

Review Article

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The current status of diversity among physician assistants in surgery: A systematic review

<https://doi.org/10.1515/ohe-2023-0007>

received July 31, 2023; accepted October 16, 2023

Abstract: It is difficult to achieve diverse representation within surgical settings, including within the ranks of physician assistants (PAs) despite research indicating that diversity improves patient outcomes and experience and benefits the workplace. The aim of this systematic review was to evaluate interventions used to support diversity among surgical PAs. Databases including PubMed (MEDLINE), Web of Science, SCOPUS, CINAHL, and Cochrane Database of Systematic Reviews were searched for publications that described interventions for increasing underrepresented in medicine and gender diversity among surgical PAs. While 20 studies were identified, none met the inclusion criteria. The absence of literature on surgical PAs led to an exploration of research conducted among surgeons, nonsurgical PAs, and PA students. While not directly applicable, results from these studies offered valuable insights into factors that impact diversity as well as strategies that foster diversity. Factors such as gender bias, discrimination, and harassment may contribute to lower numbers of underrepresented groups working in surgery. Efforts to support increased diversity include recruitment, leadership support, and mentorship programs. This systematic review highlights the need for further research to foster diversity among PAs working in surgery. While existing surgical literature offers some contextual insights, future studies on and increased attention toward this topic will improve inclusivity and create a more equitable healthcare system.

Keywords: diversity, surgery, equity, gender, discrimination, physician assistant

1 Introduction

Diversity is defined as, “all the ways in which people differ, and it encompasses all the different characteristics that make one individual or group different from another” [1]. Diversity plays an essential role in advancing a fair and equitable society, spanning not only healthcare but across all fields. The inclusion of different viewpoints can fuel creativity, innovation, and problem solving by bringing together individuals with different worldviews [2]. Surgical settings have historically lacked diversity [3]. Fewer providers from racial minorities, ethnic minorities, and other underrepresented populations pursue careers in surgery [3]. African Americans as a race represent 14% of the US population, and Hispanics as an ethnicity represent 17% of the US population [4]. Despite those numbers, each group represents only 4% of the physician workforce [4]. According to data from the American Academy of Physician Assistants, 14.5% of physician assistants (PAs) self-reported as non-White race or other ethnicity [5]. When it comes to general surgery PAs, 5.4% self-identified as Hispanic/Latinx and 3.7% self-identified as Black/African American [6].

The need to include healthcare providers from diverse backgrounds in the workforce has been well documented. The diversity of surgical providers improves patient care [4,7]. Different perspectives from different backgrounds can add value to medical care by improving diagnostic abilities and patient satisfaction [4,7]. Communication and patient trust also improve when patients are cared for by a provider with a background similar to theirs [4]. There is a clear need to create an environment in surgical settings where systemically minoritized groups can contribute and thrive [2–4].

Perhaps because that value is recognized, efforts to promote greater diversity within the field have been gaining momentum [3,4,8]. Many organizations across the country have implemented programs aimed at improving diversity among the surgical workforce. For example, the National Academies of Science, Engineering, and Medicine wrote a consensus statement indicating a need for more diversity in the healthcare workforce, and both the American College of

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Surgeons and the American Surgical Association (ASA) have policy statements on diversity [2,9,10]. While these efforts are noteworthy, more action is needed as there are still fewer PAs from underrepresented groups in surgical settings than other specialties.

2 Methods

2.1 Data search strategy

PubMed (MEDLINE), Web of Science, SCOPUS, CINAHL, and Cochrane Database of Systematic Reviews were searched for publications describing interventions for promoting diversity among surgical PAs. The search strategy used a combination of relevant keywords and Medical Subject Heading terms to identify potential studies. Search terms included, “diversity,” “underrepresented,” “underrepresented in medicine (UIM),” AND “physician assistant,” AND “surgery.” Peer-reviewed articles written in English about interventions to support diversity among PAs in the United States between 2000 and 2023 were included. Articles meeting the inclusion criteria described interventions aimed at increasing UIM and/or gender diversity within the surgical PA profession. In addition, references of identified articles were reviewed to identify any other relevant articles.

2.2 Data collection and analysis

The selection of studies was conducted by performing an initial screening. The authors evaluated the titles and abstracts of retrieved articles to determine their relevance to the research topic and to determine whether they met the inclusion criteria. In situations where an abstract did not provide adequate information to determine relevance, the entire article was reviewed. Studies that did not meet the inclusion criteria were excluded.

3 Results

The initial search yielded a total of 20 articles. After removing duplicates, the remaining 11 articles underwent title and abstract screening. During this process, 8 articles were excluded as they did not meet the predefined inclusion criteria. Following the initial screening, the full text of three articles was reviewed for eligibility. None of the

identified articles met the inclusion criteria within the surgical PA profession. Hence, we did not find any articles that could be included in the systematic review (Figure 1).

Due to the lack of studies meeting the predefined inclusion criteria within the surgical PA profession, findings from studies among surgeons, nonsurgical PAs, and students were reviewed to provide insights into factors that impact diversity and to identify possible interventions to support diversity in the surgical field.

4 Discussion

During the review of the literature, several recurring themes emerged related to the underrepresentation of certain groups working in surgery. These specific themes included gender bias, discrimination, harassment in surgery, barriers to diversity, and interventions to support diversity. The following sections will explore these topics further.

4.1 Gender bias, discrimination, and harassment in surgery

In the PA profession, there are more female PAs than males. The National Commission on Certification of Physician Assistants indicates that 72.7% of certified PAs identify as female [6]. However, within surgical specialties, gender diversity varies. For example, plastic surgery and general surgery are largely composed of female PAs (90.5 and 73.4%, respectively), whereas orthopedic surgery is composed of only 53.3% female PAs [6].

While more female PAs work in surgical settings than males, this does not mean that bias, discrimination, and harassment do not exist in these settings. There is limited research in this area involving female surgical PAs; however, there are data among female surgeons indicating that they experience gender bias, discrimination, and harassment at higher rates than their male counterparts [8,11]. Among early-career surgeons, 50% of women reported experiencing sexual discrimination [11]. Data also suggest that female surgeons continue to experience gender discrimination and harassment throughout their professional careers [8].

The Equal Pay Act of 1963 prohibits employers from paying different wages for equal work performed by men and women, but a gender pay gap continues to exist among PAs [12,13]. While female PAs represent nearly two-thirds

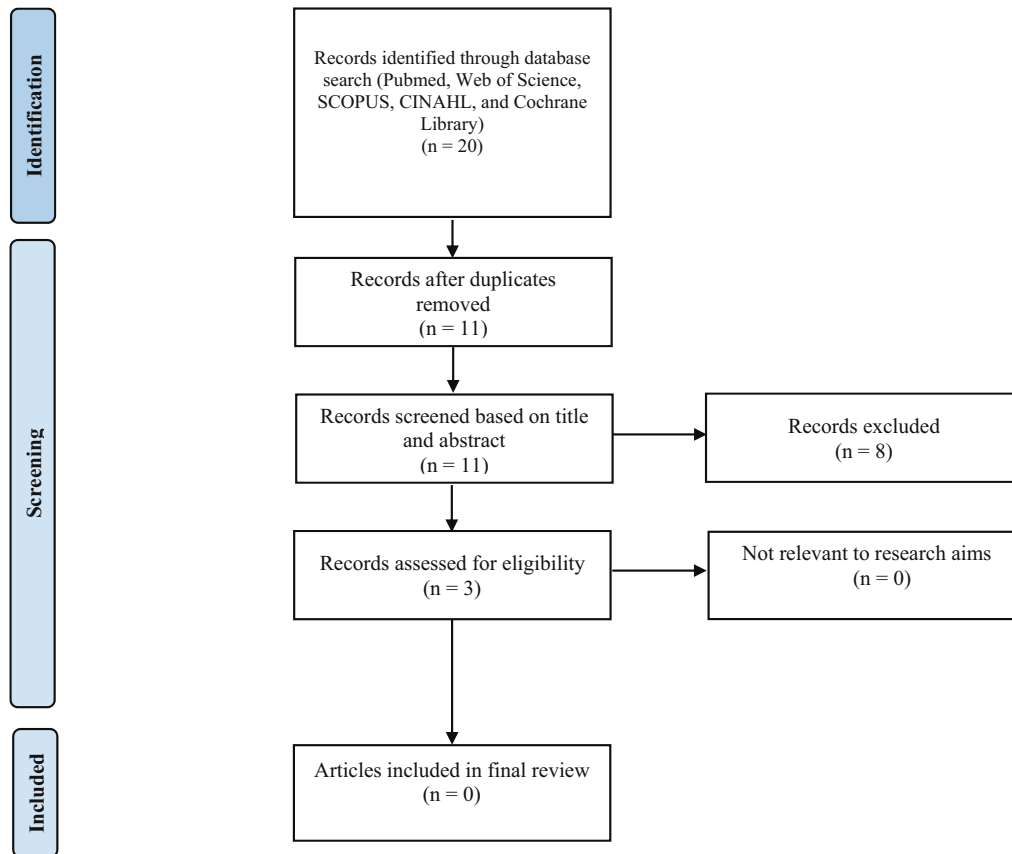


Figure 1: Preferred reporting items for systematic review and meta-analyses (PRISMA) diagram which illustrates the literature selection process for this systematic review, outlining how articles were screened and included.

of the profession, research indicates that they receive approximately \$18,000 less per year than the male counterparts in primary compensation [13]. These differences are also seen among female surgeons, with male surgeons earning 36% more than female surgeons [14]. Despite this, disparities in PA salaries by racial and ethnic groups are not large and not statistically significant [13].

Historically, those from underrepresented backgrounds have been less likely to choose careers in surgery and surgical specialties [15,16]. The reasons for this are multifactorial; however, discrimination and harassment may be contributing factors. While data specifically related to racial and ethnic discrimination faced by PAs working in surgery is sparse, 18.7% of PA student respondents to an online survey revealed that they had witnessed racial slurs during their PA education [17]. A recent study involving academic surgery faculty in the United States indicated that 12.5% of institutions reported having a racial discrimination complaint filed within the previous 3 years [3]. Surgeons from underrepresented groups also report experiencing racial and ethnic microaggressions and workplace mistreatment [18]. One study found that over 97% of Black orthopedic

surgeons in the United States believe that they face workplace discrimination based on their race [19]. In addition, surgical residents from systemically minoritized groups report experiencing the highest rates of discrimination and feel that they are held to “different standards of evaluation” than other residents [20].

Researchers have also posited that sexual and gender minority PAs face discrimination, although the data to support this are limited. Recent data suggest that many PA education programs provide little instruction on Lesbian Gay Bisexual Transgender Queer (LGBTQ+) topics [21]. A study involving LGBTQ+ surgical residents found that discrimination, sexual harassment, and bullying are more frequent in this population and are associated with increased rates of suicidality [22].

4.2 Barriers to underrepresented groups working in surgery

Barriers may impact the number of PAs from underrepresented groups working in surgery. Some of the most

common reported barriers to pursuing a career in surgery include lifestyle considerations that may impact family planning, lack of mentors and role models, lack of exposure to others from underrepresented backgrounds within the profession, and perceptions of unconscious bias [2,4,8].

Choosing a career in surgery can be demanding. Oftentimes, surgical PA jobs require long hours at work and on-call hours outside of a normal work schedule. A challenging schedule in particular may be a barrier for those PAs with children or for those who plan to have children. Research indicates that female surgeons have fewer children than their male counterparts and that 40% of female surgeons are childless (compared to 8% of male surgeons) [8,23,24]. Furthermore, female surgeons report higher rates of burnout and work-home conflicts than their male counterparts, and 79% of female general surgery residents feel pregnancy is a barrier to a career in surgery [25,26].

Among surgeons from underrepresented backgrounds, the absence of mentors and role models was found to be a perceived barrier to career advancement [2,8]. This absence is limiting as it impacts interest in the surgical profession, and it may hinder opportunities for growth within a position. Having a role model provides an example of the success that one can achieve, and it may inspire and motivate individuals to pursue opportunities in surgery.

Unconscious bias, or “an unfair belief about a group of people that you are not aware of and that affects your behavior and decisions” is another potential barrier that those from systemically minoritized groups in surgery often report experiencing [27]. Studies have shown that surgical residents often encounter unconscious bias and microaggressions from various sources, including patients, staff, faculty, and co-residents [28]. Furthermore, research suggests the presence of unconscious appearance bias in the selection process for surgical residencies [29]. A key strategy to address this issue is workforce training to improve professionals’ awareness of both conscious and unconscious bias, although data indicate that education alone may not be enough to impact any given person’s unconscious bias [2,8].

4.3 Initiatives to improve diversity in surgery

As more evidence indicates the value of diversity in surgical settings, purposeful efforts aimed at promoting gender and ethnic diversity have emerged. Several professional PA and surgical organizations have published statements indicating the need for diversity over the past decade [2,3,9,10,30–32]. While these statements are helpful and draw additional attention

to the issue, effecting change is complex and requires more than just statements of support. Identifying barriers to diversity, encouraging diverse and courageous leadership, incorporating system-wide transparency and accountability, and incentivizing changes are just some of the components necessary to improve diversity at the institutional level [2,8]. With that specificity in mind, the ASA Task Force published an evidence-based manual that provides context and guidance for academic surgical leaders with best practice tools to foster a more diverse and inclusive surgical workforce [2].

Addressing some of the barriers to working in surgery may help recruit and retain PAs from underrepresented backgrounds in the field. Efforts that have been implemented by organizations and institutions thus far include improving mentoring; providing scholarships and awards to recruit candidates from systemically minoritized groups; enhancing diversity among leadership positions within surgical societies and organizations; prioritizing diversity and inclusion research; providing grants focused on supporting diversity programs; participating in unconscious bias training programs; sponsoring cultural competency training programs; and implementing education about LGBTQ+ into PA school curriculums [3,8,33,34] (Figure 2).

Mentorship is an important aspect of recruitment and retention for underrepresented groups working in surgery [2]. Research by Hemal et al. highlighted the value of longitudinal mentorship programs as a highly effective and cost-effective method for increasing UIM and female representation among surgical residency applicants [33]. These programs can provide aspiring surgical professionals with ongoing guidance, support, and career development opportunities. In addition, long-term mentoring relationships facilitate a structured environment where mentees can gain valuable insights, build confidence, and navigate the challenges that underrepresented groups may encounter when pursuing a career in surgery. A study of surgical PAs found that 93% felt that mentoring was important and 55% considered a physician the ideal mentor [35]. Therefore, mentoring may help recruit and retain more PAs from systemically minoritized groups in surgical positions.

Scholarships and awards to recruit candidates from systemically minoritized groups also increase diversity among surgical residents [33]. Research demonstrates that awards and workshops can help generate interest in surgery among underrepresented minority students [33,36]. Moreover, these initiatives contribute to improvements in self-efficacy, a factor known to be associated with increased interest in pursuing surgical careers [33]. This highlights the potential of incentives and interventions designed to support individuals’ confidence in their ability to succeed in surgery as pathways for enhancing diversity within the profession.

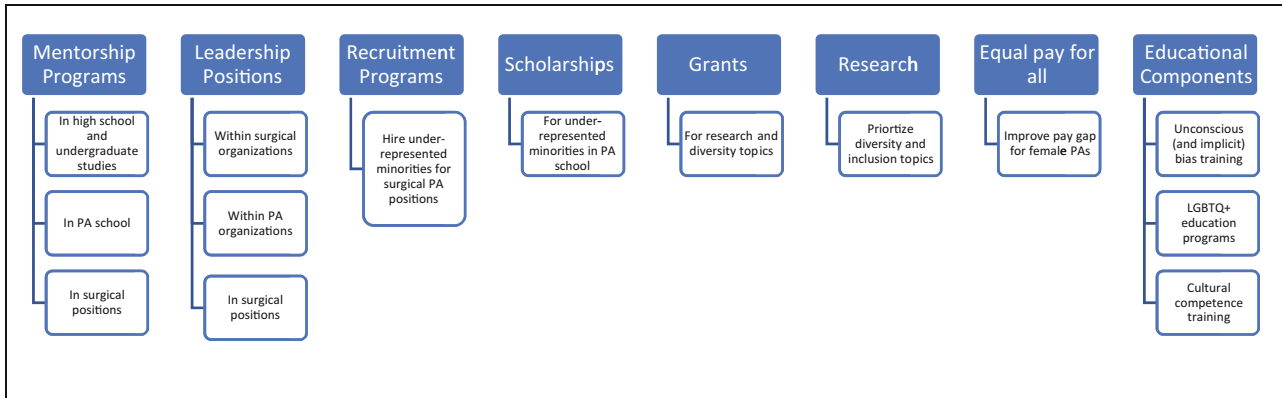


Figure 2: Recommended interventions for improving diversity among PAs in surgery [3,8,32,33,41].

Enhancing diversity among leadership positions within surgical societies and organizations may help with the recruitment and retention of surgical PAs. A sense of community and professional support may be a critical component of a programmatic method of increasing the number of PAs from underrepresented backgrounds working in surgery. There are many constituent organizations for PAs that may have an important role in increasing diversity and supporting professionals throughout their career. For example, the National Society of Black Physician Assistants (NSBPA), the Physician Associates for Latino Health, the African Heritage Physician Assistant Caucus, the Physician Assistants of Color, and the LGBT PA Caucus are associations specifically for systemically minoritized groups where PAs may find additional support. Other professional organizations not specifically devoted to diversity may also play a part. For example, in 2021, the American Association of Surgical Physician Assistants (AASPA) created a diversity, equity, and inclusion committee to foster a broader acceptance of diversity and inclusion within the association. Thus far, the organization has presented several webinars and conference presentations on surgical topics that promote diversity within the field.

Training and research programs that support learning about diversity, equity, and inclusion have also been recommended to promote interest in surgical careers. Initiatives that seek to enhance diversity and recruitment, starting in high school and undergraduate studies, may act as valuable pipelines for UIM candidates into surgical settings [33]. Such activities might include offering shadowing opportunities, workshops, summer research activities, and mentoring. In addition, the implementation of ongoing diversity training programs throughout one's career may prove beneficial in promoting diversity and inclusion [37]. The task force on equity, diversity, and inclusion, created by the ASA, advocates the use of implicit bias training [2]. While many postgraduate

PA training programs provide implicit bias training, the consistency and standardization of the education varies [38]. Additional research on the long-term impact of these diversity training programs could help develop a framework or standardized education that may be useful for the recruitment and retention of UIM candidates into surgical settings.

Some large hospital systems have taken strides to make diversity and inclusion among their employees a priority. For example, Hackensack Meridian Health in New Jersey was awarded the top spot on DiversityInc's list of Top Companies for Hospitals and Health Systems in 2023 and was also named a "Leader for LGBTQ+ Healthcare Equality" by the Human Rights Campaign Foundation [39]. One of the ways Hackensack Meridian Health supports diversity and inclusion among its employees is through the use of Team Member Resource Groups, which increase cultural competence and awareness, create an open forum to share innovative ideas, and promote professional development [40].

While data are limited regarding interventions that may promote diversity among PAs working in surgery, there appears to be room for improvement within the profession as a whole. Recent data indicate that little progress has been made over the past two decades in increasing the diversity of PA school matriculants and graduates [41]. Using a holistic admissions process, which evaluates an applicant's personal characteristics and unique experiences rather than focusing solely on academic measures, has been shown to increase diversity within the student body [42,43]. Despite this evidence, not all PA programs utilize this approach for their admissions process. It has also been suggested that PA students' perceived cultural competence levels are low in the areas of cultural knowledge, skills, and encounters [44]. Cultural competence is an important part of providing equitable healthcare, and

integrating cultural competence courses, cultural discussions, and clinical rotations involving diverse patient populations into PA training may strengthen students' preparedness to work in multicultural environments [44,45].

5 Conclusion

This systematic review sheds light on the complexities associated with diversity in surgical settings, with a specific focus on PAs. While the literature search revealed a notable lack of research among the diversity of surgical PAs, the examination of related studies involving surgeons, nonsurgical PAs, and PA students provided valuable insights.

The surgical PA profession continues to evolve, and significant efforts are underway that will continue to support the inclusion of all PAs within the field of surgery. These opportunities will also encourage PAs from underrepresented backgrounds already working in surgery to act as mentors and to network with students interested in the field to develop and support pipeline initiatives. We encourage all surgical PAs to become actively involved in these efforts. Significant additional research could be done in this area. Continued actions to promote diversity within the PA profession are critical and will ultimately lead to improved patient care.

Acknowledgments: The authors thank the AASPA and the NSBPA for encouraging collaboration on research and education programs that support diversity within the PA profession. The authors also thank the entire faculty, staff, and fellow trainees at the Weill Cornell Medicine Career Advancement for Research in Health Equity (CARE T37) program.

Funding information: The authors state no funding involved.

Conflict of interest: The authors state no conflict of interest.

Ethical approval: The conducted research is not related to either human or animal use.

Data availability statement: The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

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