

Ethnic and Gender Diversity in Hand Surgery Trainees

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Purpose To evaluate whether the lack of diversity in plastic and orthopedic surgery persists into hand surgery through assessment of trainee demographics.

Methods Demographic data were obtained from compilations on graduate medical education by the *Journal of the American Medical Association*. Ethnic diversity was assessed using the proportions of minority trainees. We analyzed the trends in ethnic diversity in hand, orthopedic, and plastic surgery from 1995 to 2012 by evaluating changes in proportions of African American, Hispanic, and Asian trainees. In addition, we compared the proportions of minority trainees in various surgical specialties during 2009 to 2012. Trends in gender diversity were similarly analyzed using the proportions of female trainees.

Results During 1995 to 2012, the proportions of minority and female trainees increased significantly in the fields of orthopedic, plastic, and hand surgery. To assess the current state of diversity in various specialties, we compared minority and female population proportions using pooled 2009 to 2012 data. The percentage of non-Caucasian trainees in hand surgery was significantly higher than that in orthopedic sports medicine and orthopedic surgery and significantly lower than in general surgery. The percentage of female trainees in hand surgery was significantly higher than that in orthopedic sports medicine and orthopedic surgery and significantly lower than in plastic and general surgery.

Conclusions Ethnic and gender diversity in hand surgery increased significantly between 1995 and 2012. Women constitute a fifth of hand surgery trainees. Efforts to increase diversity should be further pursued using proven strategies and innovating new ones.

Clinical relevance Diversity in the medical field has shown to be a beneficial factor in many aspects including research productivity and patient care. Understanding how the field of hand surgery has changed with regard to the diversity of its trainees may aid in providing more equitable and effective health care. (*J Hand Surg Am.* 2015;40(4):790–797. Copyright © 2015 by the American Society for Surgery of the Hand. All rights reserved.)

Key words Diversity, ethnicity, gender, hand surgery.

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Received for publication April 12, 2014; accepted in revised form October 28, 2014.

No benefits in any form have been received or will be received related directly or indirectly to the subject of this article.

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0363-5023/15/4004-0024\$36.00/0
<http://dx.doi.org/10.1016/j.jhsa.2014.10.065>

DURING THE PAST HALF CENTURY, the United States population has become increasingly diverse, with Caucasian Americans constituting 63% of the national population in 2010 and no more than 25% in some states.^{1,2} Moreover, projections estimate that the collective Hispanic, African American, and Asian populations will increase from 110 million today to 225 million by 2060.³ This increase would reflect a 20% increase in the minority population from 37% to 57%. Additional projections conclude that by 2043 no race will constitute a majority in the United

States for the first time in its history.³ Men currently constitute 49.3% of the population.⁴

An increase in gender and ethnic diversity in the medical vocation has been correlated with higher-quality medical education, greater research productivity, improved business solvency, and increased accessibility to health care resources for underserved populations.^{5,6} For example, studies have shown that increased gender diversity ensures the presence of female faculty role models who can advance research productivity by generating varied ideas and pursuing gender-related investigation.^{7–9} In addition, Komaromy and colleagues¹⁰ showed that minority physicians are 2 to 4 times more likely than non-minority physicians to practice in minority communities. Furthermore, Saha et al¹¹ demonstrated that patient-perceived quality and use of health care were significantly higher when minority patients were seen by physicians of the same ethnicity. Accordingly, there have been efforts to increase diversity in ethnicity, race, and gender among health care providers.¹² Consequently, between 1978 and 2008, the proportions of Asians, African Americans, and Hispanics graduating from medical school increased from 2.9%, 7.1%, and 3.1% to 19.8%, 7.8%, and 6.0%, respectively.¹³ In addition, 47.8% of students now entering medical school are women.¹²

Although most medical specialties have mirrored this increasing diversity in the past few years, orthopedic surgery lags significantly with regard to minority and gender equity recruitment.¹⁴ Similarly, gender diversity in plastic surgery has yet to be achieved. Although the percentage of female plastic surgery residents and fellows increased from 22% to 26% from 2007 to 2010, it remained significantly lower than the average percentage of Accreditation Council for Graduate Medical Education (ACGME) female residents/fellows (46%).^{15,16}

Hand surgery is composed mostly of orthopedic and plastic surgeons. For example, approximately 90% of orthopedic surgeons decide to pursue subspecialty fellowship training, with about 8% indicating interest in hand surgery fellowship.^{17,18} Given the high incidence of fellowship matriculation among orthopedic and plastic surgeons and the current need for increased diversity in both fields, we questioned whether the lack of ethnic and gender diversity in the field of orthopedics and plastics persisted in subspecialty fellowships, particularly in hand surgery. We predicted that ethnic and gender compositions of hand surgery fellows remain homogeneous and are less diverse than those of other specialties. Unlike past studies that analyzed the general ethnic and gender diversity in orthopedics compared with that of other

TABLE 1. Number of Hand, Orthopedic, and Plastic Surgery Trainees

	1995 –2000	2001 –2006	2007 –2012
Hand surgery	674	604	859
Asian	81	88	147
African American	13	25	30
Hispanic	27	24	42
Female	80	95	162
Orthopedic surgery	2,833	3,234	3,597
Asian	304	357	492
African American	124	107	169
Hispanic	82	120	210
Female	228	373	519
Plastic surgery	474	609	773
Asian	79	134	161
African American	19	20	32
Hispanic	23	43	52
Female	100	146	246

Total number of minority and female trainees in hand, orthopedic, and plastic surgery that completed training during the years 1995 to 2000, 2001 to 2006, and 2007 to 2012.

Data are derived from *Journal of the American Medical Association* studies with trainee demographic information published each year.^{19–36}

specialties, this study specifically examined hand surgery. Furthermore, we performed an analysis examining the trends from 1995 to 2012 in ethnic and gender diversity in hand surgery trainees versus those of other specialties including orthopedics and plastics. This study was initiated by the Diversity Committee of American Society for Surgery of the Hand (ASSH) in an effort to raise diversity awareness.

MATERIALS AND METHODS

Noteworthy variables examined in this study included ethnicity and gender. Trainees were categorized into the following ethnic groups: Caucasian, African American, Hispanic, Asian, and other. Ethnic and gender composition data were taken from the *Journal of the American Medical Association* and used to determine the proportions of gender and ethnicities of ACGME-registered hand, orthopedic, plastic, and other surgical specialty trainees (Table 1).^{19–36} The values come from the National Resident Matching Program census, which is contingent on demographic information provided by self-reporting of trainees from various training programs. Ethnic diversity was represented by the observed proportions of minority populations in each specialty.

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