



Short Communication

Diversity in United States medical faculty relative to population trends, 2005–2019

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ABSTRACT

Increasing diversity is essential not only for equal healthcare among all individuals but also for equal socio-economic potential for all genders and ethnicities. With changing demographics over the years, we tried to assess the impact of university programs for the promotion of equality in ethnic representation in the medical community. The US population, based on the data taken from the US Census Bureau, was compared to the Faculty Administrative Management Online User System (FAMOUS) data to analyze the representation of the medical community to the general US population. Females have reached near parity in their representation within the medical community faculty. Underrepresented in medicine individuals have not come far enough to reach parity in their representation within the medical community. As compared to the general US population, while Asians are overrepresented, Black and Hispanic proportions in the medical community are still underrepresented.

Keywords: Blacks in medical faculty, Hispanics in medical faculty, Females in medical faculty, Medical faculty, Diversity

INTRODUCTION

In the United States, certain racial and ethnic groups are heavily underrepresented in medicine (URM) compared to population demographics.^[1] Although there has been considerable growth in female representation in some subspecialties,^[2-4] there is still no parity with the population. Although others have investigated trends in diversity by reporting proportions,^[4] a misleading narrative can be created by noting increasing URM counts without comparing them to population trends. To capture the wide gap between the racial, ethnic, and gender makeup of the US population and the academic medical profession, we perform a direct comparison using data from two databases: The US Census and the Association of American Medical Colleges (AAMC) Faculty Roster (FAMOUS) database. We compare the proportions of ethnic and gender groups between the two datasets, both overall and at specific academic ranks.

MATERIAL AND METHODS

This retrospective study analyzed US allopathic medical school faculty diversity using data from AAMC FAMOUS.^[5] Access to FAMOUS data from 2005 to 2019 was granted by the AAMC, which contained aggregate counts of faculty based on professorship rank, ethnicity, and gender. US population

data were acquired from the US Census Bureau from the year 2019.^[6]

Proportions of racial/ethnic/gender groups were compared between FAMOUS and US census data, and between 2005 and 2019 FAMOUS data, using the Chi-squared test. Relationships between proportions and years were modeled with linear regression. Statistical analysis was performed with GraphPad Prism (v6, GraphPad Software, Inc.) and MATLAB (R2019b, Mathworks). The study was reviewed and declared exempt by our institutional review board.

RESULTS

Racial and ethnic representation

Compared to 2019 Census data, Asian and White individuals are over-represented (Asian: 21.0% vs. 5.9%, $P < 0.0001$; White: 66.1% vs. 60.1%, $P < 0.0001$), while Black and Hispanic groups are under-represented (Black: 3.8% vs. 13.4%, $P < 0.0001$; Hispanic: 3.4% vs. 18.5%, $P < 0.0001$), in total professorships. These trends persist at all academic levels [Table 1a and Figure 1a].

Longitudinally, over-representation of Asian individuals has increased at all ranks (Full: 0.47%/year [0.43–0.52 95% confidence interval, CI], $P < 0.0001$; Associate: 0.72%/year [0.71–

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Table 1a: Separated by race/ethnicity.

	2005 FAMOUS (%)	2019 FAMOUS (%)	Difference 2005–2019 (%)	2019 census (%)
Full professor				
Asian	2049 (7.1)	5384 (14.0)	3335 (+6.9)*	5.9†
Black	409 (1.4)	778 (2.0)	369 (+0.6)*	13.4†
Hispanic	514 (1.8)	1026 (2.7)	512 (+0.9)*	18.5†
White, non-Hispanic	25047 (86.7)	29808 (77.3)	4761 (-9.4)*	60.1†
Total (all races/ethnicities)	28888	38547	9659	328239523
Associate professor				
Asian	2785 (10.8)	7641 (20.8)	4856 (+10.0)*	5.9†
Black	736 (2.9)	1272 (3.5)	536 (+0.6)*	13.4†
Hispanic	743 (2.9)	1243 (3.4)	500 (+0.5)*	18.5†
White, Non-Hispanic	20665 (80.4)	24721 (67.2)	4056 (-13.2)*	60.1†
Total (all races/ethnicities)	25695	36801	11106	328239523
Assistant professor				
Asian	9148 (18.8)	20293 (24.3)	11142 (+5.5)*	5.9†
Black	2225 (4.6)	3947 (4.7)	1722 (+0.1)	13.4†
Hispanic	1732 (3.6)	3160 (3.8)	1428 (+0.2)*	18.5†
White, Non-Hispanic	33268 (68.2)	50642 (60.5)	17374 (-7.7)*	60.1†
Total (all races/ethnicities)	48770	83658	34885	328239523

Table 1b: Separated by gender.

	2005 FAMOUS	2019 FAMOUS	Difference	2019 census
Full professor				
Male	24541 (83.7)	28955 (73.9)	4414 (-9.8)*	49.2†
Female	4793 (16.3)	10245 (26.1)	5452 (+9.8)*	50.8†
Total	29334	39200	9866	328239523
Associate professor				
Male	18828 (71.7)	22952 (60.8)	4124 (-10.9)*	49.2†
Female	7415 (28.3)	14796 (39.2)	7381 (+10.9)*	50.8†
Total	26243	37748	11505	328239523
Assistant professor				
Male	30944 (61.2)	45519 (52.4)	14575 (-8.8)*	49.2†
Female	19615 (38.8)	41403 (47.3)	21788 (+8.8)*	50.8†
Total	50559	86922	36363	328239523

Professorship by rank, year, and (a) race/ethnicity or (b) gender. Derived from AAMC: Faculty Roster, December 31 snapshots, as of September 30, 2020. Data are presented as numbers (percentage of total). *Significant difference ($P<0.05$) between 2005 and 2019 FAMOUS data. †Significant difference ($P<0.05$) between 2019 FAMOUS and Census data

0.74 95% CI], $P < 0.0001$; Assistant: 0.37%/year [0.34–0.39 95% CI], $P < 0.0001$). Black representation has slightly increased at full and associate professorship ranks (Full: 0.05%/year [0.04–0.05 95% CI], $P < 0.0001$; Associate: 0.04%/year [0.03–0.05 95% CI], $P < 0.0001$), but remained constant for assistant professorships (0.001%/year [−0.01–0.01 95% CI], $P = 0.75$).

Gender representation

Females are under-represented compared to males at all levels ($P < 0.0001$ for all, [Table 1b and Figure 1b]). All professorship ranks have trended toward parity, with female proportions increasing at 0.68%/year (0.66–0.71 95% CI, $P < 0.0001$), 0.76%/year (0.75–0.78 95% CI, $P < 0.0001$), and 0.60%/year (0.57–0.63 95% CI, $P < 0.0001$) for full, associate, and assistant professor, respectively.

DISCUSSION

Our 14-year longitudinal study indicates a continued lack of diversity within U.S. academic medical faculty. Black and Hispanic physicians are not reaching parity with the general population. Asians are becoming more overrepresented, and Whites are trending toward proportional representation. Trends for gender equality are encouraging, though women are still under-represented at all levels.

These trends in racial and gender representation were previously examined for specific sub-specialties. Results were positive for gender representation, particularly for family medicine,^[2] obstetrics-gynecology,^[3] and dermatology.^[4] However, while proportions of URM in many sub-specialties have increased, these groups are still significantly under-represented compared to population rates, with a prior study

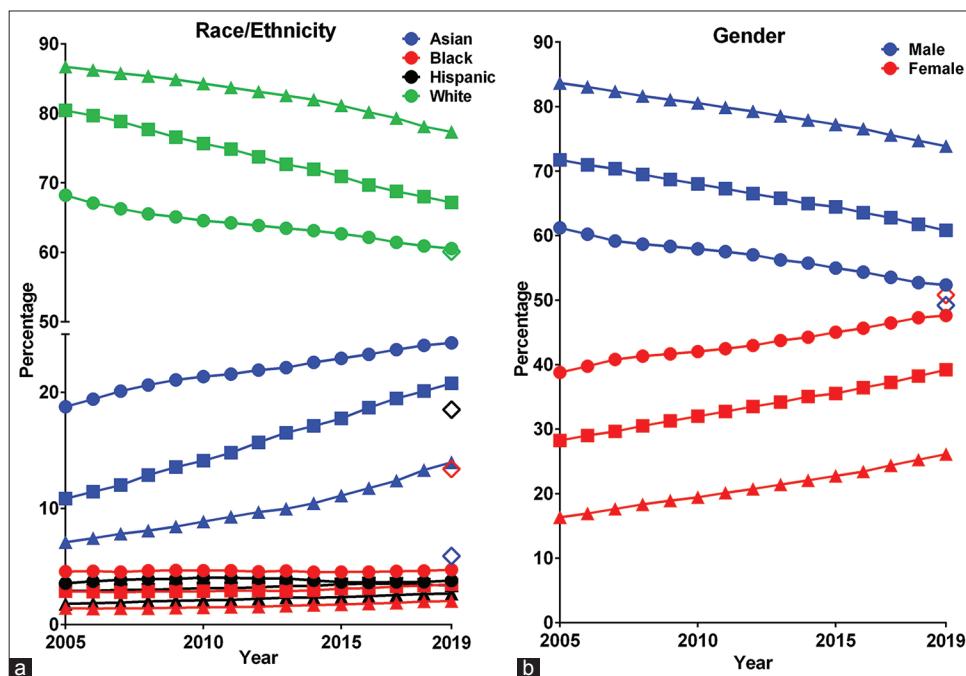


Figure 1: Proportions of Full Professorships, Associate Professorships, and Assistant Professorships by year for (a) the four largest races/ethnicities and (b) gender. Closed symbols indicate academic rank (Circle: Assistant Professor, Square: Associate Professor, Triangle: Full Professor), while colors indicate race/ethnicity or gender. Open diamonds represent corresponding 2019 U.S. Census data.

finding that URM representation is decreasing relative to population trends.^[1]

We acknowledge several limitations in the present study. The use of US Census data can introduce sampling bias, discount some individuals, and categorization may not be specific enough, resulting in some sub-populations being combined. FAMOUS data were voluntarily collected, which may introduce systematic gaps. Finally, we acknowledge the relative simplicity of comparison to census data.

CONCLUSION

Through our longitudinal studies, it is confirmed that a lack of diversity continues to exist in the medical community for URM physicians and in some cases for women physicians. In light of this study, we recommend more work be done at the community level, in undergraduate university education, in medical school, and in academic research institutions as a necessary step to increase diversity in the medical community as a whole and in particular the leadership/senior positions within the medical community.

Declaration of patient consent

Patient's consent not required as there are no patients in this study.

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Conflicts of interest

There are no conflicts of interest

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