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Review Article

Diversity in orthopaedic surgery for pacific islanders: the battle continues

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ABSTRACT

It's no secret that orthopaedic surgery is the specialty with the least diversity when it comes to race and gender. More than likely, patients from different ethnic backgrounds desire to be treated by physicians ethnic backgrounds desire to be treated by physicians who look like them but due to the lack of diversity in the field of orthopaedic surgery, it makes it difficult to find physicians who fully understand the cultural barriers to medicine. A systemic review was completed by reviewing research from The American Journal of Surgery, the Journal of the AAOS, and The Journal of Bone and Joint Surgery, among others. Since the rapid immigration into the United States in the early 2000s, Pacific Islanders have begun to make up an increasing portion of the US population, yet a significant increase in the representation of Pacific Islanders in orthopaedic surgery has not reflected this. This acute problem can cause long-term negative effects on the community of Pacific islanders as they continue to be treated by physicians who do not look like them and who do not completely understand the cultural barriers faced by their communities.

Keywords: Diversity in orthopaedic surgery, Pacific islanders, Underrepresented minorities in medicine

INTRODUCTION

It's no secret that orthopaedic surgery is the specialty with the least diversity when it comes to race and gender.[1] Although changes have been made by programs like Nth Dimensions, the J. Robert Gladden Orthopaedic Society, the American Association of Latino Orthopaedic Surgeons, and the Ruth Jackson Orthopaedic Society to pave the way and break down barriers for many current and past orthopaedic surgeons, the field still lags behind all other specialties in medicine.

As the population in the United States becomes more diverse, our expectation is to believe that diversity in the field of medicine will follow the same trend. The 2019 Census from the US Bureau reported the percentages of 70.2% Caucasian, 5.7% Asian, 18.4% Hispanic and Latino, 12.8% African American, 0.9% Native American, and 50.8% women[2]. However, the 2018 American Academy of Orthopaedic Surgeons (AAOS) Census reported 84.7% Caucasian, 6.7% Asian, 2.2% Hispanic and Latino, 1.9% African American, 0.4% Native American, and 7.6% women.[2] More than likely, patients from ethnic backgrounds desire to be treated by physicians who look like them but due to the lack of diversity in the field of orthopaedic surgery, it makes it difficult to find physicians who fully understand the cultural barriers to medicine. The difficulty in finding orthopaedic surgeon who looks like the patients they are treating becomes more emphasized in rural settings.

Due to a lack of diversity in orthopaedic surgery and in medicine in general, there can be serious negative long-term consequences for racial minority groups. Health disparities across ethnic minority groups have been well-researched and documented. For example, a study by the American Heart Association found that Asian Americans and Pacific Islanders have longer "door-to-drug" times for

acute interventions after correction for confounding risk factors compared to their white counterparts. Additionally, male Asian Americans are less likely to undergo percutaneous coronary intervention and more likely to undergo coronary artery bypass grafting than whites. Furthermore, Chinese Americans have more hemorrhagic strokes and a higher prevalence of poorly controlled hypertension and left ventricular hypertrophy compared to whites.[3]

This is a systemic review of diversity in orthopaedic surgery with a predominant focus on Pacific Islanders. This underrepresented ethnic group still lacks significant data on diversity in the field of orthopaedic surgery.

METHODS

A systemic review was completed by reviewing research from The American Journal of Surgery, the Journal of the AAOS, and The Journal of Bone and Joint Surgery, among others.

RESULTS

In 2011, The Journal of Bone and Joint Surgery found that during the 1990s and 2000s, representation among orthopaedic residents increased for Asians (+4.53% per decade, $p<0.0001$), Hispanics (+1.37% per decade, $p<0.0001$), and African Americans (+0.68% per decade, $p=0.0003$). Total minority representation in orthopaedics averaged 20.2% during the most recent years studied (2001 to 2008), including 11.7% for Asians, 4.0% for African Americans, 3.8% for Hispanics, 0.4% for American Indians and Alaskan Natives, and 0.3% for Native Hawaiians and Pacific Islanders.[4]

In a study by The Journal of Bone and Joint Surgery, Native Hawaiian and Pacific Islanders made up 0.6% of Orthopaedic Surgery residents in 2018-2019 (Figure 1).[5] In 2021, JAMA Network reported that between 2002 and 2020, the median annual total medical student matriculants for Native Hawaiian and Other Pacific Islanders were 53 and 184, respectively (Figure 2).[6] Additionally, most specialties showed a decrease to an RQ of less than or equal to 0.5 among Native Hawaiian and Other Pacific Islander faculty between 2000 and 2018. The median RQ was 0.47 (range: 0.10-0.61).[6] There were no recorded Native Hawaiian and Other Pacific Islander academic faculty in plastic surgery, radiology, or orthopedic surgery. The most represented specialties included pediatrics, internal medicine, obstetrics and gynecology, and psychiatry.[6] RQ is the proportion of a subgroup compared with the US population: an RQ of 1 denotes equal representation; greater than 1, overrepresentation; and less than 1, underrepresentation.

In 2022, The American Journal of Surgery reported that the proportion of Asian American and Pacific Islander students applying to integrated vascular surgery, integrated thoracic surgery, neurosurgery, otolaryngology, orthopedic surgery, and general surgery residencies decreased from 2008 to 2018.[7] Among the demographic and characteristics of orthopaedic surgery residency program directors in 2023, 188 (89.5%) were male, and 22 (10.5%) were female. Non-Hispanic Whites made up 82.9%, Asian American and Pacific Islanders made up 6.7%, Black or African Americans made up 5.7%, and Hispanic or Latino made up 1.9% of residency program directors in orthopaedic surgery.[8]

The lack of diversity in orthopaedic surgery is not only limited to residency programs, but fellowships in orthopaedic surgery also face the same issue. In 2023, The Journal of Arthroplasty reported that during the 14-year time frame between 2007-2021, men trainees remained high with an overall average percentage of 88% and demonstrated increasing representation ($p=0.012$).[9] White non-Hispanics, Asians, Blacks, and Hispanics represented on average 54%, 11%, 3%, and 4%, respectively. White non-Hispanics ($p=0.039$) and Asians ($p=0.030$) saw increasing and decreasing representation, respectively. However, women, Blacks, and Hispanics remained stagnant throughout the observation period ($p>0.05$, each).[9]

Limitations

Those that are mixed race or multiracial and are part Native Hawaiian or Pacific Islander, but self-identified as “mixed race” or “multiracial” in the AAMC National Graduate Medical Education Census, serve as a primary limitation to this systemic review.

When collecting data on Asian Americans and Pacific Islanders, there needs to be a separation when surveying these two very different ethnic minority groups. Because Asian Americans and Pacific Islanders are simultaneously clumped into the group, “AAPI,” people fail to realize the disparities and underrepresentation among Pacific Islanders. Additionally, the cultural and healthcare barriers between Asian Americans and Pacific Islanders are vastly different and can potentially affect how we, as physicians, treat certain patients and their healthcare problems. When groups are clumped together as one, this can significantly blur the lines of healthcare treatments among two underrepresented racial groups. Furthermore, Pacific Islanders are commonly known as “other” when viewing research data. Although the Pacific Islander community does not make up a significant portion of the population in the United States, the community is rapidly expanding, and we have yet to figure out how to consistently include this population in our data when carrying out research. Additionally, there seems to be little to no data on Pacific Islanders in fields like orthopaedic surgery and plastic surgery. It seems that research that has been carried out over the past few years turns their attention away from this group rather than putting a spotlight on the lack of representation of Pacific Islanders in these surgical specialties.

TABLE II - Representation of 1,710 URM Residents and 2,056 URM Faculty vs. ACGME and US URM Population*

Minority Group	% Orthoresident Representation in the Survey Cohort	% Orthoresident in ACGME Data Resource Book '18-'19[16]	%Orthofaculty Representation in the Survey Cohort	% Representation in US Population	% Resident Under/Overrepresentation	% Faculty Under/Overrepresentation
African American/Black	5.4	2.8	3.4	13.4	-8.0	-10.0
Hispanic/Latino	4.6	3.3	2.6	18.1	-13.5	-15.5
American Indian/Alaska Native	0.5	0.2	0.2	1.3	-0.8	-1.1
Native Hawaiian/Pacific Islander	0.6	8.8†	0.4	0.2	0.4	0.2

*ACGME = Accreditation Council for Graduate Medical Education.
†Not comparable because the ACGME combines Asians with Native Hawaiians/Pacific Islanders and our survey did not.

Figure 1: Native Hawaiian and Pacific Islanders made up 0.6% of orthopaedic surgery residents in 2018-2019.[5]

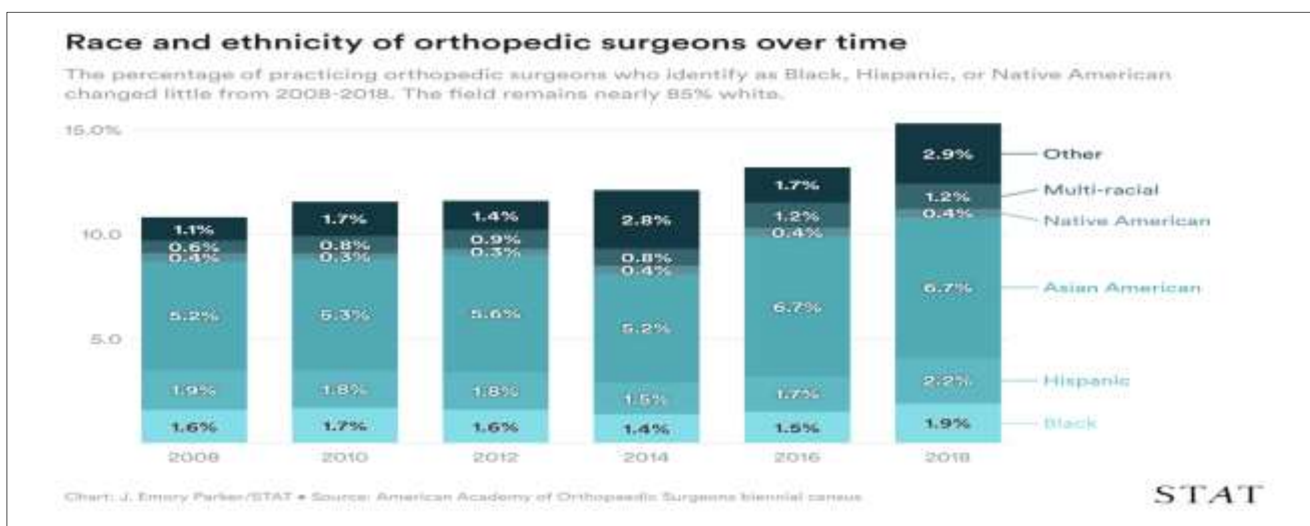

Figure 2: The distribution of race and ethnicity of orthopaedic surgeons from 2008-2018.[6]

DISCUSSION

Since the rapid immigration into the United States in the early 2000s, Pacific Islanders have begun to make up an increasing portion of the US population, yet this has not been reflected by a significant increase in the representation of Pacific Islanders in orthopaedic surgery. This acute problem can cause long-term negative effects on the community of Pacific Islanders as they continue to be treated by physicians who do not look like them and who do not completely understand the cultural barriers faced by their communities. Additionally, the continued lack of representation among this community in surgical specialties like orthopaedic surgery has forced many students who identify as Pacific Islanders to turn to other specialties in primary care where they see more representation. When an individual does not see surgeons who look like them practicing in the field, they are more than likely to turn away from that field for fear of being an anomaly.

With the increasing heterogeneity of modern America, there must be an emphasis on diversity in healthcare. Within the field of medicine, diversity among physicians provides well-documented benefits to patients.[10] Research has also demonstrated that underrepresented minorities in medicine (URM) are more likely to serve uninsured and underinsured patients and practice in underserved areas which ultimately leads to overall improved patient satisfaction and access to healthcare for underserved groups.[10] With the majority of program directors being non-Hispanic white males, we need these leaders to stress the importance of increasing the number of underrepresented minorities in their residency programs. It has been reported that the number of residency programs with more than one URM decreased over time between 2002 (61 programs) to 2016 (53 programs).[11] Programs must examine potential barriers to URMs in orthopaedic residency programs because these trends will have unintended consequences in perpetuating the cycle of poor access to healthcare among underserved communities.

Residency programs must not only focus on the recruitment of URMs in their programs, but they must also provide support to URM surgical trainees who face various challenges related to their minority status. These orthopaedic surgery residency programs should provide early and longitudinal mentorship, mitigating imposter syndrome, acknowledging the challenges faced by residents, and seeking feedback from both past and current residents.[12]

In addition to the lack of representation in the field of orthopaedics, AAPI students and surgeons have also been reported to face more daily challenges in medical school, resulting in lower admittance rates to orthopaedic residency. According to The American Journal of Surgery, AAPI medical students receive lower medical school clerkship grades, experience discrimination in medical student performance evaluation (MSPE) summaries, and have decreased admittance into the Alpha Omega Alpha (AOA) Medical Honor Society.[7] Each of these factors contributes to the residency selection process and the disadvantages these students face at this crucial step. When trying to increase the rates of Pacific Islanders being admitted into orthopaedic residency, those in a position of power must start from the ground up, ensuring that individuals have the resources as medical students to set themselves up for success. This includes creating programs that allow those of Pacific Islander descent to receive exposure early in their medical careers to explore their interests in a variety of surgical subspecialties. Medical schools must also do their due diligence to provide these students with the appropriate guidance.

White students who were surrounded by ethnically and racially diverse peers were more likely to provide a higher self-rating of preparedness to care for minority patients.[13] Therefore, medical schools must also create a student body that consists of racial and ethnic diversity, as this has been shown to be associated with outcomes consistent with the goal of preparing students to meet the needs of a diverse population.

There must also be an emphasis on recruiting more URM faculty members who can build a diversity and inclusion department to support their URM orthopaedic surgery residents. According to a study completed in The Journal of Bone and Joint Surgery, the most common barrier to diversity chosen by 69% (52 of 75) of programs was "we do not have enough minority faculty, which may deter applicants." This issue needs to be addressed to successfully recruit URM residents who feel safe and supported in their programs.[5] The next two most frequently chosen barriers were "we consistently rank minority applicants high but can never seem to match them" and "not enough minorities are applying to our program".[5] Similarly, URM applicants may not be interested in applying to or ranking a program that does not seem to have URM leadership. Thus, programs must emphasize the recruitment of URM faculty, surgeons, and physicians across all programs and specialties to provide guidance to URM residents who can seek support from mentors who look like them.

Leaders of color continue to fight for diversity in orthopaedic surgery by advocating for students who look like them. However, for an applicant who is of Pacific Islander descent, the battle seems to be a bit more difficult as Pacific Islanders made up 0.4% of orthopaedic faculty and 0.6% of orthopaedic residents in the US in 2018-2019.[5] Although leaders of color continue to push for more students of color to enter the field of orthopaedics, we also need help from those who make up much of the field.[14,15] If residencies preach about their advocacy for an increase in diversity in their programs, we need residency chairs and program directors to be just as big of an advocate for medical students of color to enter the field. They must be the ones who not only advocate for the admission of students into their residency programs but also must provide the proper guidance for these orthopaedic residents of color to successfully complete and graduate from the program.

CONCLUSION

Orthopaedic surgery remains the least diverse field by race and gender, and this can negatively impact the healthcare of our underserved communities. Thus, orthopaedic surgery program directors and other leaders in the field must strongly advocate for more URM residents in their programs. They must also provide proper support and guidance for URM residents to complete and graduate their programs. This will ultimately benefit the overall access to proper healthcare for individuals in underserved communities.

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