



Trends in sex and ethnicity among U.S. dermatopathology and Mohs surgery trainees: 2011–2021

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Abstract

Dermatology has been cited as the second-least racially diverse medical specialty in the United States. In the last decade, the American Academy of Dermatology (AAD), the Skin of Color Society (SOCS), the Dermatology Section of the National Medical Association (NMA), and other stakeholders have made significant efforts to increase diversity in dermatology. This study aims to explore the potential impact of these efforts by analyzing sex and ethnic trends in ACGME-accredited dermatology fellowships; Mohs surgery, and dermatopathology, using data from 2011–2021. Our findings reveal that over the last decade, significant strides to increase sex diversity within dermatology have led to a growing number of female resident trainees (62%). This trend is also reflected in Mohs surgery (50%) and dermatopathology (52%) fellowships. In addition, the proportion of Underrepresented in medicine (URiM) fellowship trainees has also increased significantly over the last decade, with a now similar proportion of URiM trainees between dermatology residency, Mohs surgery, and dermatopathology.

Keywords ACGME · Diversity and inclusion · Dermatology fellowships · Dermatopathology fellowship · Mohs and Micrographic Surgery fellowship · Underrepresented minorities

To the Editor,

In the United States, dermatology has progressed in terms of sex diversity. However, demographic trends demonstrate a persistent lack of ethnic diversity relative to other medical specialties [1, 2]. We sought to characterize sex and ethnic trends amongst Accreditation Council for Graduate Medical Education (ACGME) accredited dermatology fellowships over the last decade (2011–2021) to assess the effectiveness

of the measures put in place to ensure gender and racial diversity in dermatology.

Program-reported sex and ethnicity ACGME data on active trainees from 2011 to 2021 was obtained for dermatology, Mohs surgery, dermatopathology, and pathology [3]. From collected demographic data, sex was profiled as male or female. Underrepresented in medicine (URiM) race/ethnicity designations included American Indian or Alaskan Native, Black or African American, Hispanic, Latino or of Spanish origin, and Native Hawaiian or Pacific Islanders. Non-underrepresented in medicine (non-URiM) included White and Asians.

Respondents selected only one racial designation. Data were analyzed using Microsoft Excel 2021 and R. Gender and race/ethnicity data were presented in frequencies. Proportions were computed and presented in percentages. Unpooled two-sample Z tests were used to compare proportional distributions at a 95% confidence interval (Table 1). The trend was presented as percentages, using bar graphs (Fig. 1).

Efforts to improve gender diversity in dermatology have led to a larger proportion of female resident trainees (62%) over the last decade. This trend is also reflected in Mohs surgery (50%) and dermatopathology (52%) fellowships

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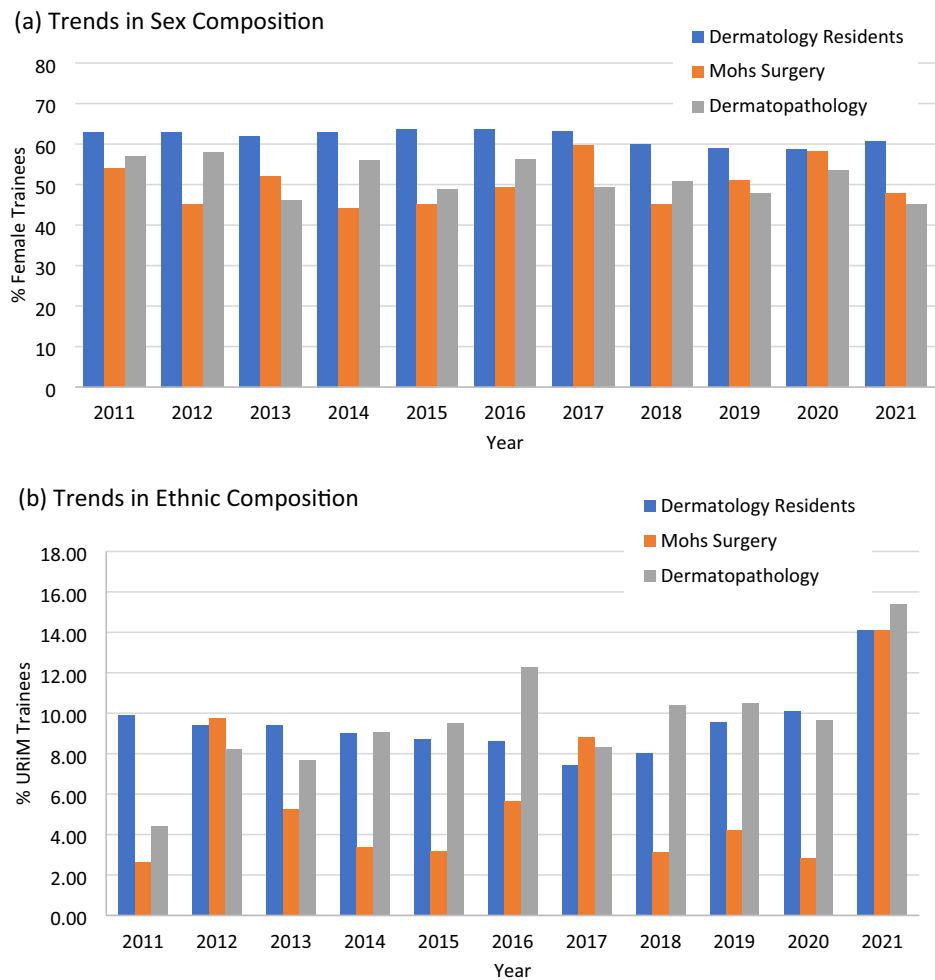
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Fig. 1 10-year trend in sex and ethnic composition. Proportion of **a** %Female **b** %URiM representation in Mohs surgery fellowships, dermatopathology fellowships, and dermatology residencies from 2011 to 2021



(Table 1). Despite advances in gender diversity, it is notable that the average percentage of female trainees in Mohs surgery was significantly lower than in dermatology residency (50% vs. 62%, $p < 0.05$). Given that females comprise a larger percentage of dermatology, it is curious why this is not reflected in Mohs surgery. Further research is needed to understand factors influencing male and female dermatology resident's pursuit of fellowship training.

The proportion of URiM trainees has increased significantly over the last decade. Among dermatology residents, it increased from 9.9% in 2011 to 14.1% in 2021, Mohs surgery from 2.6 to 14.1%, and dermatopathology from 4.4% to 15.4%. The average proportion of URiM trainees between 2011–2021 was similar between dermatology residency, Mohs surgery, and dermatopathology (Table 1).

Efforts undertaken by dermatology groups to increase URiM representation in dermatology have likely contributed to a rise of URiM trainees in dermatology residency.

Dermatopathology is unique, as trainees can pursue it after completing a dermatology or pathology residency [4, 5]. Pathology residency has a higher proportion of male and URiM trainees than dermatology residency. This could explain the greater number of URiM trainees in dermatopathology compared to Mohs surgery and higher proportion of male trainees in dermatopathology compared to dermatology residency.

This study utilized cumulative data for ethnic URiM, which limited the ability to distinguish trends in Black/African American males, who are even more underrepresented in dermatology. Program-reported data and changes

Table 1 Average percentage of sex and race/ethnicity for Mohs surgery fellowships, dermatopathology fellowships, pathology residencies and dermatology residencies from 2011 to 2021, with comparisons between subgroups

	Sex (2011–2021)		<i>P</i> -value	Race/Ethnicity		<i>P</i> -value
	Average % Female	Average % Male		%URiM (2011)	%URiM (2021)	
Dermatology residency	62.0	37.5	<0.00001*	9.9	14.1	<0.05*
Mohs surgery	50.0	49.8	0.976	2.6	14.1	<0.05*
Dermatopathology	51.7	47.6	0.624	4.4	15.4	<0.05*
Pathology	52.2	47.1	<0.0007*	10.4	16.0	<0.00001*
	Average % Female (2011–2021)		<i>P</i> -value	Average % URiM (2011–2021)		<i>P</i> -value
Dermatology residency vs. Mohs surgery	62.0 ± 1.8 vs. 50.0 ± 5.2		<0.05*	9.5 ± 1.6 vs. 5.7 ± 3.5		0.322
Dermatology residency vs. dermatopathology	62.0 ± 1.8 vs. 51.7 ± 4.4		0.735	9.5 ± 1.6 vs 9.6 ± 2.6		0.976
Dermatopathology vs. pathology	51.7 ± 4.4 vs. 52.2 ± 2.9		0.936	9.6 ± 2.6 vs 11.7 ± 1.8		0.610

*Indicates statistical significance, *P*-values < .05

^aUnderrepresented in medicine (URiM) included American Indian or Alaskan Native, Black or African American, Hispanic, Latino or of Spanish origin, and Native Hawaiian or Pacific Islanders. Native Hawaiian or Pacific Islander were not included under URiM as the subcategory was reported first in 2019

^bNon-underrepresented in medicine (non-URiM) included White and Asian

The American Medical Association (AMA) and the Association of American Medical Colleges (AAMC) collaborate to provide a census and database of program-reported information on training programs accredited by the Accreditation Council for Graduate Medical Education (ACGME) and of the residents and fellows in these programs. Demographic data was obtained from the ACGME

in reported variables also limit our study. Data exploration should determine if the fellowship's sex and ethnic composition reflect barriers to entering the field, the selection process, or other systemic factors.

Patient consent Not applicable.

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Author contributions CLO and DE had full access to all of the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis. Study concept and design: CLO, DE, VEN. Acquisition, analysis, or interpretation of data: CLO, DE. Drafting of the manuscript: CLO, DE. Critical revision of the manuscript for important intellectual content: CLO, DE, VEN. Statistical analysis: CLO, DE. Obtained funding: None. Administrative, technical, or material support: CLO, DE, VEN. Study supervision: VEN.

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Data availability The data used in this study are publicly available and can be accessed from the ACGME Data Resource Book.

Declarations

Conflict of interest None reported.

IRB approval status Not applicable.

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