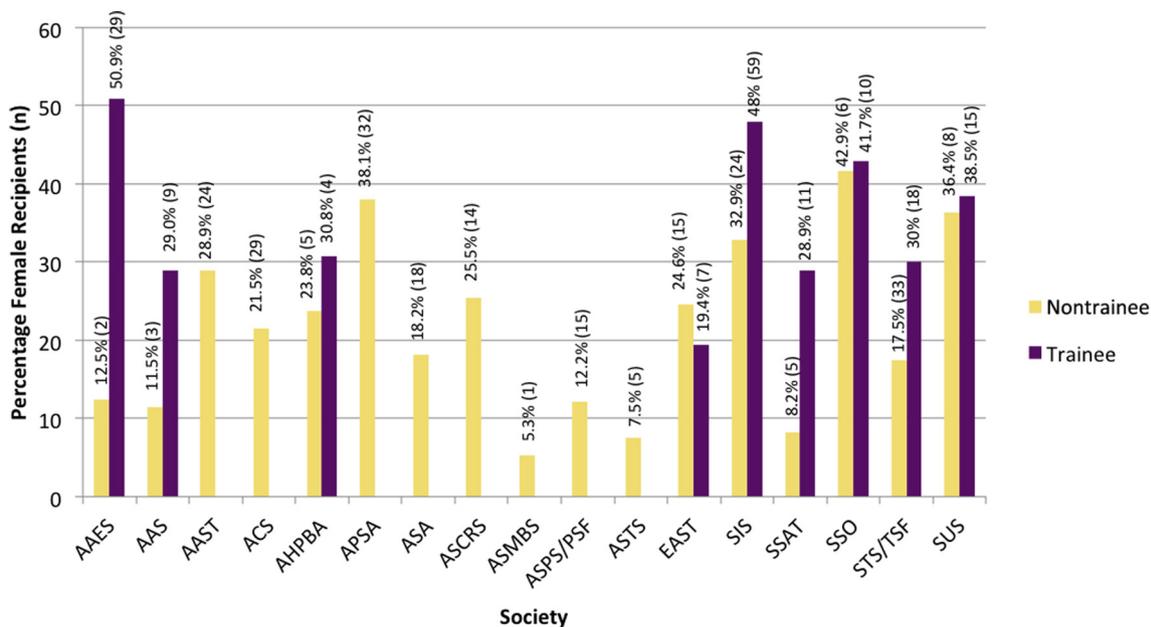


Fig 4. Percent of trainee and nontrainee award winners who are female, by society.

Type of award

Women received 12.9% (42 of 326) of awards for achievement, 29.9% (328 of 1098) of research awards, and 24.0% (41 of 171) of public service awards.

Percentages of female award recipients by society

Societies varied in the percentage of awards presented to women, ranging 5.3% to 50.0% (Table). All but 4 societies

increased the percentage of female award recipients between the first and second decades. We found that 3 societies gave no awards to female recipients during the period 1998 to 2007, and 1 society gave no awards to female recipients during the period 2008 to 2017.

We found that 13 societies presented trainee-specific awards, and female trainees received 19.4% to 50.9% of these awards. Of nontrainee-specific awards, female surgeons received 5.3% to 41.7% of awards. We discovered that 3 societies awarded fewer than 10% of nontrainee awards to female surgeons (Fig 4).

One society, the Society for Thoracic Surgery/Thoracic Surgery Foundation, disbursed awards specifically intended for women. When the female-specific awards were excluded from analysis, the percentage of female award recipients from that society decreased from 20.5% to 9.6%.

Discussion

This is the first study to examine gender parity of award recipients among major US surgical societies. Overall, female representation as award winners is comparable to national rates of women surgeons, but significant variation among societies exists.

Other studies have demonstrated that women are underrepresented as recognition award recipients in the fields of neurology and psychiatry and from medical schools.^{9–12} In the broadest investigation of this inequality, Silver et al¹ reported a gender disparity in recognition awards from 11 societies in 7 medical specialties. Our study expands upon this important topic by investigating all surgical societies for which these data were available for a 20-year period. Our findings are encouraging: Women are recognized nearly equitably as award recipients when general surgery is considered as a whole and when independently examining both trainees and nontrainees, and the percentage of award winners who are female has increased over time.

Of note, the presence of female award recipients varied based on the type of award. Women surgeons received just 12.9% of achievement awards, which is lower than the percentage of female surgeons nationally. This is concordant with the multiple studies by Silver et al,^{1,10,11} which highlighted disparities in recognition awards. One possible explanation is that achievement awards often recognize the sum total of an individual's accomplishments over an entire career. Women historically composed a smaller fraction of the surgical population and there may be fewer women at the peak of their careers who are considered for these awards. However, the “pipeline” theory as the sole cause of gender disparities in academic medicine has been disproven.^{13,14} This sentiment was recently echoed by Dr. Keith Lillemoe,¹⁵ who stated that “the number of outstanding, qualified women is more than adequate to fill every open surgical leadership position in America today. The problem is not the pipeline—it is the process.”¹⁵ Indeed, the greater percentage of research and service awards presented to women during the study period indicates that worthy female surgeons are present, active, and deserving of accolades in academic surgical societies.

Societies awarded women for their accomplishments at vastly different rates, and multiple societies gave no awards to women during a 10-year period. Some surgical specialties have a greater proportion of active female surgeons, which likely translates into different society membership compositions and therefore varying numbers of female award candidates.¹⁶ However, trainees are largely undifferentiated into subspecialties, and differences in rates of female trainee award recipients from one society to the next cannot be explained in this manner. Furthermore, the zero or near-zero presence of female award winners at certain societies suggests an “organization-level” implicit bias.¹ Despite the increasing number of female surgeons over time, 4 societies recognized women at a lower rate in the second study decade than in the first.^{8,17,18} In contrast, the high percentages of female award winners and the increasing rate of recognition over time at other societies demonstrate that proportional recognition of female surgeon accomplishment is possible.

One society gave multiple awards for which only female surgeons were eligible. When these awards were excluded, women received just 9.5% of awards from that society, a decrease of greater than 50%. Although dedicated efforts to recognize female achievement are commendable, they may have the unintended

consequence of marginalizing female accomplishments.³ Because women's work is less valued than men's work, distributing awards restricted to women candidates “may implicitly support the cultural belief that women's scientific efforts are not as important as those of men.”³ In addition, the higher percentage of female award winners—when all awards are considered—falsely creates the idea that women are being appropriately recognized and “camouflages” true underrepresentation.³

This study was not intended to determine causality of disparities in award winners. Future studies should investigate society-specific factors, such as the gender composition of awards committees or the process by which award recipients are selected. Gender determination was limited to the binary male or female, which is not inclusive of all potential identifications. Data were not available for all societies for every year of the study. Although the most robust analysis would be a comparison of the percentage of female award winners with the percentage of female members in each society, we had no information about the membership composition for each of the societies during the study period. However, this information still would not provide an accurate control for comparison because some awards, such as research awards for residents or medical students, are not restricted to society members. We instead compared the percentage of female award recipients with the national percentage of female surgeons at the midpoint of the study period. This comparison may underestimate current gender disparities in award recipients.

This is the only study to examine the presence of female award recipients from major surgical societies. Although women are appropriately recognized overall, women are underrepresented as achievement award winners and by some surgical societies. To eradicate these disparities, further society-specific investigation is warranted.

Conflict of interest

The authors report no proprietary or commercial interest in any product mentioned or concept discussed in this article.

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