





RESEARCH LETTER

Sex and Education Background of Cardiovascular Disease Trainees and Program Directors in the United States

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Among general cardiovascular disease trainees in the United States, women only account for ≈21%.¹ Aside from sex differences among trainees, disparities exist in the number of osteopathic physicians in comparison to allopathic physicians, accounting for ≤5% of the physician workforce.² Equally, biases among international trainees have also been appreciated to be a growing concern in workforce disparities.³ We sought to compare the differences among sex and educational background of both adult general cardiovascular disease trainees and program directors (PDs).

The data that support the findings of this study are available from the corresponding author on reasonable request. Data of current adult cardiovascular disease training programs was accessed using the Accreditation Council of Graduate Medical Education public list of programs by specialties. Programs with preaccreditation status were included as well.⁴ Data was accessed on September 26, 2021. Variables obtained for trainees and PDs included the following: sex, medical school training with further subdivision if international medical graduate (IMG) or American medical graduate (AMG) within the United States or Canada, and MD/allopathic or DO/osteopathic degree. MBBS was presumed to be equivalent to MD, unless specified in the combined MBBS/MD group.

Data was gathered by 2 of the authors (R.T. and D.A.J.). Trainee and PD profiles not available on the training program website were obtained by searching profiles on Doximity, ResearchGate, and LinkedIn. Institutional review board approval was not required because the data lacked personal identifiers and were publicly available.

A total of 259 programs were identified in our review of the 2021 to 2022 Accreditation Council of Graduate Medical Education database of adult cardiovascular disease programs.⁴ In total, 2684 trainees and 259 PDs were identified. Evaluation of sex differences demonstrated currently there are 2013 male (75%) versus 671 female (25%) trainees. Among PDs, 209 were male (80.6%) versus 50 female (19.3%) (Figure [A]). Education background was identifiable in 1461 trainees (55%). Of these, 1192 (81.5%) were of US or Canadian allopathic background versus 269 (18.4%) who were of osteopathic background. Furthermore, there were a combined total of 2232 MBBS/MD trainees. Among PDs, 243 (93.8%) were allopathic/MD versus 16 (6.1%) who were osteopathic/DO (Figure [B]). American versus international training background was identifiable in 2058 trainees (77%). There were 1420 (68.9%) AMG versus 638 (31%) IMG trainees and 174 (67.1%) AMG versus 85 (32.8%) IMG PDs (Figure [C]).

Key Words: education background disparities ■ program director disparities ■ sex disparities ■ trainee disparities

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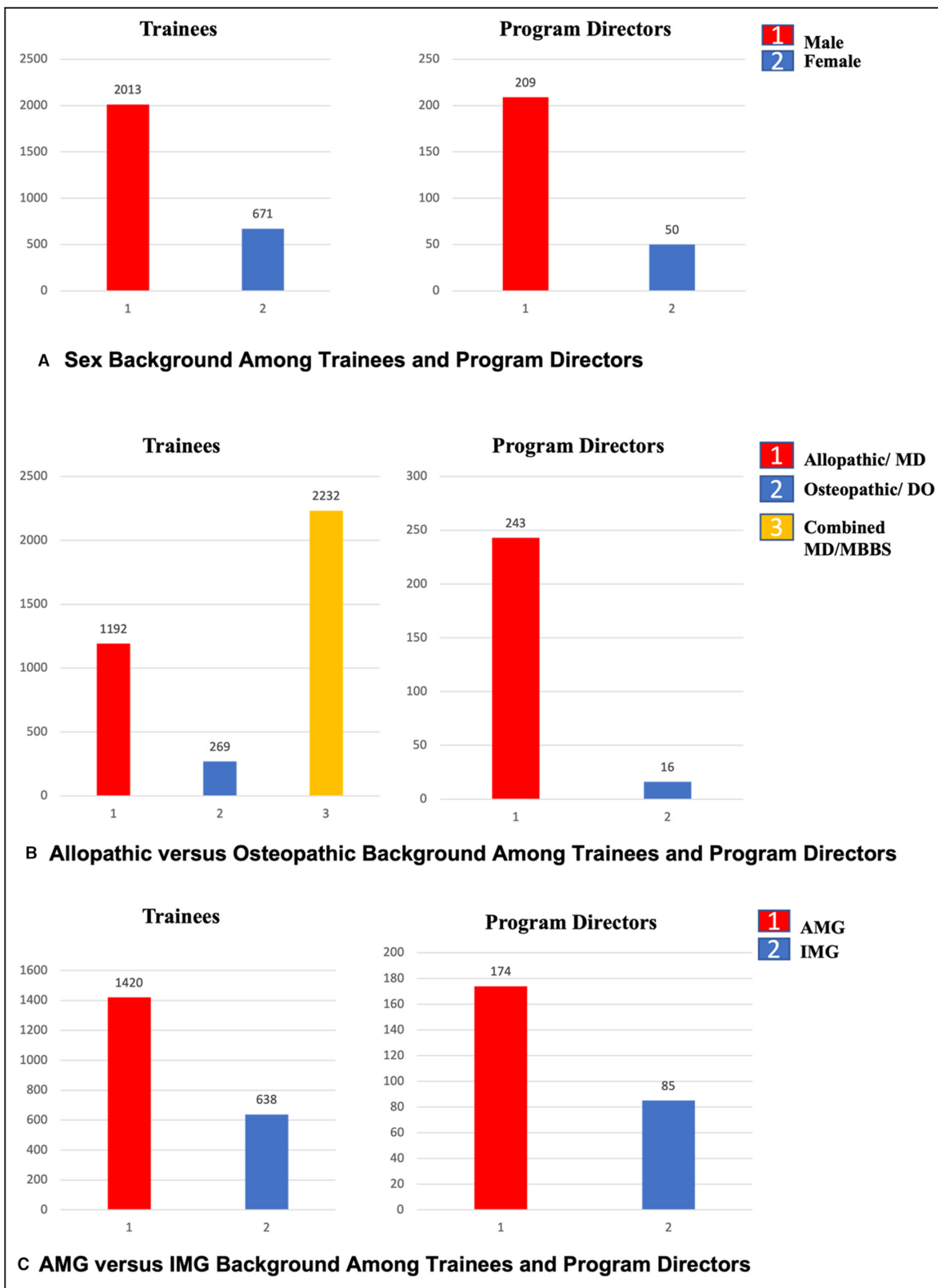


Figure. Sex and education background of trainees and program directors. **A**, Sex background among trainees and program directors. **B**, Allopathic vs osteopathic background among trainees and program directors. **C**, American medical graduate (AMG) vs international medical graduate (IMG) background among trainees and program directors.

Data on fellow sex were not identifiable in 66 programs. Fellow medical school background, whether AMG or IMG, was not identifiable in 39 programs. Fellow degree background, whether allopathic, osteopathic, or combined MBBS/MD, was not identifiable in 103 programs. PD sex, medical school background, and degree were identifiable for all programs.

In the current comparative study, we evaluated the sex and educational backgrounds of US adult cardiovascular training programs. Many of these trainees would have been recruited during the start of the teleinterview transition because of the COVID-19 pandemic. Our analysis demonstrated that among cardiovascular trainees and PDs, there was a predominance of male sex as well as AMGs and MD/allopathic educational backgrounds. The findings of our study confirmed the underrepresentation of women among cardiovascular trainees and PDs. There was also a sizable lack of diversity in educational backgrounds in both trainees and PDs, with notable disparities in the number of osteopathic and IMG trainees. This disparity coincides with a survey study done by Reddy et al that noted only 22% to 30% of university program, but 55% to 70% of community program, Postgraduate year 1 positions were filled by IMGs. The authors cited influencing factors to have been departmental pressure, institutional priority, and reputational concerns.⁵ Further efforts should be directed toward exploring the reasons behind the observed differences and variabilities in our study. Future directions should be toward ensuring equality in cardiology training through mentorship programs for women, osteopathic, minority, and international trainees. Through a diverse cardiology workforce, we can improve on sex- and race-related outcomes and in the delivery of cardiovascular care.

The limitations to this study are that despite the Accreditation Council of Graduate Medical Education public list, representing cardiovascular training programs for the 2021 to 2022 academic year, program websites may not have the most up-to-date profiles of their current trainees. Furthermore, although sex

was identified objectively by name and picture, trainees and PDs may identify differently. Ways to improve data and program transparency for future applicants are for fellowships to keep their websites updated. Furthermore, it would be helpful for the fellowship website to outline how the fellow identifies one's self, their medical school and residency training, and career interests. A step further would be to include efforts the fellowship program is making to expand on diversity, equity, and inclusion.

ARTICLE INFORMATION

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