The Diversity Divide:
Disparities in Tenure and Academic Metrics among MIS Fellowship Directors

Neerav Patel, MD, Brady Campbell, MD , Hugo Bonatti, MD, and Stephen M. Kavic, MD
University of Maryland Medical Center, Department of Surgery

INTRODUCTION

Minimally Invasive Surgery (MIS) is a relatively young surgical discipline, with the first fellowship program established in 1990. Over time, MIS has expanded to include **robotic surgery, bariatric surgery, advanced endoscopy, and complex abdominal wall reconstruction.** MIS fellowship directors play a **pivotal role in training, mentorship, and career placement** for future minimally invasive surgeons.

Despite the importance of this leadership role, **limited research exists** on MIS fellowship directors. A **PubMed search** for "MIS fellowship director" identified only two publications, both focusing on **gender disparity** in surgical fellowships. **This study aims to characterize the demographics, tenure, and academic productivity (H-index) of MIS fellowship directors**, while analyzing differences based on **gender and racial background.**

METHODOLOGY

Study Design & Data Collection
- **Retrospective cross-sectional study** of **MIS fellowship directors** for the **2023-2024 academic year**.
- **Data Source:** The Fellowship Council website (www.fellowshipcouncil.org).
- **Variables:** Name, tenure (years), sex, racial background, H-index.
- **H-index data** retrieved from **Scopus**.
- **Classification:**
  - First-listed individual = **Program Director (PD)**
  - Additional names = **Associate Program Director (APD)**
- Public data use **exempted IRB review.**

Statistical Analysis
- **Chi-squared tests** for categorical variables.
- **Mann-Whitney U tests** for continuous variables (H-index, tenure).
- **Linear regression** to assess the relationship between **tenure and research productivity.**
- **Significance:** $p < 0.05$ considered **statistically significant.**

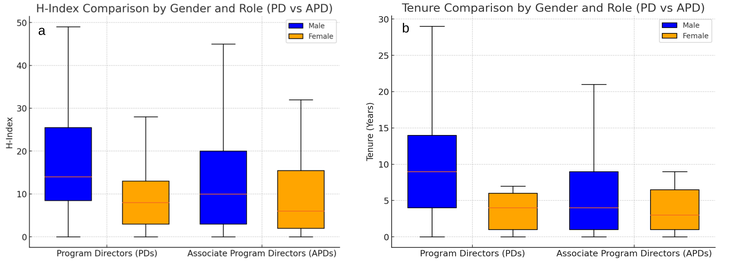


Figure 1: Boxplot comparing H-index (a) and tenure (b) by gender between PDs and APDs

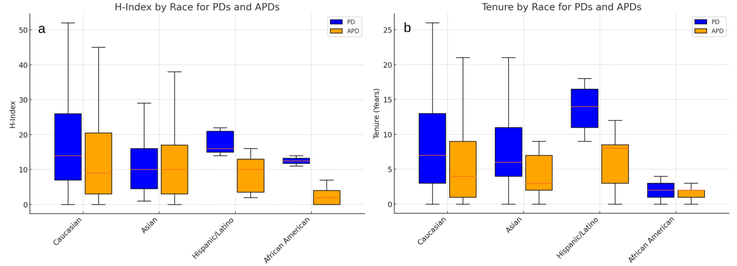


Figure 2: Boxplot comparing H-index (a) and tenure (b) by racial group between PDs and APDs.

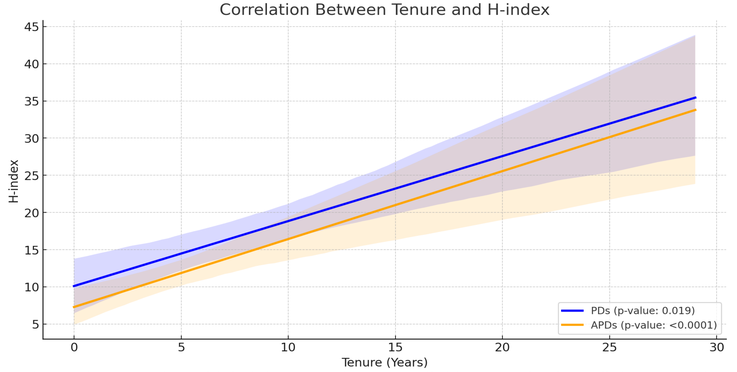


Figure 3: Linear regression model of H-index vs tenure between PDs (β=0.87, R^2=0.155) and APDs (β=0.91, R^2=0.176) with 95% confidence intervals (shaded).

RESULTS

MIS Fellowship Leadership Demographics
- **321 directors identified**: **157 PDs (49%)**, **164 APDs (51%)**.
- **Gender Breakdown: PDs:** 84% Male, 16% Female (**p=0.024**), **APDs:** 74% Male, 26% Female (**p=0.024**)
- **Racial Breakdown: PDs:** 80% Caucasian, 15% Asian, 4% Hispanic, 1% African American (**p=0.745**), **APDs:** 77% Caucasian, 15% Asian, 4% Hispanic, 3% African American

Gender-Based Differences in Leadership & Research
- **Male PDs had longer tenure (9 vs. 4 years, p=0.001) and higher H-index (14 vs. 8, p=0.0016) than female PDs.**
- **No significant differences in tenure or H-index between male and female APDs.**

Tenure & H-Index by Race (No Significant Differences)
- **PD Tenure (years):** Longest in Hispanic/Latino (14), followed by Caucasian (7), Asian (6), African American (2) (**p=0.150**).
- **APD Tenure (years):** Hispanic/Latino (8), Caucasian (4), Asian (3), African American (2) (**p=0.335**).
- **H-Index Trends:** Hispanic/Latino PDs had the highest median H-index (16), followed by Caucasian (14), Asian (10), and African American (12.5) (**p=0.579**).
- **No significant racial differences in tenure or H-index for APDs.**

Regression Analysis (Tenure & H-Index Relationship)
- **Longer tenure correlated with higher H-index** for both **PDs (β=0.87, p=0.019, R^2=0.155)** and **APDs (β=0.91, p<0.0001, R^2=0.176)**.
- **Tenure accounts for only ~15-18% of the variance in research productivity, suggesting other factors contribute to H-index.**

DISCUSSION

Key Findings
- **Gender disparities exist at the PD level**, with **male PDs having longer tenure and higher research productivity** than female PDs.
- **No significant differences** in tenure or H-index were observed at the **APD level or across racial groups**.
- **Longer tenure correlated with higher research productivity**, but additional factors influence academic output.

Implications & Future Directions
- Institutional support and mentorship may **influence career longevity** and **research productivity**.
- **Further research** should explore factors impacting **gender disparities in surgical leadership**.
- Longitudinal studies can track **trends in diversity and career progression over time**.