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A Systematic Review of Racial and Gender Inequities in Faculty Positions in Academia

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Executive Summary

TITLE: A Systematic Review of Racial and Gender Inequities in Faculty Positions in Academia

BACKGROUND

Academia, as a cornerstone of societal progress through education, innovation, and policy, thrives on the inclusion of diverse scholars. Embracing a diverse spectrum of scholars within academia is imperative to maximize this progress. However, entrenched racial and gender disparities within academia create barriers that obstruct the recruitment and retention of scholars from diverse racial and gender backgrounds and erode the overall scientific impact of academic pursuits. Empirical evidence from various academic institutions across Canada highlights the significant underrepresentation of gendered, racialized, and Indigenous faculty, and indicates that racialized women are the most under-represented among full-time professors and instructors.

OBJECTIVES

In light of ongoing discussions on equity, diversity, and inclusion (EDI), and the complex interplay of race and gender within academic environments, this review aimed *to assess and illuminate the current state of diversity in faculty hiring*. Specifically, *it examines the representation of race and the intersection of race and gender in academic institutions*.

RESULTS

A systematic review of the literature was conducted to explore racial/ethnic and gender inequalities in the employment, retention, and career progression of academic faculty members across various institutions and disciplines.

The main findings of this study can be categorized under three themes.

Representation of Race and the Intersection of Race and Gender in Academic Faculty Positions:

The analysis revealed persistent disparities in the representation of race and gender across academic faculty ranks and leadership roles. White male faculty were significantly overrepresented, particularly in senior and leadership positions, whereas White female faculty were well-represented in lower ranks but saw a marked decline in higher ranks and leadership roles. Asian male faculty were predominantly concentrated in lower faculty ranks, with significant underrepresentation in leadership positions, while Asian female faculty were among the most underrepresented, especially in leadership roles. Underrepresented minority (URM) faculty, including Black, Hispanic, and Native American groups, faced systemic underrepresentation at all levels, with slight exceptions in institutions such as Historically Black Colleges and Universities (HBCUs) and religiously affiliated schools. Native American, Alaskan Native, Native Hawaiian, and Pacific Islander faculty were particularly marginalized, often grouped under "Unknown" or "Other." Across all groups, non-White faculty were reported to spend more time teaching compared to their White counterparts, highlighting differences in workload distribution.

Longitudinal Trends in Racial and Gender Representation in Academic Faculty Positions:

Trends over time illustrate some progress in diversifying academic faculty, but challenges remain. White faculty continue to represent the largest ethnic group in academia, though their numbers have declined, driven by reductions among White men. In contrast, White women have seen modest increases. Asian faculty have shown significant growth, emerging as one of the fastest-growing racial/ethnic groups in academia. While URM faculty have experienced some growth, primarily driven by increases among women, their overall representation remains low, particularly in leadership roles where growth has stagnated over recent decades. However, over a more extended period, a two-fold increase in URM leadership representation has been observed in specific disciplines. Despite these advances, the percentage of URM faculty in many departments remains disproportionately low, reflecting ongoing systemic barriers to equity.

Racial and Gender Representation in Academic Faculty Promotion, Retention, and Attrition:

Disparities in promotion and retention further underscore inequities in academia. White male faculty had the highest promotion rates and shortest timelines for advancement, while Asian and URM faculty, including Black and Hispanic groups, were less likely to achieve promotion. Among these groups, Asian faculty experienced particularly low promotion rates, while URM faculty faced prolonged promotion timelines and higher rates of attrition, especially among women. URM women were the most affected, with the lowest promotion rates, longest delays, and the highest likelihood of leaving academia after 10 years. Non-URM men experienced the shortest promotion timelines, while non-URM women faced moderate delays. Black faculty were disproportionately likely to leave academia compared to their White counterparts, highlighting critical retention challenges that exacerbate underrepresentation across faculty ranks.

KEY MESSAGES

To foster a more equitable and inclusive academic environment, targeted actions are essential to address systemic barriers that hinder diversity in recruitment, retention, and promotion. These recommendations aim to create fair opportunities for underrepresented groups, ensuring that institutions benefit from a wide range of perspectives and talents.

Enhancing Inclusive Recruitment

- Develop and utilize structured toolkits for recruitment, including candidate evaluation rubrics aligned with job descriptions, clear diversity statements, and diverse representation on hiring committees and candidate pools.
- Leverage cluster hiring strategies to enhance faculty diversity by simultaneously recruiting multiple scholars for roles that encourage collaboration and create a supportive academic environment.

Ensuring Equitable Retention and Promotion

- Alleviate the "diversity tax" by reducing uncompensated tasks that detract from personal and professional growth.
- Ensure that underrepresented faculty have equal access to mentorship, sponsorship, and leadership roles, complemented by robust career development opportunities.
- Address systemic inequities by fostering unbiased evaluations, enhancing research access, expanding networking opportunities, and providing financial support through initiatives like debt alleviation.

Institution-Wide EDI Interventions

- Implement high-quality, specialty-specific, and interdisciplinary EDI initiatives that address the distinct challenges within various academic fields.

METHODOLOGY

This systematic review focused on peer-reviewed articles from the last ten years and adhered to the *PRISMA 2020 guidelines*. A comprehensive search was conducted across six databases: Sociological Abstracts, APA PsycINFO, CINAHL, Gender Studies Database, and MEDLINE. The searches were performed on July 30, 2024, and results were limited to publications from 2014 onwards. Inclusion and exclusion criteria were defined using the *PICOS framework*: Participants—individuals from underrepresented racial or gender minority groups seeking tenure or promotion; Comparator—non-racialized or gender minority groups, or no comparator; Outcomes—diversity statistics in faculty hiring, reported challenges, and factors contributing to these outcomes; Study design—peer-reviewed research publications. Review papers, case studies, editorials, commentaries, books, and book chapters were excluded. Of the 8,423 publications identified through the systematic search, 72 were included in the final knowledge synthesis and *narratively synthesized and discussed*.

Keywords: Racial inequality/disparity; Gender inequality/disparity; Under-represented; Academic position; Systemic racism.

Final Report

CHAPTER I: INTRODUCTION

Description of Contemporary Challenges and State of Knowledge

In an idealistic domain where academia stands as a fundamental pillar for societal advancement by nurturing the education of upcoming leaders, creating knowledge and innovation, and influencing public policy, a pivotal factor resides in incorporating a broad spectrum of scholars. The academic landscape, however, is marred by racial and gender inequalities that not only hinder the educational experience but also impede the advancement of innovative and impactful scientific research^{1,2}. Movements like #BlackintheAcademy and the Scholar Strike for Black Lives in 2020 have laid bare the deep-seated problems within academic institutions, prompting swift but reactive responses from predominantly White institutions³. These disparities not only hinder the recruitment and retention of scholars from diverse racial and ethnic backgrounds but also diminish the overall impact of academic pursuits. According to recent diversity and equity reports from several Canadian educational institutions, such as the University of British Columbia (UBC)⁴, Toronto Metropolitan University⁵, and the University of Alberta⁶, as well as the Canadian Association of University Teachers (CAUT)⁷, racialized, Indigenous⁸, and women are underrepresented among academic faculty and are less likely to have full-time employment. The reports emphasize that racialized women are the most underrepresented among full-time professors and instructors, for instance, comprising only 4.2% compared to 63.50% for White men, 20.90% for White women, and 11.40% for racialized men⁴. The CAUT report⁷ also underscores the substantial underrepresentation of Indigenous academics, accounting for only 1.4% of university professors and 3% of college instructors in 2016, as well as the significant underrepresentation of women as teachers of science, technology, engineering, and mathematics (STEM) in Canadian colleges and universities. Similarly, the U.S. Department of Education's 2012 report underscores the glaring underrepresentation of women of color within the academic landscape, highlighting notably low percentages across assistant, associate, and full professor positions. *Research indicates that the enduring disparities are intricately linked to diminished tenure rates for historically underrepresented minority women (URMW), a phenomenon shaped by gendered and racialized institutional cultures.* This literature that explores this connection attributes these imbalances to factors such as extra service responsibilities, specific teaching assignments, the undervaluation of nonmainstream scholarship, and ambiguity in the tenure process⁹.

The origins of racial inequity in academia in the United States can be traced back to the era of slavery, which persisted from the early colonial days through the 19th century until its mid-19th-century abolition¹⁰. During this dark period, enslaved Africans were systematically denied access to education. After the Civil War, the establishment of Historically Black Colleges and Universities provided a space for Black education¹¹. However, the subsequent integration into predominantly White institutions during the Civil Rights Era exposed scholars of color to environments characterized by pervasive discussions about racial minorities' perceived inferiority¹². The devaluation of racial minorities was further perpetuated through scientific avenues. Influential figures like Sir Francis Galton and William McDougall contributed to the development of the genetic deficit model, promoting the notion of inherent racial differences in intelligence¹³. This troubling model persisted through the mid-20th century. As overt racism became less acceptable, cultural deficit models emerged, attributing disparities to alleged cultural shortcomings of racial minorities. These unfounded theories, disseminated in influential academic journals, not only lacked empirical basis but also served to reinforce harmful stereotypes³.

The consequences of racism extend beyond specific racial groups. Psychological distress resulting from daily encounters with racism and discrimination is not limited to Africans and Black individuals; it also affects the well-being of other racialized scholars, including academics of Asian descent¹⁴⁻¹⁶. The literature indicates that various theories and methods have been employed to understand how Asian academics respond to, comprehend, and manage racism^{16,17}. This includes exploring aspects such as racial identity, ethnic identity, cultural values, and collective self-esteem¹⁸. The diversity in these theories and methods underscores the intricacies within racialized communities, shaped by factors such as immigration

experiences and the varied forms of racism they encounter. This comprehensive perspective emphasizes the ongoing challenges and the need for concerted efforts to address racial inequity in academia¹⁸. Moreover, the psychological factors contributing to racial inequity in academia are manifold. Racial ignorance among academics, rooted in structural factors, such as segregation, biased curricula, and Western Eurocentric values¹⁹, perpetuates racial disparities²⁰. In interpersonal interactions, scholars of color experience subtle or explicit cues of not belonging, often manifesting through race–status associations. Structural challenges, including tokenism, incentivization issues, and underrepresentation in diversity-related research, further amplify racial disparities in academia^{3,21}.

Despite the concerted efforts of universities and research institutions to advance gender equality in academia through the development of plans and initiatives²², persistent global challenges remain²³⁻²⁵. The enduring underrepresentation of women in leadership roles highlights the necessity for more comprehensive strategies²⁶⁻²⁸. While progress has been made, intersectionality has yet to be fully integrated into institutional policies and practices²⁵. In academic employment, intersectionality involves recognizing and considering multiple, intertwined social identities and factors that can converge to influence an individual's experiences and opportunities within the academic community. Current research indicates that racialized women faculty, especially Asian, Black, and Indigenous women, often experience higher rates of non-tenure-track roles and lower promotion rates than their white, male counterparts²⁹. This intricate web of oppression has severe consequences, potentially leading some to leave the scientific community altogether, underscoring the significant impact of intersecting factors on individuals' career progression, access to opportunities, and overall experiences within the academic environment^{26,30}. These social identities encompass but are not limited to, race, gender, ethnicity, sexual orientation, socioeconomic status, and disability³¹. Adopting an intersectional approach in academic employment entails acknowledging that individuals may encounter a blend of advantages and disadvantages based on various aspects of their identity³².

From an alternative perspective, faculty hiring networks, which dictate the recruitment of graduates as faculty, exhibit pronounced hierarchies, contributing to both social and epistemic disparities in academia³³. Unraveling the mechanisms steering these trends would enhance initiatives aimed at diversifying the academic landscape and provide fresh insights into the impact of hiring practices on scientific advancements. Research findings indicate that the fundamental structural mechanism solidifying hierarchies in faculty hiring networks involves a combination of global and local preferences for institutional prestige^{33,34}. Within this dynamic, studies demonstrate the remarkable stability of each institution's position in the hierarchy, driven by a competitive process favoring more prestigious institutions³⁴. These outcomes underscore the reinforcing nature of a prestige-oriented faculty hiring system and emphasize the significance of comprehending its implications for diversity and innovation in academic settings³⁵.

Goal and Objectives

In light of ongoing discussions surrounding equity, EDI, and recognizing the complex interplay of race and gender within academic environments, the primary goal of this Knowledge Synthesis (KS) proposal is to systematically review and illuminate the current state of diversity in faculty hiring. This includes examining the representation of race and the intersection of race and gender in academic institutions. Based on this review, the proposal aims to draw conclusions and provide recommendations addressing racial and gender inequalities in faculty positions, informing both policy and practice within academia. The main objectives of this KS proposal are as follows:

1. Investigate the extent of research and publications on racial and gender inequity in faculty positions at academic institutions over the past decade.
2. Provide Recommendations by synthesizing and summarizing the findings to generate actionable measures that address the identified gaps in the literature and promote EDI within academic institutions.

Study Significance

The significance of this Knowledge Synthesis Grant (KSG) lies in its thorough examination of the persistent challenges and potential solutions related to racial and gender inequities in faculty positions in academic institutions. Including empirical data, such as the underrepresentation and high unemployment rates of racialized individuals—especially women and Indigenous academics—underscores the gravity of the issue. As academia catalyzes societal progress, this proposal acknowledges the crucial role of diversity in fostering innovation and impactful scientific research. To maximize its societal role, academic institutions must confront and rectify the systemic and contemporary challenges discussed in this report, paving the way for a more inclusive and equitable workplace environment that contributes meaningfully to the advancement of knowledge and societal progress. This KS project has the potential to inform diversity initiatives, policies, and practices within academia by recognizing and highlighting racial and gender disparities, understanding the underlying dynamics of inequities related to employment, retention, and promotion of faculty, raising awareness, and providing recommendations based on identified gaps and limitations in the literature.

Expected Contributions and Impacts

The proposed KS project is expected to yield the following key impacts and contributions within the academic landscape:

- *Current Challenges Analysis*: By investigating contemporary challenges faced by underrepresented groups, the KS project seeks to shed light on ongoing obstacles within academic institutions. This analysis is crucial for identifying areas that require immediate attention and may inform policy and practice.
- *Recommendations for future research*: The recommendations of this KS project, drawn from identified gaps and limitations in the literature, can serve as a roadmap for future studies.
- *Informing EDI Initiatives*: By acknowledging and highlighting racial and gender disparities in faculty positions, this KS project intends to inform EDI initiatives, policies, and practices within academia. It holds the potential to be a guiding resource for institutions seeking to create more equitable academic environments.
- *Awareness and Advocacy*: The report's exploration of disparities and challenges within academia will contribute to raising awareness about these issues. This heightened awareness is a crucial step toward fostering advocacy for systemic change, encouraging institutions to proactively address and rectify the identified challenges.

CHAPTER II: METHODS

Search Strategy

We followed the PRISMA 2020 statement³⁶ to guide the identification of keywords, selection of databases, inclusion and exclusion criteria, and design of the overall search process. A systematic search protocol was established before conducting the search and used as a guide during the conduction of the systematic review. The search strategy was initially developed in our first meeting with a university librarian and further refined in subsequent meetings.

The search strategy focused on identifying articles published in peer-reviewed journals. An initial exploratory search was conducted in Sociological Abstracts to identify relevant articles on the topic. Text words from titles and abstracts of these articles, along with indexing terms used to describe them, were used to develop a comprehensive search strategy for Sociological Abstracts. This strategy was peer-reviewed by professional health librarians and subsequently tested and refined in consultation with the review team. The finalized strategy was then adapted for the six databases included in the review: *Sociological Abstracts* (ProQuest), *APA PsycINFO* (EBSCO), *CINAHL* (EBSCO), *Gender Studies Database* (EBSCO), and *MEDLINE* (Ovid). Searches were completed on July 30, 2024, with results limited to articles published from 2014 onwards in peer-reviewed academic journals. A comprehensive combined search term was used for the systematic search: TI (((((racial* OR gender* OR woman OR women OR female OR ethnic* OR mother*) N3 (equit* OR inequit* OR equalit* OR inequalit* OR

marginali* OR ignoran* OR disparit* OR bias* OR prejudice* OR barrier* OR hinder* OR obstacle* OR diversit* OR Inclus* OR facilitat* OR enabl* OR discriminat*) OR (underrepresent* OR "under represent*") OR (((racial* OR black OR minority OR african OR indigenous OR "first nations" OR native) N3 (man OR men OR woman OR women OR person* OR people OR population* OR individual*))) OR whiteness OR racis* OR "glass ceiling" OR "old boys' club")) OR AB (((((racial* OR gender* OR woman OR women OR female OR ethnic* OR mother*) N3 (equit* OR inequit* OR equalit* OR inequalit* OR marginali* OR ignoran* OR disparit* OR bias* OR prejudice* OR barrier* OR hinder* OR obstacle* OR diversit* OR Inclus* OR facilitat* OR enabl* OR discriminat*) OR (underrepresent* OR "under represent*") OR (((racial* OR black OR minority OR african OR indigenous OR "first nations" OR native) N3 (man OR men OR woman OR women OR person* OR people OR population* OR individual*))) OR whiteness OR racis* OR "glass ceiling" OR "old boys' club"))).

Appendix I provides a detailed summary of the full database search strategies used in this review. Both published articles and preprints were considered where applicable. There were no restrictions on publication language or status. However, to ensure currency and manage the breadth of potential eligible publications, the search was limited to peer-reviewed articles from the past ten years.

Inclusion and Exclusion Criteria: The inclusion and exclusion criteria were defined based on participants, interventions, comparators, outcomes, and study designs (PICOS)³⁷ as follows: (P) individuals in academia from underrepresented racialized or gender minority groups seeking tenure positions or promotions; (I) not applicable; (C) non-racialized or gender minority groups or no comparator; (O) diversity statistics in faculty hiring, reported challenges, and results and/or underlying factors contributing to these outcomes; and (S) peer-reviewed research publications. Review papers, case studies, editorials, commentaries, books, and book chapters were excluded.

Study Selection: Duplicates were removed using EndNote software (Thomson Reuters, Philadelphia, PA, USA, version X21). The final selection process involved two stages: title and abstract screening, followed by full-text screening^{36,38}. Papers that did not meet the inclusion criteria were excluded at each stage.

Data Extraction: Data extracted from the included articles included the first author's name, publication year, country of origin, study setting (e.g., university, faculty, hospital department), primary aim, study design, study population, data collection method, and primary findings. Tables 1 to 4 provide a summary of the extracted data from the included studies.

Assessing Quality of Evidence

The quality of selected papers was assessed using the Joanna Briggs Institute (JBI) Critical Appraisal Checklist³⁹. According to the JBI scale, the highest quality studies could score a maximum of 8 points. Articles scoring 0-2 points were categorized as weak, those scoring 3-5 points were considered moderate, and those scoring 6-8 points were deemed high quality (Appendix I).

Two reviewers independently completed each stage of the systematic search and quality assessment, resolving any disagreements by consensus.

Project Timeline

The following timeline was followed to complete this Knowledge Synthesis (KS) report within one year:

Months 2-3: Develop and publish the search protocol.

Months 4-5: Conduct the systematic search and study selection.

Months 6-8: Perform data extraction and quality assessment.

Months 9-10: Synthesize data and draft the final report, including an evidence brief.

Months 11-12: Disseminate knowledge, including preparing and submitting an article for peer review.

CHAPTER III: RESULTS

Study Selection: Our initial search across six databases yielded 8423 citations, from which 1547 were eliminated as duplicates. The remaining 6876 underwent title and abstract screening, and 6759 records were excluded. Finally, the full text of 117 titles was reviewed, and a total of 72 studies meeting the selection criteria were included in the study. Of the 45 excluded studies, 17 were review articles, 15 were case studies, 7 were editorials, and 6 had reported outcomes unrelated to the aim of the current study (Figure 1).

Studies Characteristics

Seventy-one of the articles used data from schools and institutions in the United States, and one from the United States and Puerto Rico (Table 1). The data reported in these studies were obtained via surveys ($n = 4$), online databases ($n = 64$), or the personnel inventory of academic institutions ($n = 4$). Two of the articles focused on a single race, while the other 70 reported data from multiple racial/ethnic groups, either as separate ethnic groups ($n = 46$) or combined as two, e.g., URM vs. non-URM ($n = 12$) or White vs. non-White ($n = 2$). Thirty articles included leadership positions, such as Chair ($n = 22$), Dean ($n = 5$), CEO ($n = 1$), Director ($n = 1$) or President ($n = 1$). Concerning the analysis method, 33 described themselves as cross-sectional, 31 as longitudinal, 6 as both, and 2 as retrospective studies. Forty titles studied faculty from a specific medical department or specialty, 15 analyzed the data from multiple medical departments or specialties, and 17 from non-medical fields. Forty-four of the studies reported the racial/ethnic distribution of the faculty (Table 2), 40 explored the longitudinal trends in the racial/ethnic composition of the faculty (Table 3), and 11 compared the promotion or retention rate between different racial/ethnic groups (Table 4). Some studies included more than one type of analysis, and hence, they have been included in more than one category. The main findings of the studies are discussed under these three themes.

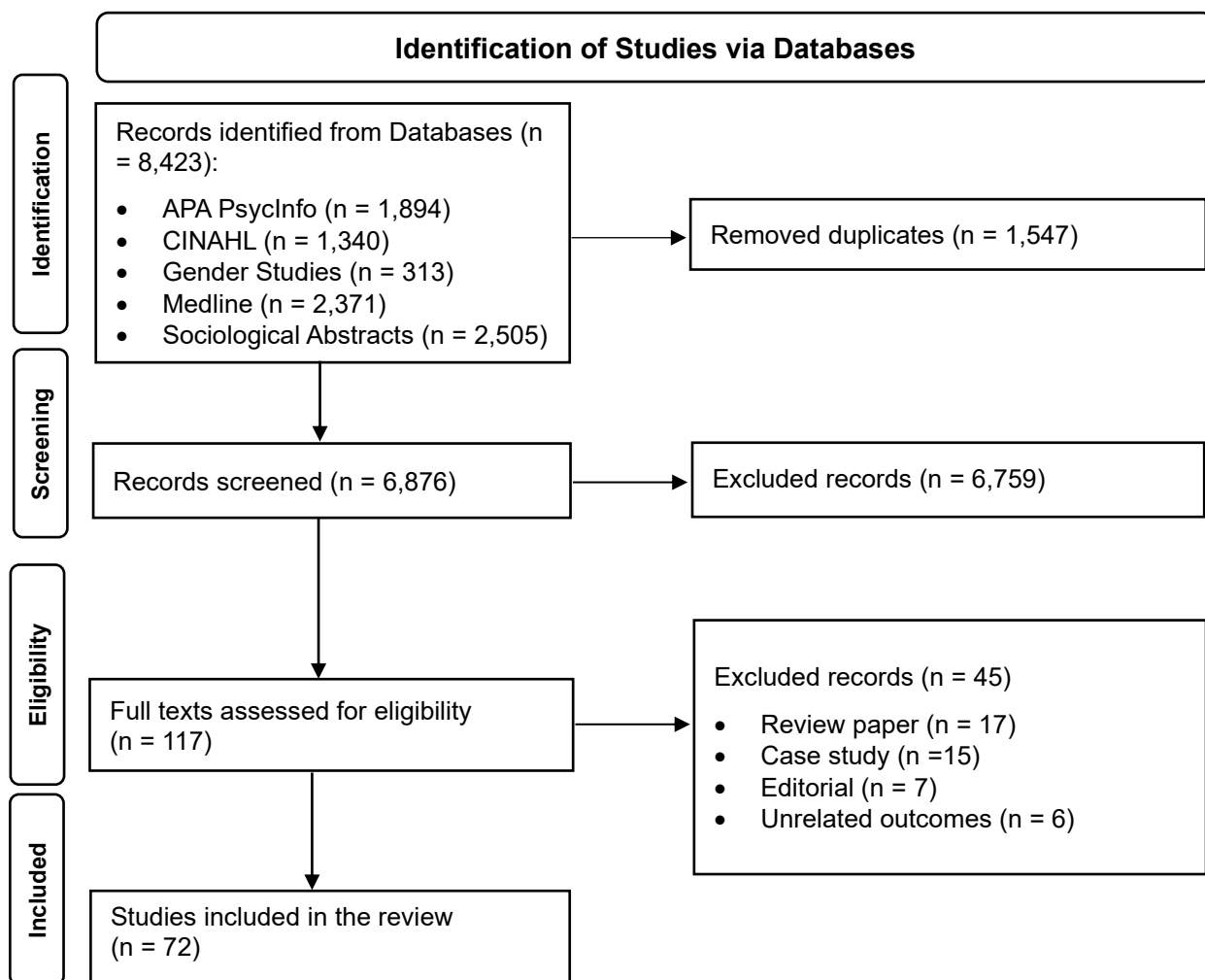


Figure 1. The PRISMA flow diagram illustrates the method used for literature search, screening, and summarizing evidence (Page et al., 2021). Publications that did not meet PICOS's criteria were excluded. PICOS stands for participants, interventions, comparators, outcomes, and study designs, respectively. PRISMA: preferred reporting items for systematic reviews and meta-analyses.

Table 1. Descriptive characteristics of the studies included in the systematic review

Study characteristics	Number of studies
Total	72
Study location	
United States	71
United States and Puerto Rico	1
Data acquisition method	
Online Databases	64
Surveys	4
Institutional personnel data	4
Study design	
Cross-sectional	33
Longitudinal	31
Cross-sectional and longitudinal	6
Retrospective	2
Population	
Medical departments or specialties	
Multiple specialties	15
Surgery	4
Pediatrics	4
Otolaryngology	4
Ophthalmology	3
Family Medicine	3
Internal Medicine	3
Basic Sciences	3
Emergency Medicine	3
Obstetrics-Gynecology	2
Physical Medicine and Rehabilitation (PM&R)	2
Radiology	2
Orthopedics	2
Radiation Oncology	1
Neurology	1
Psychiatry	1
Dermatology	1
Private clinic (Mayo)	1
Non-medical departments	
Pharmacy	4
Health Science	3
Physician Assistants	2
STEM	2
Neonatal Nurse Practitioners	1
Dental	1
School psychology	1
Multiple departments or specialties	3
Study theme	
Recruitment	44
Longitudinal trends	40
Promotion	11

Most of the articles included in this review utilized the racial and ethnic categories defined by the Office of Management and Budget (OMB) in 1997. These categories are: Hispanic or Latino, American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian or Other Pacific Islander, and White ⁴⁰. Additionally, the Association of American Medical Colleges (AAMC) employs the term “Underrepresented in Medicine” (URM) to refer to “those racial and ethnic populations that are underrepresented in the medical profession relative to their numbers in the general population” ⁴¹. This

review adopts the same classification framework. The details presented in the tables were carefully selected and reported based on their relevance to the objectives of this review.

Representation of Race and Intersection of Race and Gender in Academic Faculty Positions

Across multiple studies, White male faculty consistently constituted the majority of faculty members at various ranks and were overrepresented in multiple departments and specialties. This trend was particularly pronounced in higher ranks and leadership positions⁴²⁻⁶³. Specifically, the representation of White men increased at higher academic levels, including leadership roles^{42,44,47,48,54,55,57,58,60,61,63-67}, although they still comprised the largest ethnic group even at lower ranks despite slight percentage decreases^{42,47}.

Conversely, URM or non-White faculty exhibited an opposing trend, with underrepresentation noted across different ranks^{42-53,55-57,60-63,68-75}, and a sharp decline in representation at higher academic levels^{42-45,48,51,57,58,60,61,63,65-67,69,74,76-80}. Leadership positions, particularly deans, showed the lowest diversity levels^{46,48,51,54,58,60,61,63}. For example, while URM individuals represent 35% of the U.S. population, they make up only 10% of pediatric cardiologists⁶⁹, 9% of physician assistants (PAs)⁵¹, 7.4% of dermatology⁶¹, and 8.4% of all medical faculty⁴³.

A study involving over one million PhD graduates highlighted that non-White and URM scholars had lower probabilities of pursuing research careers and professorships than their White counterparts⁸¹. Moreover, non-White faculty reported a higher proportion of their time spent teaching compared to White faculty⁵⁷. Exceptions included PA departments, where URM individuals were proportionately represented in leadership roles⁵¹, and family medicine departments, which demonstrated greater diversity in department chairs comparable to the general population⁶⁴.

Asian faculty were generally overrepresented across ranks^{42,48,49,52,53,56,58,60,61,63,73,75}, but their representation declined at higher academic^{42,47,48,51,58,62,67} and leadership^{51,62} levels, particularly in internal medicine (IM)⁶². Asian women, in particular, were underrepresented in top roles such as deanships⁴⁵.

Hispanic and Black faculty were persistently underrepresented across ranks in surgical specialties^{42,65,82}, microbiology⁴⁷, radiation oncology (RO)⁷¹, otolaryngology⁷², and obstetrics and gynecology (OBGYN)⁶⁰ departments, with otolaryngology exhibiting the lowest proportion of Black faculty among surgical specialties⁷². Black faculty were even less represented in tenure-track positions^{55,70,83}. However, HBCUs, newer schools, and religious-affiliated institutions showed better representation of Black and Hispanic⁷³ faculty and chairs^{73,84}.

From 2000 to 2021, the proportion of URM male faculty remained stagnant, with a modest increase in URM women in junior positions. Ophthalmology, despite an overall rise in non-URM women faculty, experienced minimal changes in URM representation compared to other specialties⁸⁵.

Within the academic surgical faculty, White men comprised 37% of surgical residents, while Black men accounted for only 1.9% and Black women 2.6%. Orthopedic surgery had the smallest proportion of Black women (0.6%), whereas OBGYN had the highest (6.2%). Black women's representation declined with each rank increase from assistant to full professor, whereas Black men's proportions remained stable across ranks. Hispanic women accounted for only 2.1% of surgical faculty, with Hispanic men at 2.4%. White men formed the largest group (46.9%), followed by White women (22.9%), while Hispanic women were the smallest subgroup (1.1%)⁵⁶.

In emergency medicine (EM), Asian women had the lowest representation equity indices (REIs) across faculty ranks. Men generally achieved parity in rank comparisons, except for Black men, who did not reach parity at any rank⁸⁶.

Non-White women, including Asian American and Pacific Islander (AAPI) women, were persistently underrepresented in high-ranking roles. Unlike Black and Hispanic men, AAPI men were overrepresented across ranks relative to their population proportions. Faculty representation decreased across the tenure pipeline for AAPI (7% to 3%), Black (4% to 1%), and Hispanic (3% to 2%) women, with particularly low numbers at the full professor level. In contrast, White men saw increases in representation from assistant (35%) to full professor (55%)⁸⁷.

Basic science faculty also showed an underrepresentation of women from 1998 to 2018, with White faculty dominating at all ranks and URM groups being significantly underrepresented compared to the U.S. population⁷⁵.

In IM faculty, the proportion of URM members more than doubled between 1980 and 2018, increasing from 4.1% to 9.7%. However, URM faculty still constituted a small segment of the faculty, with women making up a larger portion than men⁸⁸. Similarly, in EM departments, the number of non-URM males and females increased annually, while URM male and female numbers showed limited or no growth⁸⁹.

Table 2. Characteristics of studies reporting racial/ethnic representation in the faculty

Author (Year)	University, department	Aim	Study design	Study Population	Data collection method	Primary Findings
Campbell (2024) ⁴³	All MD-granting medical schools in the US (n = 136)	To examine the representation of full-time URM faculty and senior leaders.	Cross-sectional and longitudinal	Full-time URM faculty and senior leaders in US medical schools	Data on Social Mission Content	In 2020, URM faculty accounted for 8.4% of all faculty at the median medical school. URM representation among junior faculty, senior faculty, and department chairs was 9.7%, 6.6%, and 5.7%, respectively.
Bell (2024) ⁴⁴	All accredited NNP programs	To determine the racial and ethnic composition of NNP faculty in the US.	Cross-sectional	128 NNPs	Survey via email	Of the 128 survey participants, 84% self-identified as White. Forty-eight participants ranked professor or associate professor were White. In contrast, all other races only had 8 respondents who were of the higher faculty ranks.
Fleming (2024) ⁴⁵	ADEA	To explore the data on the participation of WoC in dental schools.	Cross-sectional	Dentistry full-time (n = 5,066, 40.5% women) and part-time faculty members (n = 5,144, 34.9% women)	2018–2019 survey from ADEA and a published study ⁹⁰ updated to 2023	Among full-time faculty members, 40.5% were women (13.4% minoritized, and 20.6% White). Of dental school deans, 17.6% were White, and 7.3% were URM women. Of the part-time faculty members, 20.0% were White women and 9.5% were URM women. Of 68 deans of dental schools, 17 were women (3 Black, and 2 Hispanic/Latina). Despite Asian women being the highest percentage of URM women in academia, there are no Asian women deans of dental schools.
Iwai (2023) ⁹¹	Medical schools	To examine trends in intersectional demographics among GS residents and surgical faculty.	Cross-sectional	Medical GS residents (n = 2,608) and full-time surgical faculty (n = 1,244)	AAMC data on self-reported race/ethnicity from 140 programs (2011–2020)	Although the proportion of White and non-White female faculty increased over time, there was no significant change among non-White URM female faculty, nor non-White male faculty, regardless of whether they were URM or not.
Johnson (2024) ⁹²	Departments of surgery programs (n = 138)	To assess the combined association of race, ethnicity, and sex with rates of promotion and	Retrospective cohort	Faculty members from 138 institutions (n = 31,045,	AAMC faculty roster data	Results of this cohort study suggest that intersectionality was associated with promotion and attrition, with URM females least likely to be promoted and at the highest risk for attrition.

		attrition among US academic medical department of surgery faculty.		23,092 men; 7,953 women)		
Mader (2016) ⁸⁴	Allopathic US (n = 126, including three HBCU) and PR (n = 3) medical schools	To understand the current levels of diversity in academic medicine at HBCU and PR medical schools compared with their allopathic peer institutions.	Cross-sectional	NR	AAMC 2013 faculty roster data	Black scholars are better represented in faculty and leadership positions at HBCUs, and Latino/Hispanics at PR medical schools than they are at allopathic peer institutions.
Marzbanrad (2024) ⁴⁷	US medical schools	To assess the progress in promoting racial diversity within the discipline of microbiology.	Longitudinal retrospective	Full-time microbiology faculty at the US schools from 1967 to 2021	AAMC data on full-time microbiology faculty	The analysis revealed a consistent dominance of White faculty, with over 60% representation across all academic ranks throughout the study period. The Asian faculty representation decreased in senior academic ranks. Disparities persisted for Black, Hispanic, and Native American faculty members, reflecting broader challenges in their representation.
Omoruyi (2024) ⁴⁸	US medical schools	To explore full-time academic general pediatric faculty salary differences by race and ethnicity.	Cross-sectional	Full-time pediatrics faculty (n = 26,548, 58% women) and full-time academic general pediatric faculty (n = 4,290, 66% women)	AAMC Medical School Faculty Salary Survey Report 2020–2021	Academic general pediatric faculty were mostly White (69.2%), Asian (17.0%), Hispanic (6.3%), Black (6.3%), or Other (0.6%). URM academic general pediatric faculty had a lower median salary when compared to White faculty, and this was similar when adjusted for degree, rank, race, and ethnicity.
Ali (2023) ⁸⁵	US medical school	To investigate longitudinal trends in the representation of URM among ophthalmology faculty.	Cross-sectional and longitudinal	Ophthalmology faculty members (n = 56,438, 37,511 men)	AAMC faculty roster data 2000–2021	Across all years, URM women, men, non-URM men, and non-URM women represented 3.1%, 3.5%, 63.0%, and 30.5% of ophthalmologists, respectively.
Qamar (2023) ⁴⁹	Radiology programs in US medical schools	To evaluate academic radiology race/ethnicity diversity in academic degree and tenure status.	Cross-sectional	Radiologists (n = 107,213, 76,893 men)	AAMC annual reports of full-time radiology faculty in 2007 and 2018	White radiologists constitute 67.2%, Asian (20.9%), Black (2.5%), Hispanic (3.2%), multiple (3.4%), unknown (1.8%), and “other” (1%) races.
Balanay (2022) ⁵⁰	EHS programs accredited by EHAC	To characterize the diversity of the faculty in EHS programs accredited by EHAC.	Cross-sectional	Undergraduate (n = 3,247) and graduate (n = 2,745) faculty	Annual surveys administered to program directors	Most faculty (teaching in undergraduate and graduate programs) were White (77.9% and 92.1%, respectively). Native American, Alaska Native, Native Hawaiian, and Pacific Islander are consistently the most underrepresented racial groups in both undergraduate and graduate faculty.

Samuel (2023) ⁶²	IM medical school departments	To explore the level of parity representation by race at department chair positions in academic IM departments.	Cross-sectional	IM faculty members (n = 448,986, 172,852 women) and IM department chairs (n = 1,830, 264 women).	in 2009–2021 AAMC	Black and Hispanic faculty remain underrepresented in academic IM each making up, on average, approximately 4% of the total IM faculty. Faculty who identified as White were consistently overrepresented as department chairs while Asian faculty were consistently underrepresented in leadership and ranked lowest in leadership parity among the ethnic groups studied.
Saxena (2023) ⁶⁸	16 clinical specialties	To examine the number of full-time US medical school faculty physicians who self-identify as Hispanic.	Longitudinal	NR	AAMC data from 1990 to 2021	Overall, the proportion of faculty identifying as Hispanic was 6.01% in 2021.
Balasubramanian (2023) ⁶⁹	US academic pediatric cardiology programs with fellowship training programs	To describe the representation of URM in pediatric cardiology, with a specific focus on leadership positions.	Cross-sectional analysis	Academic faculty (n = 1,570, 45% women) and fellows (n = 438, 55% women)	Web-based survey	URM make up only 14% of pediatric cardiology fellows and 10% of faculty, with very few leadership roles. This survey demonstrated persistent disparities in URM representation in US-based pediatric cardiology programs.
Johnson (2023) ⁵⁷	School psychology programs	To collect information on the demographic characteristics of school psychology faculty as of 2021.	Web-based survey	429 school psychology trainers (66.2% women, n = 284, and 31.7% men, n = 136)	NASP Graduate Database	The majority of the sample identified as White (78.6%), whereas Asian, Black, and Hispanic people comprised 3.5%, 7.7%, and 5.2% of the faculty, respectively. Non-White faculty demonstrated a systematic decrease in the total count by rank, whereas White faculty did not indicate such a trend by rank.
Hofstra (2022) ⁸¹	222 PhD-granting universities in the US	To explore the social resources enabling underrepresented groups to overcome challenges in building and sustaining their representation in the professoriate.	Longitudinal	All PhD recipients in the US from 1980 to 2015 (~1.03 million, 394,232 women, 574,022 men, 69,226 unknown)	Data set of dissertations filed at PhD-granting universities from 1980 to 2015	Non-White scholars are less likely to become elite research faculty members and to have continued research careers compared with White scholars.
Kamran (2022) ⁷⁴	18 clinical academic departments	To evaluate whether clinical faculty and leadership representation at academic medical schools reflects the diversifying population.	Longitudinal	Clinical faculty and leadership positions	AAMC data for 1977 through 2019	URM representation across clinical faculty, full professors, department chairs, and deans was 9.9%, 6.5%, 9.5%, and 11.1%, respectively, in 2019.
27 Kibe (2022) ⁵¹	243 accredited PA	To identify factors associated with PA academic leadership,	Cross-sectional analysis	956 participants (667 women),	PAEA faculty and directors	Of the 956 participants, 4% were Hispanic, 86% White, 4% Black, 2% Asian, and 1% Native Hawaiian/Pacific Islander/American

	programs in PAEA	specifically doctoral degree credentials, and underrepresented minority status.		Mean age = 45.6 (SD = 10.2) years	survey 2019	Indian/Alaska Native. Overall, 9% were URM. Of all leaders, 9% were URM.
Kollu, (2022) ⁵²	Otolaryngology residency programs in 2020	To evaluate the status of academic laryngologists regarding race and gender.	Cross-sectional	184 academic laryngologists (34% women) and 20 past presidents of the ALA and the ABEA	Data from ACGM E-accredited otolaryngology programs (n = 124) in 2020	There are 184 academic laryngologists in the 124 programs. Most of the population is White 76.6%, followed by Asian 16.3%, Black 4.34%, and then Hispanic 1%. There are 47 full professors with 83% White, 14.1% Asian, and 2.1% Black. When looking at both race and gender, 41.8% are White men, 29.9% are White women, 11.9% are Asian men, 8.96% are Asian women, 4.5% are Black men, and 3% are Black women. Racial minorities are disproportionately underrepresented in the field of laryngology.
Maqsoodi, (2022) ⁵³	191 orthopedic residency programs at academic centers	To investigate the demographic characteristics and scholarly work of DCs in the academic orthopedic sports medicine division in the US.	Cross-sectional	100 DCs (96% men)	Electronic Residency Application Service of the AAMC	Most DCs (96%) were men. The racial/ethnic demographics of the DCs were mostly White (86%), followed by Asian (11%), Black (1%), Hispanic (1%), and mixed ethnicity (1%). A lack of diversity exists among DCs in academic Sports Medicine in orthopedics.
Rakhit et al. (2022) ⁸³	Discipline of otolaryngology at medical schools in the US	To analyze racial disparities in academic otolaryngology from 2007 to 2018 in the US.	Cross-sectional retrospective	Otolaryngologists (n = 2,239, 53% women)	Annual reports of the AAMC	White male otolaryngologists were the majority for every subgroup (>60 percent), whereas Black faculty made up less than 1 percent of the tenured category.
Saboor (2022) ⁷⁰	Academic pediatrics	To explore the current racial/ethnic trends in academic pediatric positions across the US.	Cross-sectional	Academic pediatricians (n = 21,226, 11,472 women)	AAMC faculty roster from 2007 to 2020	URM physicians continue to remain significantly underrepresented in academic pediatric faculty positions and tenured track positions.
Shah (2022) ⁵⁴	US medical school faculties	To examine the changes in the representation of racial minorities in academic medicine.	Cross-sectional	Physicians (n = 176,732, 72,917 women)	AAMC website	White physicians represented most academic physicians at every academic level, peaking in proportion at 82.74% of chairpersons and were lowest at the level of instructor at 59.30%.
Shaikh (2022) ⁵⁵	US medical schools	To assess racial disparity in academic EM faculty positions across the US from 2007 to 2018.	Longitudinal	Academic EM faculty members across the country ($M_N = 3,989$ ($SD_N = 903$)) of which one-third were women ($M_N = 1,297$; $SD_N = 404$)	AAMC Faculty Roster for full-time academic EM faculty for 2007–2018	White academic physicians and faculty members made up most of all degree types and tenure categories. Despite an increase in proportional representation, the underrepresentation of those from minority groups persists in EM.

Xierali (2022) ⁶⁴	US medical schools	To describe diversity by sex and race/ethnicity of FM chairs.	Cross-sectional observational	Clinical department chairs (n = 2404) and FM chairs (n = 407)	Data from the AAMC Faculty Roster 2018 to 2020	The diversity of department chairs in FM is greater than many other clinical departments and more representative of the US general population.
Aggarwal (2021) ⁵⁶	US allopathic medical schools	To determine the racial demographics of medical faculty.	Cross-sectional	Academic surgical faculty	AAMC data files	Black and Hispanic faculty are significantly underrepresented as compared to the general US population, and White and Asian faculty are conversely overrepresented. White men made up 37% of all surgical residents. Black men made up only 1.9% of all surgical residents, whereas Black women made up 2.6%. The subspecialty with the smallest percentage of Black women was Orthopedic Surgery with 0.6%. The specialty with the highest representation of Black women was OBGYN with 6.2%. There was a decrease in representation of Black women with each increase in professional rank, with 2.8%, 1.6%, and 0.7% for assistant, associate, and full professor, respectively, as compared to Black men, who as a percentage, remained stable at the various ranks with 2.1%, 2.4%, and 2.1% for assistant, associate, and full professor, respectively.
Fairless (2021) ⁶³	US medical schools, ophthalmology departments	To determine how the racial and ethnic demographics of ophthalmology department faculty.	Cross-sectional	Clinical (n = 157,993) and ophthalmology (n = 3,060) faculty and department chairs (n = 2,398)	AAMC Faculty Roster 2019	Black, Hispanic, and American Indian/Alaska Native physicians represented only 2.3%, 2.3%, and 0.03% of ophthalmology faculty. Of the 106 ophthalmology department chairs, 81.1% were White, 11.3% were Asian, whereas Black and Hispanic had 0.038%, and Native American or Pacific Islander had 0 chairs.
Hobgood (2021) ⁸⁶	Medical schools	To assess rank progression by faculty gender and race/ethnicity in EM faculty.	Longitudinal trend analysis	EM (n = 5,572, 2,093 women) and all faculty (n = 157,993)	AAMC data	All faculty of color are below parity at the assistant to associate professor promotion. Hispanic faculty are at parity for associate professor to professor, but Asian and Black faculty do not achieve parity in any comparison. Intersecting gender and race/ethnicity in the REI analysis demonstrates that Asian women have the lowest REIs among all faculty ranks and races/ethnicities. Men of all races/ethnicities achieved parity in two of three rank comparisons, except for Black men, who did not achieve parity in any comparison.
Kim (2021) ⁸⁷	Postsecondary institutions offering academic, vocational, and continuing professional	To examine AAPI faculty representation focusing on the intersection of race and gender across the tenure pipeline from 1993 to 2017.	Longitudinal	More than 347,000 assistant (tenure-track), associate (tenured), and full professors from 1,558 institutions	Integrated Postsecondary Education Data System	Results indicate a persistent underrepresentation of AAPI women as full professors similar to other women of color. Representation for AAPI men remains stable through the promotion pipeline, although, unlike Black and Hispanic men, AAPI men are overrepresented at each rank relative to their representation in the U.S. population and among doctorate holders.

Riner (2021) ⁶⁵	education programs US surgical faculty	To evaluate trends among racial/ethnic minority groups along the surgical pipeline, as well as in surgical leadership.	Cross-sectional and longitudinal analysis	Surgical faculty members (n = 15653, including 3876 women) captured in census data from 2013 to 2019	US surgical faculty census data obtained from the AAMC Faculty Roster	A disproportionately small number of faculty from minority groups obtain leadership positions in academic surgery. Black (106 of 3997 [2.7%]) and Hispanic (176 of 3997 [4.4%]) full professors showed the highest underrepresentation.
Saleem (2021) ⁵⁸	US neurology departments	To find the statistical ratio of URM in the academic faculty of neurology.	Retrospective analysis	Neurology faculty members	AAMC neurology database from 2006 to 2017	At chairperson rank, White, Asian, and Hispanic people made up 79.8%, 9.3%, and 3.1% of the faculty, respectively. At the professor rank, White, Asian, and Hispanic people comprised 81.6%, 10.5%, and 2.1%, respectively. At the rank of associate professor, they made up 68.3%, 19.0%, and 1.6%, respectively. For the rank of assistant professor, the proportions were 56.9% and 25.9% for White and Asian faculty.
Zhu (2021) ⁴²	LCME-accredited US medical schools	To analyze the relationship of race and academic rank in American academic surgical faculty.	Cross-sectional	Full-time surgical faculty members of 134 schools (25.5% women)	The AAMC database	White academic surgeons comprised most academic surgeons in leadership positions at all academic ranks, particularly in higher ranks and leadership positions. Hispanic and Black people are underrepresented at all ranks. Asian faculty are also overrepresented across all academic surgery ranks.
Bennett (2020) ⁷⁵	US medical schools	To examine changes in U.S. medical school basic science faculty over the last 20 years.	Longitudinal	Full-time faculty at all US medical schools	AAMC Faculty Roster	Women (24.47% to 35.32%) were underrepresented at all time points and a minority of faculty identified as Black (1.57% to 1.99%), Hispanic (3.03% to 4.44%), or Asian (10.90% to 20.41%).
Deville (2020) ⁷¹	US medical schools	To report current and historical representation trends for Black physicians in the US RO workforce.	Longitudinal	US medical school faculty and practicing physicians	AAMC 1970 to 2016	In 2016, Black people represented 3.2% vs 1.5% (P < .001), and 5.6% vs 3.2% (P = .005) of US vs RO faculty and residents, respectively. Black physicians remain disproportionately underrepresented in RO despite an increasing available pipeline in the US physician workforce.
Niu (2020) ⁶⁷	US medical schools and from ACGME on radiology residents	To evaluate racial profiles of US academic radiology faculty.	Longitudinal	Full-time radiology faculty	AAMC database of radiology faculty members from 2006 to 2017	The proportion of White faculty was higher with increasing academic ranks. In contrast, the proportion of Asian radiologists decreased with increasing academic rank in every year of the study period.
Ogunwole (2020) ⁸⁸	US medical schools	To assess diversity trends in the academic IM workforce.	Cross-sectional	Full-time US medical school faculty	AAMC Faculty Roster from 1980 to 2018	From 1980 to 2018, the percentage of URM faculty members among IM faculty more than doubled during the study period (from 4.1% to 9.7%), but still made up only a small portion of faculty members. URM women comprised a larger part of IM faculty than URM male faculty.

Woodin g (2020) ⁶⁰	152 American medical instituti ons	To describe the recent state of racial or ethnic disparities in academic obstetrics and gynecology.	Cross-sectional	Full-time academic physicians (n = 6,302, 57% women)	AAMC faculty roster for OBGYN faculty in 2007 and 2018	There was an overrepresentation of White and Asian academic OBGYN physicians relative to the population average and underrepresentation of Black and Hispanic physicians. There was a greater proportion of White physicians in higher academic ranks, leadership positions, and tenure than the proportion of White physicians overall, whereas the opposite was true for black and Hispanic physicians.
Xierali (2020) ⁸⁹	EM departme nts in the medical schools	To assess the long-term trends in tenure status stratified by sex and URM status among EM department faculty in US medical schools.	Longitudinal and cross-sectional	Full-time faculty (n = 5,237)	AAMC roster of full-time faculty from 1989 to 2018	While the proportions of non-URM males and non-URM females were increasing over the years, the proportions of URM males were largely stagnant and the proportions of URM females remained rather flat (moving from 0% in 1989 to 4.5% in 2018).
Xierali (2020) ⁶¹	US medical schools	To measure faculty diversity by race and ethnicity in academic dermatology departments in US medical schools.	Cross-sectional	Full-time dermatology faculty (n = 1,464, 749 women)	AAMC Faculty Roster from 1970 to 2018	At every rank, there was a proportionately low number of URM faculty represented. Across all specialties, department chairs were the least diverse, with White individuals representing 79.7% of all chairs in 2018.
Zhang (2021) ⁷⁹	Medical schools	To evaluate workforce disparities in academic PM&R by measuring race/ethnicity diversity in rank and tenure status.	Surveillance (longitudinal)	Academic PM&R faculty (n = 1,681, 788 women)	PM&R Data from the AAMC annual Faculty Roster report from 2007 to 2018	The representation of URM faculty decreased as the academic level advanced.
Esters (2019) ⁹³	All US MD- granting medical schools	To assess the changing landscape in non-tenured faculty, stratified by sex and URM status for obstetrician-gynecologists at all US medical schools.	Longitudinal	Full-time OBGYN faculty (n = 6,347)	AAMC Roster Data 1978 to 2017	The total number of full-time OBGYN faculty rose nearly fourfold, from 1,688 in 1978 to 6,347 in 2017. The greatest growth of OBGYN faculty was among those who were nontenured.
Ukatu (2020) ⁷²	US medical schools	To compare the representation of racial minorities among otolaryngology residents and faculty to other surgical specialties.	Cross-sectional	Otolaryngology residents and faculty (n = 2,201, 709 women)	AAMC Faculty Roster data	Black scholars were underrepresented at the resident level compared with their level of representation as medical school graduates. Black and Hispanic faculty were underrepresented among otolaryngology faculty compared with their representation in otolaryngology residency programs. Otolaryngology has the lowest percentage of Black residents and faculty compared to other surgical specialties.

Abelson (2018) ⁸²	US medical schools	To provide an updated description of diversity along the academic surgical pipeline to determine what progress has been made.	Cross-sectional and longitudinal analysis	NR	AAMC, AMA, and ACGME databases	Despite efforts to promote diversity in surgery, Black and Hispanic faculty remain underrepresented.
Hagan (2016) ⁷³	Colleges of Pharmacy	To describe the representation of racial and ethnic minorities among faculty members in schools and colleges of pharmacy.	Cross-sectional	All faculty (n = 5,977)	AACP Institutional Database Survey for 2013-2014	Compared to the general population, Asian faculty are overrepresented in pharmacy, while all other minority groups are underrepresented. The HBCUs, newer schools, and religious-affiliated institutions have greater numbers of Black faculty. Newer schools also have better representation of Hispanic faculty.

AACP, American Association of Colleges of Pharmacy; AAMC, Association of American Medical Colleges; AAPI, Asian Americans and Pacific Islanders; ABEA, American Broncho-Esophogological Association; ACGME, Accreditation Council for Graduate Medical Education; ADEA, American Dental Education Association; AI/AN, American Indian & Alaska Native; ALA, American Laryngological Association; AMA, American Medical Association; ASF, Academic Surgery Faculty; DC, Division Chiefs; EHAC, National Environmental Health Science and Protection Accreditation Council; EHS, Environmental Health Sciences; EM, Emergency Medicine; FM, Family Medicine; GS, General Surgery; HBCU, Historically Black Colleges and Universities; IM, Internal Medicine; LCME, Liaison Committee on Medical Education; MO, Medical Oncology; NASP, National Association of School Psychologists; NNP, Neonatal Nurse Practitioner; NR, Not Reported; OBGYN, Obstetrics and Gynecology; PA, Physician Assistant; PAEA, Physician Assistant Education Association; PharmD, Doctor of Pharmacy; PM&R, Physical Medicine and Rehabilitation; PR, Puerto Rico; REI, Rank Equity Index; RO, Radiation Oncology; URM, Underrepresented Minority; US, United States; WoC, Women of Color.

Longitudinal Trends in Racial and Gender Representation in Academic Faculty Positions

White faculty representation has declined across all academic ranks and leadership positions in most fields, as reported in numerous studies^{42,49,58,60,75,79,89,94,95} and leadership positions in recent decades^{42,58}, although some studies indicate an increase in higher academic ranks within specific fields⁴⁷. The overall decrease is predominantly attributed to White male faculty, whereas White female faculty have shown growth over time, reflecting a gradual shift in gender dynamics within this group^{75,89,91}.

Asian faculty have demonstrated consistent growth across academic ranks^{47,49,55,58,60,66,67,70,75,77,79,94,95}, with some studies highlighting greater representation in lower ranks^{47,55,67}. In radiology departments, for example, Asian faculty have increased their presence as department chairs⁶⁷. Among all ethnic groups, Asians have achieved the most significant growth in academic representation^{42,47,49,66}.

The URM academic faculty has seen increases in representation across various academic ranks, spanning junior and senior levels^{42,43,49,55,58,60,61,65,66,68,70,74-77,79,80,82,83,85,88,92,94,96-102}, including both senior and junior positions^{43,76}. These increases have been significant in certain fields^{58,74,80,88,97,100,103}, with representation even doubling in FM departments⁸⁰. However, some studies report much smaller changes for URM faculty compared to other ethnic groups or the general population^{42,43,49,55,58,60,66,71,82,85,92,98,104}, while others indicate stagnation or statistically non-significant trends^{78,89,91,97,105}.

In PM&R, URM faculty demonstrated significantly smaller improvements at the full professor rank compared to lower ranks¹⁰¹. While some studies show no change in URM male faculty over time, others attribute the observed increases to URM female faculty^{49,65,75,76,92,96}. Female URM faculty have shown faster growth than their male counterparts in some fields⁸⁸. Despite this progress, URM women achieved only one-fourth of the growth seen in non-URM women in RO and MO departments from 1970 to 2019⁷⁶. Additionally, URM women appear to face greater disadvantages in attaining leadership positions compared to their male colleagues⁶⁵.

Black faculty experienced the sharpest decline in representation among microbiology department chairs^{47,70}, with decreases also observed in pediatrics⁷⁰. In radiology departments, Black faculty

representation remained unchanged⁶⁷. Declines in representation have also been reported in radiology⁴⁹, pharmacy⁹⁵, PM&R,⁷⁹ surgical departments⁸², and across 16 specialties¹⁰⁶.

Hispanic faculty have demonstrated one of the largest increases in representation⁴⁷, with their presence doubling in some specialties⁶⁸. However, gender disparities persist, as Hispanic women lag behind Hispanic men⁶⁸. Hispanic representation has grown significantly or modestly in pharmacy⁹⁵, basic science⁷⁵, and STEM fields¹⁰⁰. Reports on their representation in academic surgical faculty are inconsistent, with some studies indicating decreases¹⁰⁵, while others report modest improvements⁸².

URM representation in department chairs has remained largely unchanged in recent decades^{43,65}. However, a four-decade analysis revealed a two-fold increase in URM representation in department chair and dean positions⁷⁴. Certain studies reported declines in URM representation at various ranks, including among Asian⁹⁴, Black^{79,82,106}, AI/AN⁹⁴, NH/PA⁹², and Hispanic faculty^{65,94,97,105,106}.

In IM, White faculty chair representation has decreased, while Asian representation has increased. URM representation in IM department chairs rose to 8% over time⁷⁷.

Among general surgery faculty, White male representation decreased, while both White and non-White female faculty showed increases. However, no significant changes were noted for URM female faculty or non-White male faculty⁹¹.

In academic surgical faculty, representation of URM male faculty and both URM and non-URM female faculty increased over a 10-year period. Non-URM male faculty experienced the shortest promotion timelines, while non-URM female faculty required the longest time for promotion. After 10 years, URM female faculty faced the highest risk of attrition, whereas non-URM male faculty had the lowest risk⁹².

Table 3. Characteristics of studies reporting longitudinal changes in racial/ethnic composition of the faculty

Author (year)	University, department	Aim	Study design	Study population	Data collection method	Primary Findings
Bather (2024) ⁹⁴	ASPPH member institutions (over 40 schools)	To quantify racial/ethnic composition changes over the 10-year period.	Cross-sectional	Faculty from the departments of HPM and HEBS	ASPPH Data Center	There were statistically significant increases in Black assistant professors (HPM and HEBS), Black tenured faculty (HPM), Hispanic tenure-track faculty (HPM), and Asian professors (HPM: full and tenured, HEBS: associate and tenured). Statistically significant decreases were observed in White professors (HPM: assistant and full, HEBS: all ranks), White tenure-track faculty (HPM and HEBS), AI/AN associate professors (HEBS), AI/AN tenured faculty (HEBS), Hispanic associate professors (HPM), and Asian assistant professors (HEBS).
Campbell (2024) ⁴³	All MD-granting medical schools in the US (n = 136)	To examine the representation of full-time URM faculty and senior leaders.	Cross-sectional and longitudinal	Full-time faculty and URM senior leaders in the US medical schools	Data on Social Mission Content	In 2013, URM faculty accounted for 7.4% of all faculty at the median medical school, increasing to 8.4% in 2020. As of 2013, URM representation among junior faculty was 9.2% at the median school, 5.6% among senior faculty, and 4.3% among department chairs. There is a slow increase in the percentage of URM faculty members (but not department chairs).
Khan (2024) ⁴⁶	Pharmacy schools	To address knowledge gaps on diversity in	Cross-sectional	NR	USCB, Pharmacy College Application	The ratio analyses among student, faculty, and leadership categories reveal a disproportionately high representation of White individuals in faculty and leadership

	and colleges	the US population, pharmacy faculty, and school/college leadership.			Service Data Reports, and AACP Institutional Research Database	roles compared to other racial groups, resulting in low diversity index values in these categories. A positive correlation of diversity index vs time is observed in student, US population, and dean categories, signifying a minor increase in diversity over time.
Marzbanrad (2024) ⁴⁷	US medical schools	To assess the progress in promoting racial diversity within the discipline of microbiology over a 55-year period.	Longitudinal retrospective	Full-time microbiology faculty at schools in the US from 1967 to 2021	AAMC data on full-time microbiology faculty from 1967 to 2021	The Asian faculty representation decreased in senior academic ranks. Asian faculty demonstrated the most robust surge in representation. However, disparities persisted for Black, Hispanic, and NA faculty members, reflecting broader challenges in their representation.
Xu (2024) ⁷⁷	US medical schools	To evaluate the demographic trends in IM faculty in the US by assessing race/ethnicity diversity.	Longitudinal retrospective	NR	IM faculty of the AAMC faculty roster from 1966 to 2021	Faculty academic ranks primarily consisted of White faculty in every year of the study period from 1966 to 2021. Over the study period, the proportion of Asian faculty increased by 24%, Black faculty by 2.5%, Hispanic faculty by 1.8%, and NA by 0.03%. Among department chairs, the White faculty held the most positions each year over the study period, ranging from 92.3% of total chairs in 1977 to 72.2% in 2021. IM department chairs who were Asian had the most significant increase in proportion from 1977 to 2021 (0.6 to 16.5%). Chairs who were Black and Hispanic collectively represented less than 10% of the total chairs throughout our study period, from 2.6% in 1977 to 8% in 2021.
Ali (2023) ⁸⁵	US Medical School	To investigate longitudinal trends in the representation of URM among ophthalmology faculty.	Cross-sectional and longitudinal	Ophthalmology faculty members (n = 56,438, 37,511 men).	AAMC Faculty Roster data between 2000 and 2021	The findings highlight substantial growth in ophthalmology faculty across several faculty ranks. However, URM representation has remained largely unchanged, despite an increase at the associate professor level. The increase in URM ophthalmology faculty members was only one-fourth (0.25-fold) of this observed increase in the broader US minority population.
Qamar (2023) ⁴⁹	AAMC radiology programs	To evaluate academic radiology temporal trends disparities by analyzing race/ethnicity diversity in academic degree and tenure status.	Retrospective cross-sectional	Radiologists, (n = 107,213, 76,893 men)	Annual reports of full-time radiology faculty in AAMC 2007 and 2018	Although there was an increase of 766 White radiologists, there was a significant decrease in their representation. Radiologists of Asian ethnicity saw the greatest increase in representation with an increase in 1108 faculty members. Black academic faculty did not experience a significant change in their representation. Faculty of all the other races show relatively minor changes in their representations.
Saxena (2023) ⁶⁸	16 clinical specialties in the AAMC roster	To examine the number of full-time US medical school faculty physicians who self-	Longitudinal	NR	Data from the AAMC from 1990 to 2021	Overall, the proportion of faculty identifying as Hispanic increased from 3.1% (1990) to 6.01% (2021).

Kamran (2022) ⁷⁴	18 clinical academic departments	identify as Hispanic. To evaluate diversity in clinical faculty and leadership representation at academic medical schools over time.	Longitudinal	Clinical faculty and leadership positions	AAMC data for the period of 1977 through 2019	URM representation increased by a factor of approximately 2 across clinical faculty, full professors, department chairs, and deans, with URM representation of 9.9%, 6.5%, 9.5%, and 11.1%, respectively, in 2019 (as compared with the initial representation of 4.7%, 2.9%, 3.0%, and 5.0%, respectively).
Main (2023) ¹⁰⁴	405 institutions represented in the ASEE database	To examine the trends in the prevalence of WoC faculty and PhDs in engineering.	Longitudinal	Faculty (17.5% women) and PhD (23.9% women)	Data from the ASEE between 2005 and 2018	Slight growths were found in the representation of Black, NA/NH, and Hispanic women engineering faculty. The low representation of WoC is also evident among engineering PhDs.
Ogunyemi (2022) ⁷⁸	US medical schools	To evaluate trends in faculty diversity of the US medical schools over five years.	Cross-sectional	NR	AAMC Faculty Roster data from 2014-2018.	For overall URM faculty, there was no statistically significant change, from 9.74%-10.08%; with Hispanic from 5%-5.09%, AI/AN from 0.91%-0.17%, NH/OPI from 0.09%-0.11%, and African American from 4.47%-4.70%. On regression analysis, faculty ranked as professors had statistically significant, decreased associations with URM.
Omoruyi (2022) ⁹⁶	Pediatric faculty	To evaluate pediatric faculty diversity trends.	Repeat cross-sectional	Pediatric faculty members (n = 367,863)	AAMC Faculty Roster of pediatric faculty from 2000 to 2020	Trends in URM faculty representation significantly increased at all ranks. URM male representation remained unchanged, whereas significantly increased trends occurred in URM female representation.
Rakhit (2022) ⁸³	Discipline of otolaryngology at medical schools in the US	To analyze racial disparities in academic otolaryngology from 2007 to 2018 in the US.	Cross-sectional	Otolaryngologists (n = 2,239, 53% women)	Annual reports of the AAMC	All races experienced an increase; however, White and Asian faculty had a greater increase compared to Black and Hispanic faculty. Regarding percentages at different ranks, White people were the majority (>50 percent) in every category.
Yoo (2022) ⁹⁷	121 US allopathic medical schools	To quantify the representation of URM and assess its changes in the US medical schools.	Cross-sectional	121 member institutions with 72,076 total faculty (3,648 URM faculty) in 1990 and 144 member institutions with 184,577 total faculty (17,029 URM faculty) in 2019	AAMC Faculty Administrative Management Online User System from 1990 to 2019	The median RQ of Black faculty increased from 0.10 (IQR, 0.06-0.22) to 0.22 (IQR, 0.14-0.41) (slope, +0.5% per year; P< .001), but remained low. In contrast, the median RQ of Hispanic faculty decreased from 0.44 (IQR, 0.19-1.22) to 0.34 (IQR, 0.23-0.62) (slope, -1.7% per year; P< .001) between 1990 and 2019. Absolute total change in RQ of URM showed an increase; however, the 30-year slope did not differ from zero (+0.1% per year; P= .052).
Saboor (2022)	Academic	To explore the current	Cross-sectional	Academic pediatricians	AAMC Faculty	Asian, Black, and Hispanic academic pediatricians increased in full professor,

⁷⁰	pediatrics	racial/ethnic trends in academic pediatric positions across the United States.		(n = 21,226, 11,472 women)	Roster from 2007 to 2020	associate professor, and assistant professor positions and decreased in instructor positions from 2007 to 2020. Black academic pediatricians decreased by 5.5% in chairperson positions.
Shaikh (2022) ⁵⁵	US medical schools	To assess racial disparity in academic EM faculty positions across the US.	Longitudinal	Academic EM faculty members (n _M = 3,989) of which one-third were female (n _M = 1,297)	AAMC Faculty Roster for full-time academic EM faculty for the years 2007–2018	There has been an increase in the proportional representation of faculty members from minority groups. Asian faculty members showed an increased representation in the lower academic ranks and URM groups demonstrated a small increase.
Tanni (2021) ⁹⁵	US schools and colleges	To describe and compare trends in the distribution of race/ethnicity for the faculty in schools and colleges of pharmacy in the US.	Longitudinal	PharmD full-time faculty (n = 5,349 in 2009 and 6,532 in 2019)	AACP Roster of Faculty and Professional Staff for 2009–2019	Trends in the proportion of White and Black full-time faculty decreased significantly while the proportion of Hispanic faculty remained stable. Increasing trends in Asian/Hawaiian and other race faculty were detected.
Kamran (2022) ⁷⁶	US faculty in RO and MO departments	To report trends in academic faculty representation by race and ethnicity for RO and MO departments.	Cross-sectional	2,115 total faculty in RO (615 women) and 819 total faculty in MO (312 women) in 2019	AAMC data from 1970 through 2019	RO and MO academic faculty have increased the representation of women over time, while URM representation has lagged.
Riner (2021) ⁶⁵	US surgical faculty	To evaluate trends among racial/ethnic minority groups stratified along the surgical pipeline, as well as in surgical leadership.	Cross-sectional and longitudinal analysis	Surgical faculty members (n = 15,653, including 3,876 women [24.8%]) captured in census data 2013-2019	AAMC faculty roster in the Faculty Administrative Management Online User System database	A disproportionately small number of faculty from minority groups obtain leadership positions in academic surgery. Intersectionality may leave female members of racial/ethnic minority groups more disadvantaged than their male colleagues in achieving leadership positions.
Zhu (2021) ⁴²	LCME-accredited US medical schools	To analyze the relationship of race and academic rank in American academic surgical faculty.	Cross-sectional	Full-time surgical faculty members of the 134 schools (25.5% women)	The AAMC database	Asian faculty experienced the greatest increase in proportional representation across all academic ranks. Black and Hispanic academic surgeons experienced little change across all ranks and leadership positions. There was a simultaneous decrease in the representation of White academic surgeons across all ranks and leadership positions.
Bennett (2020) ⁷⁵	US medical schools	To examine changes in US medical school basic science faculty over the last 20 years.	Longitudinal	Full-time faculty at all US medical schools	AAMC Faculty Roster	There was a significant increase in the Asian faculty, and Black females, but not Black males. Significant increases were observed among Hispanics, although females had an approximately 1% higher rate of increase; and White males had a significant decrease while females demonstrated an increase.

Chaudhary (2020) ⁶⁶	AAMC	To investigate the temporal trends of racial distribution in academic psychiatry faculty positions.	Longitudinal study	Academic psychiatry faculty (n = 11,090, 5,807 women)	AAMC annual faculty reports from 2007 to 2018	In the lower academic ranks, there was an increased representation of Asians, while the minority races/ethnicities experienced minimal increment. The greatest temporal growth trend was seen for the Asian race at the level of assistant and associate professors. A much smaller increase concentrated at lower ranks was observed for the Black and Hispanic races.
Deville (2020) ⁷¹	US medical schools	To report current and historical representation trends for Black physicians in the US RO workforce.	Longitudinal analysis	US medical school faculty and practicing physicians	AAMC Faculty Roster 1970 to 2016	Black faculty representation significantly increased by 0.02%/y, whereas Black RO faculty significantly increased by 0.07%/y before 2006, then decreased significantly by 0.16%/y thereafter. The number of Black RO faculty peaked at 37 in 2006 (3.1%; 37 of 1203) and was 27 (1.5%; 27 of 1769) in 2016, despite the nearly 1.5-fold increase in the number of both RO faculty and Black US faculty overall (4169 in 2006 and 6047 in 2016) during that period.
Shah (2020) ⁹⁸	All allopathic medical schools accredited by the LCME	To evaluate faculty appointments for URM orthopedic surgeons.	Longitudinal analysis	Full-time academic faculty	AAMC Faculty Roster for 1997 to 2017	Although orthopedic surgery has increased the representation of URM faculty members, it continues to lag behind other specialties. In addition, fewer URM orthopedic faculty members obtained senior faculty status than other specialties.
Niu (2020) ⁶⁷	US medical schools and from ACGME on radiology residents	To evaluate racial profiles of US academic radiology faculty.	Longitudinal	Full-time radiology faculty	AAMC database of radiology faculty members from 2006 to 2017	Asian and multiple-race non-Hispanic radiologists increased in the rank of professor by 5.9% and 3.1%, respectively. Among department chairs, only Asian faculty increased by 7.5%. Black and Hispanic chairs collectively represented less than 10% of the total chairs every year.
Ogunwole (2020) ⁸⁸	US medical schools	To assess diversity trends in the academic IM workforce.	Cross-sectional	Full-time US medical school faculty	AAMC Faculty Roster from 1980 to 2018	From 1980 to 2018, the absolute number of full-time IM faculty increased from 10,964 to 42,547. Among IM faculty, the percentage of URM faculty members more than doubled during the study period (from 4.1% to 9.7%) but still made up only a small portion of faculty members.
Valenzuela (2020) ¹⁰⁵	Surgical faculty	To quantify and assess trends among URM ASF in the interval since the call to action in 2008.	Longitudinal	US academic surgery faculty (n = 14,340, 3,250 women)	AAMC Faculty Roster data	Surgeons from URM backgrounds account for 7% of ASF. No increase in Black and a decrease in Hispanic ASF occurred from 2005 to 2018. There is a paucity of data for other URM groups.
Wooding (2020) ⁶⁰	American medical institutions	To describe the recent state and trends in racial or ethnic disparities in	Retrospective cross-sectional	Full-time academic physicians (n = 6,302, 57% women)	AAMC faculty roster for OBGYN faculty 2007 and 2018	Across the 12-year period, there was an increase in the total number of physicians from 4,755 to 6,302, and an increase in the proportion of physicians from racial minorities (Asian, Black, and Hispanic).

Xierali (2020) ⁸⁹	EM departments in the medical schools	academic OBGYN. To assess the long-term trends in tenure status stratified by URM status among EM department faculty in U.S. medical schools.	Longitudinal and cross-sectional	Full-time faculty (n = 5,237)	AAMC roster of full-time faculty from 1989 to 2018	The number of EM faculty increased from 177 in 1989 to 5,237 in 2018, with the majority of the increase in nontenured rather than tenured or tenure-track faculty. The proportions of tenure-line faculty increased briefly from 1989 (29.4%) to 1994 (32.5%) and decreased since to 14.2% in 2018. The decreases were greater among men (from 34.5% to 14.9%) or non-URM (from 32.7% to 14.1%) than women (from 24.8% to 13.1%) or URM (from 30.2% to 15.3%). Compared to other academic departments, EM departments had the second lowest proportion of tenure-line faculty in 2018.
Xierali (2020) ¹⁰³	FM departments of the US medical schools	To describe trends in the tenure status of FM faculty overall and by the status of URM in medical schools.	Longitudinal	Physicians	AAMC Faculty Roster data for full-time FM faculty 1977-2017	The proportion of tenure positions significantly decreased among FM faculty in US medical schools. While gaps among certain racial/ethnic groups remained for FM tenure status, they have decreased over time, mainly because of a substantial increase in non-tenured positions.
Xierali (2020) ⁶¹	US medical schools	To measure faculty diversity by race and ethnicity in academic dermatology departments.	Cross-sectional	Full-time dermatology faculty (n = 1,464, 749 women)	AAMC Faculty Roster from 1970 to 2018	The number of URM faculty grew from 8 (4.8%) in 1970 to 109 (7.4%) in 2018. At every rank, there was a proportionately low number of URM faculty represented.
Zhang (2021) ⁷⁹	Medical schools	To evaluate workforce disparities in academic PM&R by measuring race/ethnicity diversity.	Surveillance	Academic PM&R faculty (n = 1,681, 788 women)	PM&R data from AAMC annual Faculty Roster report from 2007 to 2018	Among the non-White faculty, Asian faculty had the greatest increase in the proportion of full professors (3.7% to 10%) and Hispanic faculty in associate professors (2% to 7.1%), whereas full professors who were Black decreased from 4 persons (2.5%) to 2 persons (0.8%).
Wingard (2019) ⁹⁹	UC San Diego Health Sciences	To report data-driven policy associated with faculty diversity, and equity.	Longitudinal analysis	NR	Demographic and survey data	URM faculty increased from less than 1% to 7% of tenure/tenure-track faculty and from 5% to 8% of all faculty. Reports of inappropriate behavior by faculty decreased significantly, while satisfaction and knowledge about institutional mentoring and resources improved.
Abelson (2018) ⁸²	US medical schools	To provide an updated description of diversity along the academic surgical pipeline.	Cross-sectional and longitudinal analysis	NR	AAMC, AMA, and ACGME databases	From 2005-2015, representation among Black associate professors has gotten worse. Similarly, in 2014-2015, Hispanics represented 17.4% of the U.S. population but only 5.0% of assistant professors, 5.0% of associate professors, and 4.0% of full professors. There has been a modest improvement in Hispanic representation among general surgery associates and full professors.

Lett (2018) ¹⁰⁶	US allopathic medical schools in 16 specialties	To evaluate trends in racial and ethnic representation at US medical schools.	Longitudinal	Clinical medical faculty (n = 129,545)	AAMC Faculty Roster	Black and Hispanic faculty showed statistically significant trends towards increasing underrepresentation in most specialties and were more underrepresented in 2016 than in 1990 across all ranks and specialties analyzed, except for Black females in OBGYN.
Gumertz (2017) ¹⁰⁰	Four large grant institutions	To investigate tenure attainment, retention, and time to promotion to full professor for URM faculty.	Longitudinal	Assistant and associate professors from 1992 to 2015 (n = 407, 115 women, 28 URM)	Four grant institutions	Representation of the URM faculty in STEM disciplines increased substantially from 1992 to 2015, but mostly for Hispanic faculty and more slowly for Black and AI faculty.
Hwang (2017) ¹⁰¹	Medical schools	To describe the trends in ethnic diversity among PM&R faculty.	Longitudinal	Full-time academic faculty	AAMC Faculty Roster from 1994 to 2014	The average yearly percent increase in the proportion of non-White PM&R faculty in full professor positions (0.19%) was less than those in instructor (0.84%), assistant (0.93%), and associate professor (0.89%) positions. Overall, trends among faculty exhibit a steady increase in ethnic diversity, although promotion disparity continues to exist among specific academic positions for some groups.
Xierali (2017) ⁸⁰	FM department in MD-granting medical schools	To describe trends in racial and ethnic diversity in FM departments.	Longitudinal	Full-time faculty members	AAMC Faculty Roster	Among FM faculty, the proportions of URM faculty have grown more than 2-fold between 1980 and 2015. Increasing faculty rank was associated with lower diversity across the study period. FM departments had higher URM proportions than the average of all other specialties, but URM representation still lagged in population trends.
Gibbs (2016) ¹⁰⁷	Medical school, basic science departments	To build and validate a conceptual system dynamics model to explain the hiring of assistant professors.	Longitudinal	NR	NSF Survey of Earned Doctorates	Between 1980 and 2013, the number of PhD graduates from URM backgrounds increased by a factor of 9.3, compared with a 2.6-fold increase in the number of PhD graduates from WR groups. However, the number of scientists from URM backgrounds hired as assistant professors in medical school basic science departments was not related to the number of potential candidates, whereas there was a strong correlation between these two numbers for scientists from WR backgrounds.
Lin (2016) ¹⁰²	Johns Hopkins Department of Otolaryngology-Head and Neck Surgery	To describe a 10-year diversity initiative to increase the number of URM in an academic department.	Longitudinal	Clinical faculty (n = 38, 9 women [23.7%])	Survey	From 2004 to 2014, URM faculty increased in number from two to four; URM full professors increased in number from 0 to 1. In 2004, there were no salary differences for URM. In 2014, salary was equal by rank and subspecialty training independent of minority status.

AACP, American Association of Colleges of Pharmacy; AAMC, Association of American Medical Colleges; ACGME, Accreditation Council for Graduate Medical Education; AI, American Indian; AMA, American Medical Association; AN, Alaska Native ASEE, American Society for Engineering Education; ASF, Academic Surgery Faculty; ASPPH, Association of Schools and Programs of Public Health; ASEE, American Society for Engineering Education; CEO, Chief Executive Officer; EM, Emergency Medicine; FM, Family Medicine; HEBS, Health

Education & Behavioral Sciences; HPM, Health Policy & Management; IM, Internal Medicine; IQR, Interquartile Range; LCME, Liaison Committee on Medical Education; MO, Medical Oncology; NA, Native American; NA/NH, Native American/Native Hawaiian; NH, Native Hawaiian; NR, Not Reported; NSF, National Science Foundation; OBGYN, Obstetrics and Gynecology; OPI, Other Pacific Islander, PharmD, Doctor of Pharmacy; PI, Pacific Islander; PM&R, Physical Medicine and Rehabilitation; RO, Radiation Oncology; RQ, Representation Quotient; STEM, Science, Technology, Engineering, and Mathematics; URM, Underrepresented Minority; US, United States; USCB, United States Census Bureau; WoC, Women of Color; WR, Well Represented.

Racial and Gender Representation of the Academic Faculty Promotion, Retention, and Attrition

Compared to White male faculty, Asian^{108,109}, and URM faculty^{92,108-111}, including Black^{59,108,112,113} and Hispanic faculty^{108,113} were less likely to be promoted to associate or full professor ranks⁸⁶. Asian faculty were also found to have lower chances of promotion from assistant professor to associate professor or CEO/Dean positions¹⁰⁸. Among URM faculty, women had the lowest likelihood of promotion and the highest risk of attrition, with URM faculty overall experiencing longer wait times for promotions compared to white faculty⁹². Black and Hispanic faculty were underrepresented in late-career academic positions relative to White faculty¹¹³.

Some studies, however, reported no significant differences in promotion rates among different racial or ethnic groups¹¹⁴. Nonetheless, all non-White faculty were generally less likely to achieve promotion compared to their White counterparts⁸⁶. Intersectional analyses revealed that Asian women and Black men faced additional barriers, with Asian women being the least likely to attain promotion⁸⁶. Black faculty were also more likely than white faculty to leave their academic positions¹¹².

In medical schools, URM faculty, particularly assistant professors, were significantly less likely than White or Asian faculty to achieve promotion¹¹⁰. URM faculty were also more likely to leave academia without obtaining tenure compared to non-URM faculty¹⁰⁹. Among academic surgeons, Black assistant professors exhibited lower promotion rates across all specialties⁵⁹.

In STEM disciplines, retention rates and the probability or time required for promotion from associate to full professor ranks were found to be similar for URM faculty and their peers from other racial or ethnic groups¹⁰⁰.

Table 4. Characteristics of studies reporting racial/ethnic diversity in faculty promotion, retention, and attrition

Author (Year)	University, department	Aim	Study design	Study Population Demo	Data collection method	Primary Findings
Bond (2024) ¹⁰⁸	Pharmacy faculty	To characterize the relative likelihood of URM pharmacy faculty being promoted and advancing within leadership roles.	Cross-sectional and longitudinal	AACP faculty identified as Black, Hispanic, Asian, and White	Data from the 2010–2021 AACP Profile of Pharmacy Faculty survey	Compared to White male counterparts, faculty identifying as Black, Hispanic, or Asian had a significantly lower odds ratio of promotion to associate or full professor. Asian faculty also had a lower likelihood of promotion from assistant to associate or Chief Executive Officer (CEO)/dean.
Johnson (2024) ⁹²	Departments of surgery programs (n = 138)	To assess the combined association of race, ethnicity, and sex with rates of promotion and attrition among US academic medical department of surgery faculty.	Retrospective cohort	Faculty members from 138 institutions (n = 31,045, 23,092 men; 7,953 women)	AAMC faculty roster data	Results of this cohort study suggest that intersectionality was associated with promotion and attrition, with URM females least likely to be promoted and at the highest risk for attrition.
Ryujin (2024) ¹¹³	PAEA	To investigate the disparities in career progression in	Cross-sectional design	PA faculty and program directors (n = 3,466, 988, 1,033,	Pooled data from the PAEA Program Survey in	The analysis revealed significant disparities in career progression, particularly for Black and Hispanic faculty members, who were 44% less likely to be in late-career positions

		the PA profession, focusing on racial/ethnic minority faculty.		and 1,164 for the years 2015, 2017, and 2019, respectively).	2015, 2017, and 2019	compared with White faculty. These disparities persisted even after accounting for gender, highest degree, region, and years in rank.
Warsame (2024) ¹¹⁴	Mayo Clinic	To investigate the contribution of conferring promotion to the lack of parity in academic advancement for URM.	Longitudinal	Applicants for associate professor (n = 462) and professor (n = 320) positions	Promotion applications at Mayo Clinic from January 2, 2015, through July 1, 2019	There was no significant association between deferral status and race/ethnicity for either rank.
Udeh (2024) ¹¹²	US ophthalmology departments	To examine the rates and trends of faculty promotions with emphasis on the rates of promotion among URM faculty.	Retrospective panel	Full-time assistant (n = 1,436) and associate professors (n = 680) appointed between 2000 and 2010	AAMC Faculty Roster database	Black faculty had lower promotion rates when compared with White faculty (20% vs 37%, $P < .001$). Black faculty were more likely to leave academic medicine (46% vs 33%, $P < .001$).
Hobgood (2021) ⁸⁶	Medical schools	To assess rank progression by faculty gender and race/ethnicity in EM faculty.	Longitudinal trend analysis	EM (n = 5,572, 2,093 women) and all faculty (n = 157,993)	AAMC data	REI analysis by race/ethnicity demonstrates that all faculty of color are below parity at the assistant to associate professor promotion. Hispanic faculty are at parity for associate professor to professor, but Asian and Black faculty do not achieve parity in any comparison. Intersecting gender and race/ethnicity in the REI analysis demonstrates that Asian women have the lowest REIs among all faculty ranks and races/ethnicities. Men of all races/ethnicities achieved parity in two of three rank comparisons, except for Black men, who did not achieve parity in any comparison. Promotion rates varied not only by faculty rank but also by faculty race/ethnicity, department, tenure status, and degree type. The differences were more pronounced for assistant professors than associate professors. URM faculty members, particularly assistant professors, were promoted at lower rates than their White and Asian peers.
Xierali (2021) ¹¹⁰	US medical schools accredited by the LCME	To provide an update on recent trends in faculty promotion in the US medical schools.	Longitudinal analysis	Full-time assistant (n = 52,126, 30,017 men and 21,998 women) and full-time associate professors (n = 23,103, 15,470 men and 7,583 women)	AAMC Faculty Roster for full-time faculty who started between 2000 and 2009	Promotion rates varied not only by faculty rank but also by faculty race/ethnicity, department, tenure status, and degree type. The differences were more pronounced for assistant professors than associate professors. URM faculty members, particularly assistant professors, were promoted at lower rates than their White and Asian peers.
Durodoye (2020) ¹⁰⁹	Four US universities	To measure the risk of leaving without tenure and years to promotion.	Longitudinal analysis	Assistant professors (n = 3,298) and associate professors (n = 2,556)	Institutional personnel data from four universities from 2002 to 2015.	Racial or ethnic minorities are less likely to be promoted to full professor in certain areas. The estimated final incidence of leaving without tenure is 38% for URM faculty and 33% for other faculty.
Abelson (2018) ⁵⁹	US medical schools	To quantify differences in the rates of retention and promotion of	Cross-sectional	Full-time faculty (n = 20,816)	AAMC Faculty Roster of assistant and associate professors	Black assistant professors had lower 10-year promotion rates across all specialties ($p < 0.01$). There were no race/ethnicity-based differences in promotion for associate professors.

Gumpertz (2017) ¹⁰⁰	Four large land grant institutions	URM academic surgeons. To investigate tenure attainment, retention, and time to promotion to full professor for women and STEM URM faculty.	Longitudinal	Assistant and associate professors hired or appointed from 1992 to 2015 at (n = 407, 115 women, 28 URM)	2003 and 2006. Four grant institutions	When all institutions and STEM disciplines are combined, we see no difference in retention patterns between URM faculty and other faculty. No significant differences were found in the probability or time to promotion from associate to full professor between URM and other faculty, even when differences among disciplines or institutions are accounted for.
Kaplan (2018) ¹¹¹	US medical schools	To compare advancement, and retention, n of URM faculty with other faculty.	Cross-sectional	Participants (n = 1,270, 631 women)	National Faculty Survey, a random sample from 24	URM faculty were less likely to be promoted and retained in academic careers. Data on retention revealed significant racial/ethnic differences, with 86% of White faculty, 78% of non-URM faculty, and 72% of URM faculty retained in academia over the 17 years of follow-up. In the adjusted analysis, the odds of retention in academia compared with White faculty continued to be significantly lower for URM faculty at 0.49, but not for non-URM faculty. The White faculty and non-URM faculty achieved the rank of professor at greater numbers, 68% and 66%, than URM faculty, 49%.

AACP, American Association of Colleges of Pharmacy; AAMC, Association of American Medical Colleges; CEO, Chief Executive Officer; EM, Emergency Medicine; LCME, Liaison Committee on Medical Education; PA, Physician Assistant; PAEA, Physician Assistant Education Association; REI, Rank Equity Index; STEM, Science, Technology, Engineering, and Mathematics; URM, Underrepresented Minority; US, United States.

Results of Assessing Quality of Evidence

Appendix I presents the quality assessment results for the 72 articles included in this systematic review. Due to the observational design of the selected studies, items 3, 5, and 6 of the JBI tool were deemed inapplicable. To ensure a fair evaluation, item 3 was assessed based on the clarity of the description of the data acquisition method, while items 5 and 6 were assigned a rating of "Yes." Among the 72 included studies, 63 were categorized as high quality, and eight were classified as moderate quality.

CHAPTER IV: DISCUSSION

The benefits of diversity and inclusiveness have become increasingly evident, with research demonstrating its positive impact on various aspects of academic and clinical environments. These benefits include improved student learning outcomes¹¹⁵, enhanced patient care¹¹⁶, increased academic productivity¹¹⁷, strengthening physicians' ability to serve underserved communities¹¹⁸, and even better financial results¹¹⁶. As a result, academic institutions and healthcare organizations have prioritized diversity initiatives to enhance both educational and clinical practices.

Efforts to support diversity within academic faculties have yielded mixed results, with progress varying across different sectors. While challenges such as racism, lack of mentorship, and inequality in resource allocation are ever-present, the degree of success in addressing these issues has been inconsistent. Despite some progress in specific disciplines, systemic barriers continue to impede the advancement of others. This systematic review provides an opportunity to explore the issue of gender and racial/ethnic equity in faculty representation at various levels of higher education. The review identified three key themes, and while some common patterns emerged across studies, other findings revealed inconsistencies that highlight the complexity of achieving true equity.

Racial/Ethnic Representation in the Faculty

Racial/ethnic representation in faculty is a critical issue across academic institutions, with several studies consistently revealing the overrepresentation of white faculty, particularly in higher ranks and leadership positions. White faculty tend to dominate across various departments and specialties, with the representation of White faculty decreasing at lower ranks but increasing as faculty ascend to higher ranks and leadership roles. Specifically, studies have shown that White faculty are more prevalent in tenured positions and senior faculty ranks across disciplines, suggesting both historical and current racial biases in faculty promotion and hiring practices^{47,63,119-138}. The overrepresentation of White faculty in higher ranks could also be attributed to extrinsic and intrinsic factors, such as financial support, mentorship, educational opportunities, and personal attributes like intellectual curiosity and altruism¹³³. Moreover, systemic issues, including poor education, lack of mentorship, and pervasive stereotyping, further contribute to the disparities in faculty representation by race¹³⁹.

Whereas White faculty are disproportionately represented in higher academic ranks, underrepresented minority (URM) faculty face significant barriers to advancement and are underrepresented across all faculty ranks. Despite URM faculty comprising a significant portion of the U.S. general population, they remain markedly underrepresented in numerous specialties. For example, URM scholars make up only 10% of pediatric cardiology faculty, 9% of physician assistants (PA), 7.4% of dermatology faculty, and 8.4% of all medical faculty, despite URM groups comprising about 35% of the population^{120,136,138,140}. Studies have found that non-White scholars also face lower chances of obtaining research careers or professorships compared to their White counterparts, and they are more likely to report spending more time on teaching compared to their white peers¹³². Despite the increased presence of URM faculty in lower academic ranks, their representation sharply decreases as faculty move into senior positions, including leadership roles such as department chairs and deans^{63,119-122,124,132,133,135,136,138,140-145}. This stark underrepresentation in leadership positions points to significant barriers that URM faculty face, including overt prejudice, subtle discrimination, and a lack of mentorship¹³⁶. These barriers are compounded by a higher teaching load and invisible labor, which limits the time available for research and mentorship opportunities, contributing to the so-called "leaky pipeline" that leads to lower retention rates for URM faculty in senior roles¹⁴⁶⁻¹⁴⁹.

The underrepresentation of URM faculty in higher academic ranks is further exacerbated by challenges during the hiring and promotion processes. One study highlighted how microaggressions—subtle, often unintentional forms of discrimination—affect faculty satisfaction and productivity, particularly for Black and other minority faculty members¹⁵⁰. These microaggressions are often manifested during the interview process, where URM faculty candidates report feeling isolated and unsupported, contributing to a lack of diversity in academic environments¹⁵¹. Additionally, the emphasis on academic profiles such as research publications, grants, and citations in the selection of leadership positions may overshadow the importance of diversity advocacy, leading to the appointment of leaders with little experience or interest in promoting diversity¹⁵¹. The persistent underrepresentation of URM faculty in leadership roles underscores the need for a more holistic approach to hiring and promotion decisions, one that values not only academic achievements but also efforts toward enhancing diversity and inclusion^{131,136}.

Mentoring and networking have been identified as key strategies to address these inequities. Effective mentoring for URM faculty has been shown to increase job satisfaction and academic productivity and to improve career outcomes^{121,152}. URM faculty often report a lack of mentorship, which limits their career advancement and professional development. Moreover, mentoring relationships are especially beneficial when they include support for career development, research opportunities, leadership development, and work-life balance¹⁵³. Universities need to institutionalize mentoring programs that are specifically designed for URM faculty and integrate mentoring into faculty workloads. Such support systems not only help retain URM faculty but also contribute to developing a more diverse academic workforce^{121,154}. Furthermore, networking beyond predominantly White institutions allows URM faculty,

particularly those from underrepresented racial groups, to find mentors and support networks that help them navigate the academic environment and reduce feelings of isolation ¹⁵⁰.

Microaggressions and implicit bias are also critical barriers to overcoming racial disparities in faculty representation. Addressing microaggressions through active engagement and creating an inclusive institutional environment is vital. Faculty members should be trained in recognizing and mitigating implicit bias, particularly those involved in hiring, appointments, and tenure decisions. Some universities have adopted holistic review processes in admissions, which consider a broader range of criteria beyond standardized test scores and grades, resulting in increased racial diversity in student populations ¹³¹. This approach could similarly be applied to hiring and promotion practices to ensure that faculty recruitment is more inclusive of underrepresented racial and ethnic groups.

The intersectionality of race, ethnicity, and gender further complicates the picture of faculty representation. While women of all racial and ethnic backgrounds are well-represented in some faculty positions, such as in dentistry, Asian women, in particular, remain underrepresented in leadership roles ¹²². Moreover, the academic careers of non-White women, including Black, Hispanic, and Asian women, often intersect with unique challenges, including longer times to promotion and higher risks of attrition ^{155,156}. This intersectionality results in compounded disadvantages for women of color, who face both racial and gender-based biases in academic environments. Studies suggest that increasing the racial and ethnic diversity of faculty, particularly at higher academic ranks, requires structural interventions at multiple levels, from encouraging underrepresented minority graduate students to pursue academic careers to addressing institutional barriers that push URM faculty out of academia ¹³². The efforts to increase URM faculty representation must be paired with systemic changes in institutional culture and practices, including support for work-life balance, protection against discrimination, and the promotion of diversity-focused leadership ¹⁵⁷.

In summary, racial and ethnic disparities in faculty representation remain persistent across academic institutions, with White faculty overrepresented in senior ranks and leadership positions. URM faculty, especially women of color, continue to face significant challenges, including overt and subtle discrimination, lack of mentorship, and systemic barriers to promotion. However, strategies such as mentoring, holistic hiring processes, and addressing microaggressions can contribute to a more equitable academic environment. Institutions need to implement structural changes that promote diversity and inclusion, ensuring that URM faculty are supported and have the opportunities necessary to thrive at all academic ranks.

Gender and Race/Ethnic Intersectionality

The intersectionality of gender and race/ethnicity in academic faculty representation reveals persistent inequities, with notable variations across disciplines and ranks. Women from all racial and ethnic backgrounds are well-represented in the faculty of dentistry, but Asian women are significantly underrepresented in leadership roles within this field ¹²². Similarly, in EM, Asian women report the lowest representation equity indices (REIs) across all faculty ranks compared to other racial/ethnic groups ⁸⁷.

Trends in academic surgery highlight progress in representation but also ongoing disparities. Over 10 years, the representation of URM male and both URM and non-URM female faculty increased. However, non-URM male faculty achieved promotion the fastest, while non-URM female faculty faced the longest delays. Among URM women, the risk of attrition after 10 years was the highest, whereas non-URM males had the lowest risk ¹⁵⁶. Within surgical subspecialties, Black men and women were particularly underrepresented, with Black men comprising only 1.9% and Black women 2.6% of all surgical residents. The proportion of Black women decreased progressively with higher academic ranks, while Black men's representation remained stable. In contrast, Hispanic women, representing just 2.1% of surgical residents, constituted the smallest subgroup among URM populations ¹³¹.

Ophthalmology faculty representation from 2000 to 2021 demonstrated limited change for URM men and only slight increases for URM women at junior levels. In this specialty, non-URM men decreased in representation, while non-URM women increased. However, ophthalmology remains one of the fields

with the lowest percentage change in URM faculty representation¹⁵⁸. Similarly, basic science faculties continue to show significant underrepresentation of women and URM groups, with White faculty dominating across all ranks⁷⁵.

FM offers a contrasting narrative, with women comprising 53.9% of faculty and chairs who are underrepresented minorities reaching the highest proportion (16.7%) compared to other specialties. This department exhibits diversity in chair positions that align more closely with U.S. demographic representation. However, gaps persist, particularly in the representation of Hispanic FM chairs and faculty, which lag behind the general population¹⁵⁹.

EM faculty data highlight a concerning stagnation in URM representation. Although non-URM male and female faculty increased significantly over the years, the growth in URM male and female faculty was minimal, with proportions remaining flat¹⁶⁰. IM faculty trends indicate modest gains, with URM faculty percentages more than doubling from 1980 to 2018, but still constituting a small fraction of the faculty. Interestingly, URM women outnumbered URM men in IM faculty roles¹⁶¹.

Across all disciplines, non-White women, including AAPI women, face persistent underrepresentation at senior ranks. While AAPI men are overrepresented across ranks relative to their population, AAPI, Black, and Hispanic women experience significant declines in representation from assistant to full professor levels, with White men increasing their representation disproportionately at senior ranks⁸⁷. For example, White men's representation grows from 35% at the assistant professor level to 55% at the full professor level, while White women's representation declines from 36% to 25% along the same trajectory⁸⁷.

These findings underscore the complexity of intersectionality, where gender and race/ethnicity interact to create distinct challenges and opportunities within academia. While some fields, such as FM, demonstrate progress in achieving diversity, systemic barriers persist in others, particularly at senior ranks and leadership positions. Addressing these disparities requires targeted interventions, including mentorship programs, equitable promotion practices, and active efforts to combat attrition among URM women faculty. Structural changes are necessary to ensure fair representation and retention, fostering an academic environment that values and promotes diversity across all dimensions.

Longitudinal Trends in Racial and Gender Representation in Academic Faculty Positions

Longitudinal trends in racial and gender representation in academic faculty positions reveal dynamic shifts across groups, reflecting both progress and persistent disparities. White faculty, historically the largest ethnic group across academic ranks, have experienced a decline in representation over time across ranks and leadership positions^{75,119,125,133,135,151,160,162,163}. Despite this decrease, white faculty still comprise the majority in many fields^{47,119}. Interestingly, while White male faculty representation has declined, White female faculty have shown growth, marking a nuanced shift within this demographic^{75,160,164}.

Asian faculty have demonstrated consistent increases in representation, with significant growth across various academic ranks and fields^{47,75,125,130,133,135,142,143,151,162,163,165,166}. Some studies report more pronounced increases at lower ranks^{47,130,143}. Notably, Asian representation among department chairs in radiology has also increased¹⁴³, with Asians achieving the greatest growth compared to other ethnicities^{47,119,125,142}.

URM faculty have shown gains across ranks, with increases observed at both junior and senior levels^{75,96,100,119,120,125,130,133,135,136,141,142,144,145,151,156,158,161,162,165-174}. However, the magnitude of these increases varies significantly by field, with some reporting substantial gains^{120,133,145,161,170,173,175}, while others document stagnant or marginal changes^{104,119,120,125,130,133,135,142,156,158,167,171,174}. For example, URM representation in PM&R showed smaller improvements at higher ranks, particularly for full professors¹⁶⁸. The increase in URM faculty has often been driven by gains among URM women^{75,96,125,141,145,156}, though these women remain underrepresented in leadership positions compared to their male counterparts¹⁴¹.

Black faculty representation presents a mixed picture, with sharp declines noted in microbiology chairs¹⁶⁶ and pediatrics, as well as stagnant or declining trends in pharmacy¹⁶³, PM&R¹⁵¹, surgical specialties¹⁶⁷, and across 16 medical specialties¹⁰⁶. Conversely, no significant changes were observed in

fields like radiology^{125,143}. Similarly, Hispanic faculty representation shows variation: while their numbers have doubled in some areas¹⁴⁴ and increased in pharmacy¹⁶³, basic science⁷⁵, and STEM¹⁰⁰, inconsistencies persist, particularly in surgical fields where reports range from modest improvements to decreases^{167,176}. Hispanic women continue to lag behind Hispanic men in representation.

URM representation in leadership roles, such as department chairs and deans, has shown limited progress in recent decades^{120,141}, although a study spanning four decades reported a twofold increase in URM leadership¹⁴⁵. However, disparities remain stark for certain URM subgroups, including Black^{106,151,167}, AI/AN¹⁶², NH/PA¹⁵⁶, and Hispanic faculty^{106,141,162,170,176}.

Overall, the findings underscore significant, albeit uneven, progress in racial and gender diversity among academic faculty. While representation for URM, Asian, and White women has improved, structural barriers remain, particularly for leadership roles and senior ranks. Efforts to sustain and accelerate diversity, particularly among underrepresented groups and women, are essential to address disparities and ensure equity in academic faculty positions.

Racial/Ethnic Disparity in Faculty Promotion, Retention, and Attrition

Racial and ethnic disparities in faculty promotion, retention, and attrition remain significant challenges in academia. Implicit pro-White bias has been highlighted as a critical factor influencing the retention and promotion of academic faculty^{177,178}. Such biases may create an environment where non-White faculty face greater obstacles in advancing their careers compared to their White counterparts. Mentorship programs involving senior faculty of color have been identified as effective in supporting the retention of junior faculty of color, suggesting the importance of culturally informed mentorship to combat attrition¹⁷⁸.

URM junior faculty often face unique challenges in developing their academic careers. These challenges include diversity-related responsibilities, exposure to implicit biases, and non-efficacious mentorship, which collectively hinder their professional growth. Addressing these issues at the junior faculty level through targeted interventions is critical, as mid-level or senior faculty may not experience these challenges to the same extent^{134,135}. Evidence indicates that URM faculty, including Black^{135,179-181} and Hispanic faculty^{179,181}, are less likely to be promoted to associate or full professor ranks compared to White faculty. Asian faculty similarly face lower chances of promotion across various academic levels, including from assistant professor to associate professor or leadership roles such as CEO or Dean^{109,179}. URM faculty also experience longer time periods before receiving promotions, underscoring systemic inequities in the promotion process¹⁵⁶.

The intersectionality of race, ethnicity, and gender further compounds disparities. URM female faculty, for instance, have the lowest likelihood of being promoted and face the highest risk of attrition^{109,156,179,182,183}. Among Asian faculty, women are particularly disadvantaged, with lower promotion rates compared to their male counterparts¹⁵⁵. Black faculty are also more likely to leave academia compared to White faculty¹⁸⁰, reflecting broader retention challenges within this demographic.

In certain fields, such as medical schools, URM assistant professors are less likely to achieve promotion than their White or Asian peers¹⁸². This trend extends to academic surgeons, where Black assistant professors show lower promotion rates across specialties^{135,167}. Furthermore, URM faculty overall exhibit a higher likelihood of leaving academia without tenure compared to non-URM faculty¹⁰⁹. However, not all disciplines show consistent disparities. For example, in STEM fields, some studies report no differences between URM and non-URM faculty regarding retention or time to promotion from associate to full professor¹⁰⁰.

While progress has been made in understanding these disparities, the persistence of systemic inequities highlights the need for sustained efforts to promote equity in faculty advancement. Universities must implement policies and programs that address implicit bias, foster effective mentorship, and support URM faculty in overcoming structural barriers to promotion and retention. Without these interventions, the academic workforce risks perpetuating inequities that limit diversity and inclusion in higher education.

Overall Discussion

The findings from our systematic review underscore pervasive racial and gender inequities in faculty positions across academia, driven by structural and systemic barriers. Women and URM faculty face compounded challenges stemming from inequitable access to resources, discriminatory hiring practices, biased evaluations, and insufficient mentorship opportunities, all of which contribute to slower career progression and limited representation in leadership roles. For instance, cultural stereotypes such as the "model minority" myth for Asian scholars obscure the nuanced realities of bias and exclusion, particularly for Asian women who encounter unique obstacles like the "bamboo ceiling" that hinders their academic advancement¹⁸⁴. Similarly, URM faculty frequently bear the burden of a "minority tax," which includes additional uncompensated responsibilities such as mentoring and diversity work, limiting their time for research and professional growth¹⁸⁵⁻¹⁸⁷.

The review highlights the importance of adopting intentional and systemic approaches to mitigate these inequities. Inclusive hiring practices, such as cluster hiring and the establishment of Employee Resource Groups (ERGs), have shown promise in increasing representation and fostering supportive environments for diverse faculty¹²². ERGs, in particular, play a vital role in providing mentorship, sponsorship, and a sense of belonging, which are essential for the retention and advancement of minoritized faculty¹²². However, these initiatives alone cannot dismantle the entrenched disparities; addressing underlying systemic inequities requires structural reforms, such as revising promotion criteria, implementing comprehensive diversity, equity, and inclusion (DEI) programs, and eliminating biases in evaluations and awards¹⁸⁸⁻¹⁹⁰.

The "leaky pipeline" phenomenon further illustrates the challenges faced by minoritized faculty, as they encounter significant drop-offs in transitions from assistant to associate and from associate to full professor roles¹⁴⁶⁻¹⁴⁸. Factors such as higher teaching loads, invisible labor, hostile work environments, and burnout exacerbate this issue, necessitating targeted interventions to support faculty of color throughout their careers. Efforts such as career development interventions, debt reduction programs, and mentorship initiatives tailored to the unique needs of URM faculty can help bridge these gaps and promote equitable career advancement¹⁹¹.

Moreover, the review identifies the critical role of leadership acknowledgment and institutional accountability in addressing these disparities. Transparent public commitments to gender and racial equity, coupled with focused specialty-specific DEI initiatives, are imperative for fostering an inclusive academic culture¹⁹¹⁻¹⁹⁵. These initiatives should emphasize not only recruitment and retention but also the support and promotion of women and URM faculty, ensuring equitable access to leadership opportunities and decision-making processes.

In conclusion, while individual programs and interventions have shown potential, achieving true equity in academic faculty positions demands a multi-faceted approach to addressing systemic barriers and fostering an inclusive environment at all institutional levels. Future research should explore the longitudinal impact of these interventions, assess their scalability, and examine the intersectionality of race, gender, and other identities to uncover additive effects of marginalization. Such efforts are essential for creating a diverse, equitable, and inclusive academic workforce that reflects the broader society it serves.

CHAPTER V: CONCLUSIONS

The analysis of racial and ethnic representation among academic faculty underscores persistent and systemic disparities, particularly at senior ranks and leadership positions. While White faculty representation has declined slightly over time, they remain significantly overrepresented in higher academic ranks, reflecting historical and ongoing biases in faculty recruitment, promotion, and retention. Conversely, underrepresented racial and ethnic minority (URM) faculty continue to face substantial barriers, with their presence concentrated in junior roles and declining sharply at senior levels. Structural barriers such as implicit bias, microaggressions, lack of mentorship, and inequitable distribution of workload exacerbate these disparities, leading to attrition and limited career progression for URM faculty.

The compounded challenges faced by URM women highlight the intersectionality of race, ethnicity, and gender in faculty representation. Women of color are disproportionately affected by both racial and gender biases, resulting in slower promotions, higher attrition rates, and underrepresentation in leadership positions. Although some fields, such as family medicine, exhibit progress in achieving diversity, these remain exceptions rather than the norm.

Strategies such as mentoring, holistic hiring and promotion practices, and active measures to combat implicit bias are critical for fostering an equitable academic environment. Mentoring programs specifically tailored for URM faculty, coupled with institutional support, can enhance career satisfaction, academic productivity, and retention. Similarly, emphasizing diversity advocacy alongside traditional academic achievements in hiring and promotion decisions can address the current underrepresentation of URM faculty in leadership roles.

Longitudinal trends suggest gradual improvements in the representation of certain groups, such as Asian faculty, particularly at junior ranks, and modest gains among URM women. However, the progress is uneven across disciplines, with many specialties witnessing stagnant or declining representation for Black, Hispanic, and other URM groups, particularly at senior ranks. These disparities highlight the need for targeted interventions to address systemic barriers and support the career advancement of URM faculty.

To achieve meaningful change, academic institutions must commit to structural reforms, including transparent hiring and promotion practices, mentorship and networking opportunities, and an inclusive institutional culture. Increasing diversity among faculty is not only a matter of equity but also enhances the quality of education, research, and leadership in academia. A sustained effort to address these disparities is essential for creating a more diverse, equitable, and inclusive academic workforce that reflects the broader population it serves.

CHAPTER VI: IMPLICATIONS FOR POLICY, PRACTICE, AND RESEARCH

- The observational nature of the data used in these studies limits the ability to infer causal relationships, necessitating more robust research designs to establish causation.
- Self-reported data, prevalent in most studies, excludes information from participants who opted not to participate, introducing potential bias and reducing the representativeness of findings.
- Descriptive studies with limited statistical analyses, often due to small sample sizes, compromise the validity and generalizability of their conclusions.
- Data sets across studies categorize gender identity as a binary variable, failing to represent the diversity of all gender identities, which calls for more inclusive data collection practices.
- A narrow focus on faculty demographics neglects critical factors such as career advancement, publication output, academic productivity, and funding achievements. A more holistic approach could illuminate additional sources of disparity and inform strategies to address inequities.
- The separation of racial/ethnic and gender analyses in most studies overlooks the intersectionality of these factors. Examining their combined effects, such as the double minority status faced by Asian female faculty, could reveal additive disparities ¹⁰⁶.
- Missing data in various databases poses the risk of nonresponse bias, highlighting the need for more comprehensive and complete data collection ¹⁶².
- The reliance on U.S. social constructs of race/ethnicity introduces measurement error and fails to capture subgroup heterogeneity within racial/ethnic populations, such as Jamaican, Lebanese, or Moroccan communities ¹⁶².
- Part-time and adjunct faculty are often excluded from analyses, resulting in an incomplete understanding of faculty representation and experiences ¹²⁰.
- Small sample sizes in certain studies preclude robust statistical analyses and limit the significance of the findings, calling for larger-scale studies.
- Institutional surveys sometimes employ question formats that miscategorize representation or fail to capture nuanced details, underscoring the need for better survey design.

- The AAMC faculty roster uses self-reported data on sex rather than gender, omitting the nonbinary nature of gender and its specific impacts on faculty outcomes.
- Studies including all full-time faculty in surgery may incorporate nonphysicians and nonclinical faculty, and the inability to distinguish general surgery subspecialties limits the relevance of findings to specific groups.
- Broad racial categorizations, such as grouping Chinese, Vietnamese, and Filipino populations under "Asian," obscure unique challenges faced by individual communities, necessitating more granular analyses⁴⁷.
- Aggregated data from U.S. medical schools prevent analysis of regional or state-level demographic trends, which could uncover localized disparities.
- Smaller minoritized groups, such as Native Americans, are often combined into a single category (e.g., "unknown" or "other"), masking specific trends and challenges they face.
- Variability in the time intervals covered by different studies complicates comparisons and the synthesis of findings, emphasizing the need for standardized temporal analyses.
- Leadership data in many studies focuses solely on department chair roles, overlooking other leadership positions like associate deans or program/course directors, which could provide a fuller picture of disparities.
- The categorization of racial/ethnic groups as "URM" or "non-URM" prevents disaggregation and limits the evaluation of trends within specific populations.
- Heterogeneity and subjectivity in criteria for faculty promotion and professorial ranking across institutions hinder the generalizability of findings, suggesting the need for standardized benchmarks.
- Critical factors contributing to faculty diversity, such as resilience, burnout, and institutional climate, remain underexplored, leaving significant gaps in understanding and addressing disparities.

These implications highlight the need for methodological rigor, inclusivity, and a broader scope in future research to address faculty diversity and equity comprehensively.

CHAPTER VII: KNOWLEDGE MOBILIZATION PLAN

Academics

To engage academics, we plan to produce and disseminate at least one peer-reviewed article. Potential publication venues include *Cognitive Research: Principles and Implications* (IF: 3.0) and *Frontiers in Education* (IF: 2.3), ensuring the findings reach interdisciplinary audiences.

In addition to publications:

- The project findings will be presented at scientific events, such as the *Global Forum Against Racism and Discrimination*, as well as broader academic conferences hosted by the Canadian Association of University Teachers (CAUT) and the Canadian Organization of Faculty Association Staff (COFAS).
- Digital platforms like X (formerly Twitter), LinkedIn, and academic forums will be leveraged for wider academic dissemination, fostering an inclusive knowledge-sharing environment.

Canadian Association of University Teachers (CAUT)

To extend the impact of the research findings, we will collaborate with the Canadian Association of University Teachers (CAUT), which represents academic professionals across Canada. Efforts will include:

- Sharing summary findings and publishing articles with CAUT.
- Presenting findings at CAUT conferences.

Such efforts aim to support national-level policy advocacy and capacity building in Canadian academia.

Institutional Policy/Decision-Makers

To ensure that the research informs institutional policies and practices, the findings will be communicated to key stakeholders within Dalhousie University, including the Provost, Vice Presidents of Academic Affairs, Academic Senate, Research Office, and the Equity, Diversity, Inclusion, and Accessibility (EDIA) Department.

Media

- This final report is publicly available through Dalhousie Dataverse @ Borealis.
- The final report will also be made available through the research website of the applicant (CANLab, zcanlab.ca).
- Engaging the media is a critical component of this Knowledge Mobilization Plan. We plan to share the summary findings of our peer-reviewed publications with journalists and major media outlets to ensure broader societal awareness. Media outreach will include:
 - Partnering with EDI units in universities to promote the findings.
 - Securing media coverage in platforms like the CAUT newspaper and other national and regional outlets.

Appendices

Appendix I: Assessing the quality of evidence using the JBI (Joanna Briggs Institute) appraisal checklist

Study	Criteria (Items)*								Total Y	Total N	Total U	Total NA	Quality
	1	2	3	4	5	6	7	8					
Zhu, 2021 ⁴²	Y	Y	Y	Y	Y	Y	Y	U	7	0	1	0	High
Bather, 2024 ⁹⁴	Y	Y	Y	Y	Y	Y	Y	Y	8	0	0	0	High
Campbell, 2024 ⁴³	Y	U	Y	Y	Y	Y	Y	Y	7	0	1	0	High
Bell, 2024 ⁴⁴	Y	U	Y	Y	Y	Y	Y	N	6	1	1	0	High
Bond, 2024 ¹⁰⁸	Y	Y	Y	Y	Y	Y	Y	Y	8	0	0	0	High
Fleming, 2024 ⁴⁵	U	Y	Y	Y	Y	Y	Y	N	6	1	1	0	High
Iwai, 2024 ⁹¹	Y	U	Y	Y	Y	Y	Y	Y	7	0	1	0	High
Johnson, 2024 ⁹²	Y	Y	Y	Y	Y	Y	Y	Y	8	0	0	0	High
Khan, 2024 ⁴⁶	Y	U	Y	Y	Y	Y	Y	Y	7	0	1	0	High
Mader, 2016 ⁸⁴	Y	N	Y	Y	Y	Y	Y	Y	7	1	0	0	High
Marzbanrad, 2024 ⁴⁷	Y	Y	Y	Y	Y	Y	Y	N	7	1	0	0	High
Omoruyi, 2024 ⁴⁸	Y	Y	Y	Y	Y	Y	Y	Y	8	0	0	0	High
Ryujin, 2024 ¹¹³	Y	Y	Y	Y	Y	Y	Y	Y	8	0	0	0	High
Warsame, 2024 ¹¹⁴	Y	Y	Y	Y	Y	Y	Y	Y	8	0	0	0	High
Xu, 2024 ⁷⁷	U	Y	Y	Y	Y	Y	Y	N	6	1	1	0	High
Ali, 2023 ⁸⁵	Y	Y	Y	Y	Y	Y	Y	Y	8	0	0	0	High
Qamar, 2023 ⁴⁹	Y	Y	Y	Y	Y	Y	Y	Y	8	0	0	0	High
Balanay, 2022 ⁵⁰	Y	Y	Y	Y	Y	Y	Y	N	7	1	0	0	High
Samuel, 2023 ⁶²	Y	Y	Y	Y	Y	Y	Y	N	7	1	0	0	High
Saxena, 2023 ⁶⁸	Y	U	Y	Y	Y	Y	Y	N	6	1	1	0	High
Udeh, 2024 ¹¹²	Y	Y	Y	Y	Y	Y	Y	Y	8	0	0	0	High
Balasubramanian, 2023 ⁶⁹	U	Y	Y	Y	Y	Y	Y	Y	7	0	1	0	High
Hofstra, 2022 ⁸¹	Y	Y	Y	Y	Y	Y	Y	Y	8	0	0	0	High
Kamran, 2022 ⁷⁴	Y	N	Y	Y	Y	Y	Y	U	6	1	1	0	High
Kibe, 2022 ⁵¹	Y	Y	Y	Y	Y	Y	Y	Y	5	0	0	0	Moderate

Kollu, 2022 ⁵²	Y	Y	Y	Y	Y	Y	Y	Y	8	0	0	0	High
Main, 2022 ¹⁰⁴	Y	Y	Y	Y	Y	Y	Y	N	7	1	0	0	High
Maqsoodi, 2022 ⁵³	Y	Y	Y	Y	Y	Y	Y	U	7	0	1	0	High
Ogunyemi, 2022 ⁷⁸	U	N	Y	Y	Y	Y	Y	Y	6	1	1	0	High
Omoruyi, 2022 ⁹⁶	Y	N	Y	Y	Y	Y	Y	Y	7	1	0	0	High
Rakhit, 2022 ⁸³	N	N	Y	Y	Y	Y	Y	N	5	3	0	0	Moderate
Yoo, 2022 ⁹⁷	Y	Y	Y	Y	Y	Y	Y	Y	8	0	0	0	High
Saboor, 2022 ⁷⁰	U	N	Y	Y	Y	Y	Y	N	5	2	1	0	Moderate
Shah, 2022 ⁵⁴	U	U	Y	Y	Y	Y	Y	N	5	1	2	0	Moderate
Shaikh, 2022 ⁵⁵	Y	U	Y	Y	Y	Y	Y	Y	7	0	1	0	High
Xierali, 2022 ⁶⁴	Y	U	Y	Y	Y	Y	Y	Y	7	0	1	0	High
Tanni, 2021 ⁹⁵	Y	U	Y	Y	Y	Y	Y	Y	7	0	1	0	High
Aggarwal, 2021 ⁵⁶	U	Y	Y	Y	Y	Y	Y	Y	7	0	1	0	High
Fairless, 2021 ⁶³	U	N	Y	Y	Y	Y	Y	Y	6	1	1	0	High
Hobgood, 2021 ⁸⁶	U	U	Y	Y	Y	Y	Y	Y	6	0	2	0	High
Johnson, 2023 ⁵⁷	U	Y	Y	Y	Y	Y	Y	N	6	1	1	0	High
Kamran, 2022 ⁷⁶	U	Y	Y	Y	Y	Y	Y	Y	7	0	1	0	High
Kim, 2021 ⁸⁷	U	N	Y	Y	Y	Y	Y	N	5	2	1	0	Moderate
Riner, 2021 ⁶⁵	U	Y	Y	Y	Y	Y	Y	N	6	1	1	0	High
Saleem, 2021 ⁵⁸	Y	U	Y	Y	Y	Y	Y	N	6	0	1	0	High
Xierali, 2021 ¹¹⁰	U	U	Y	Y	Y	Y	Y	U	5	0	3	0	Moderate
Bennett, 2020 ⁷⁵	Y	Y	Y	Y	Y	Y	Y	Y	8	0	0	0	High
Chaudhary, 2020 ⁶⁶	U	U	Y	Y	Y	Y	Y	U	5	0	3	0	Moderate
Deville, 2020 ⁷¹	U	U	Y	Y	Y	Y	Y	Y	6	0	2	0	High
Durodoye, 2020 ¹⁰⁹	Y	N	Y	Y	Y	Y	Y	Y	7	1	0	0	High
Shah, 2020 ⁹⁸	Y	U	Y	Y	Y	Y	Y	Y	7	0	1	0	High
Niu, 2020 ⁶⁷	Y	Y	Y	Y	Y	Y	Y	Y	8	0	0	0	High
Ogunwole, 2020 ⁸⁸	U	U	Y	Y	Y	Y	Y	Y	6	0	2	0	High
Valenzuela, 2020 ¹⁰⁵	Y	U	Y	Y	Y	Y	Y	Y	7	0	1	0	High
Wooding, 2020 ⁶⁰	Y	Y	Y	Y	Y	Y	Y	Y	8	0	0	0	High
Xierali, 2020 ⁸⁹	Y	Y	Y	Y	Y	Y	Y	Y	8	0	0	0	High
Xierali, 2020 ¹⁰³	Y	Y	Y	Y	Y	Y	Y	Y	8	0	0	0	High
Xierali, 2020 ⁶¹	Y	Y	Y	Y	Y	Y	Y	Y	8	0	0	0	High
Zhang, 2021 ⁷⁹	U	N	Y	Y	Y	Y	Y	N	5	2	1	0	Moderate
Esters, 2019 ⁹³	U	N	Y	Y	Y	Y	Y	Y	6	1	1	0	High
Ukatu, 2019 ⁷²	Y	N	Y	Y	Y	Y	Y	U	6	1	1	0	High
Wingard, 2019 ⁹⁹	Y	N	Y	Y	Y	Y	Y	N	6	2	0	0	High
Abelson, 2018 ⁵⁹	Y	U	Y	Y	Y	Y	Y	Y	7	0	1	0	High
Abelson, 2018 ⁸²	Y	N	Y	Y	Y	Y	Y	N	6	2	0	0	High
Lett, 2018 ¹⁰⁶	Y	Y	Y	Y	Y	Y	Y	Y	8	0	0	0	High
Gumpertz, 2017 ¹⁰⁰	U	Y	Y	Y	Y	Y	Y	Y	7	0	1	0	High
Hwang, 2017 ¹⁰¹	U	N	Y	Y	Y	Y	Y	Y	6	1	1	0	High
Kaplan, 2018 ¹¹¹	Y	U	Y	Y	Y	Y	Y	Y	7	0	1	0	High
Xierali, 2017 ⁸⁰	Y	N	Y	Y	Y	Y	Y	N	6	2	0	0	High
Gibbs, 2016 ¹⁰⁷	Y	U	Y	Y	Y	Y	Y	Y	7	0	1	0	High
Hagan, 2016 ⁷³	Y	N	Y	Y	Y	Y	Y	N	6	2	0	0	High
Lin, 2015 ¹⁰²	Y	N	Y	Y	Y	Y	Y	N	6	2	0	0	High

*Criteria: N, not met; NA: not applicable; U: unclear; Y: criteria met. Criteria/Items: 1, Were the criteria for inclusion in the sample clearly defined?; 2, Were the study subjects and the setting described in detail?; 3, Were the exposure measured validly and reliably?; 4, Were objective, standard criteria used for measurement of the condition?; 5, Were confounding factors identified?; 6, Were strategies to deal with confounding factors stated?; 7, Were the outcomes measured validly and reliably?; 8, Was appropriate statistical analysis used?

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