

Greater Orthopaedic Faculty Diversity Associated with Decreased Resident Attrition

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INTRODUCTION: A recent study on resident attrition revealed significantly increased risks for attrition among female and underrepresented minority (URiM) residents. These alarming data prompted an investigation into factors driving these disproportionate attrition risks. This study aims to investigate the relationship between faculty sex and ethnic/racial diversity and orthopaedic surgery resident attrition.

METHODS: 61,584 survey responses from 15,215 individual residents, including demographic data, program/specialty information, and attrition events from 2001-2018, were obtained from the Association of American Medical Colleges (AAMC) and Graduate Medical Education (GME) Tracker/Census. Full-time orthopaedic surgery faculty demographic data were also obtained from AAMC/GME for the same time period. The cumulative faculty-years for each unique resident was calculated during their residency, and faculty per year (FPY) was determined by dividing faculty-years by the number of years in residency for each resident. 1,430 residents with no faculty data were excluded, leaving 13,785 residents in the study cohort. Underrepresented (URiM) faculty included American Indian, Black/African American, Hispanic/Latino, and Native Hawaiian. In addition, diverse faculty was defined as the aggregate of URiM and female faculty. The average FPY for all residents was calculated, and two groups, including above-average FPY (greater faculty diversity) and below-average FPY groups, were used to investigate the relationship between faculty diversity and resident attrition. The chi-squared test was used for comparative analysis and univariable logistic regression was used to calculate relative risk (RR). A p-value <0.05 is considered statistically significant.

RESULTS SECTION: Overall resident attrition for the entire cohort was 3.2%. Female residents had an attrition rate of 6.2%, and URiM residents had an attrition rate of 6.3%. The average URiM FPY for all programs was 2.0 faculty per year, the average female FPY was 5.8 faculty per year, and the average diverse FPY was 7.5 faculty per year. Both female and URiM faculty increased over the study period. However, female faculty increased by 251%, while URiM faculty increased by 44%. Residents with below-average URiM FPY had a significantly elevated attrition rate compared to residents with an above-average URiM FPY (3.6% versus 2.5%, p=0.001). Similarly, residents with below-average female FPY had a significantly higher rate of attrition compared to those with above-average female FPY (3.8% vs. 2.1%, p<0.001). Residents also had significantly elevated attrition with below-average diverse FPY (3.8% vs. 2.1%, p<0.001). Having below-average female FPY, URiM FPY and diverse FPY significantly increased the risks of all resident attrition by 82% (RR=1.82, p<0.001, 47% (RR=1.47, p<0.001) and 88% (RR=1.88, p<0.001) respectively (Table 2). In female residents, having below-average female FPY increased attrition risk by more than 2 times compared to having above-average female FPY (RR=2.32, p<0.001). While URiM residents experienced almost 3 times the attrition risk with below-average diverse FPY compared to having above-average diverse FPY (RR=2.88 p<0.001).

DISCUSSION: Residents in programs with greater faculty diversity (both sex and racial) have lower attrition rates compared to programs with below-average faculty diversity. This finding may represent a more inclusive environment at institutions with greater faculty diversity. The significantly elevated attrition risks in all residents with below-average URiM, female, and diverse FPY underscores the importance of representation and inclusivity of diverse faculty. The lack of faculty diversity not only perpetuates existing disparities but also has tangible consequences for resident success, thus highlighting the importance of recruiting and retaining faculty from diverse backgrounds.

SIGNIFICANCE/CLINICAL RELEVANCE: The study demonstrated significantly increased attrition risks for residents in programs with below-average female and URiM faculty exposure, highlighting the importance of recruiting and retaining faculty from diverse backgrounds.

Table 1. Comparing Attrition Rates in Above and Below Average Faculty Per Year Groups

	All Resident Attrition (%)	Chi ² p-value	Female Resident Attrition (%)	Chi ² p-value	URiM Resident Attrition (%)	Chi ² p-value
Below-average female faculty per year	3.79	<0.001	8.17	<0.001	7.54	0.007
Above-average female faculty per year	2.11		3.70		3.91	
Below-average Underrepresented faculty per year	3.55	0.001	7.15	0.019	7.80	0.005
Above-average Underrepresented faculty per year	2.45		4.30		4.20	
Below-average diverse faculty per year	3.83	<0.001	8.18	<0.001	8.29	<0.001
Above-average diverse faculty per year	2.08		3.55		3.05	

Table 2. Relative Risks for Resident Attrition in Below Average Faculty Per Year

	All Resident Attrition Relative Risk (p-value)	Female Resident Relative Risk (p-value)	Underrepresented Minority Resident Attrition Relative Risk (p-value)
Below-average female faculty per year	1.82 (<0.001)	2.32 (<0.001)	2.00 (0.008)
Below-average underrepresented faculty per year	1.47 (0.001)	1.71 (0.021)	1.93 (0.006)
Below-average diverse faculty per year	1.88 (<0.001)	2.42 (<0.001)	2.88 (<0.001)