

## Background

- Females have been underrepresented in medicine for decades – in 1990, less than 25% of all enrolled medical students were non-white, and 39% were female, whereas today, non-white and female medical students make up 49% and 54%, respectively
- Underrepresented minorities in medicine (URM), broadly defined as racial/ethnic groups who identify as Black or African American, American Indian or Alaska Native, Hispanic, Latino, or of Spanish origin, Native Hawaiian or Pacific Islander, have experienced a lag in representation matching their U.S. population equivalents over the last few decades
  - In the 2020-2021 cohort, URM medical students made up 13.4% of medical student population despite comprising 33.4% of the U.S. population
- Diversity in surgical specialties have remained largely stagnant over the past decade
  - Studies found that there were no significant rises in underrepresented racial/ethnic groups across all surgical subspecialties from 2010-2018
  - Otolaryngology specifically ranked lowest amongst surgical subspecialties in diversity, with 10.2% of otolaryngology residents identifying as URM
  - Females have also remained underrepresented in the otolaryngology workforce, representing 36% of all otolaryngologists in academia and 36% of all otolaryngology residents
  - Other authors have suggested this “leaky pipeline or “glass ceiling” phenomena for both females and racial/ethnic minority groups in medicine as the reason for the lack of diversity in otolaryngology, described as multifactorial barriers to retention and recruitment of these populations

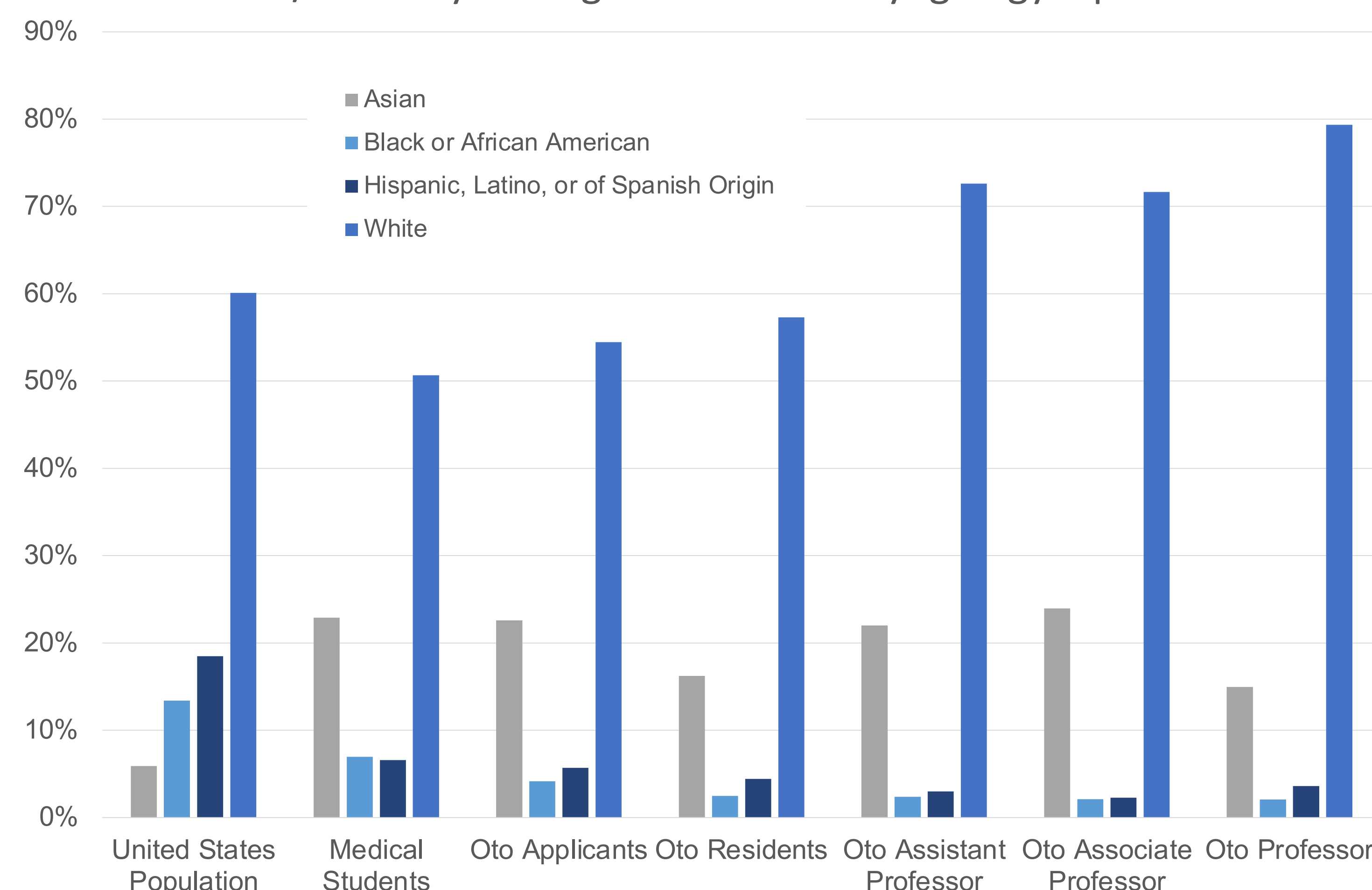
## Methods and Materials

- Data from 2016 to 2021 regarding United States Otolaryngology residency programs, applicants, residents, faculty was extracted from publicly available data reports from the Association of American Medical colleges (AAMC) and the Accreditation Council for Graduate Medical Education (ACGME)
  - This included: AAMC’s FACTS, Faculty Roster: U.S. Medical School Faculty, Diversity in Medicine, The State of Women in Academic Medicine, and Report on Medicine data reports as well as ACGME’s Data Resource Book
  - Data on medical student demographics were also obtained from Diversity in Medicine data report
- Data from U.S. census were used for population comparisons. These data points were sorted by academic year

## Results

- Female oto applicants, residents, and faculty represented 37.4, 39.3, and 37.0% of these groups respectively
- Male oto faculty vs. their female colleagues:
  - 1.5x odds to become assistant professor (CI 1.2-1.7)
  - 1.6x odds to become associate professor (CI 1.3-1.9)
  - 3.4x increased odds to become full professor (CI 2.66-4.24)
  - 8.9x odds to become chair (CI 4.1-19.3)
- Black and Hispanic oto applicants (4.1, 5.7%), residents (2.5, 4.4%), and assistant professors (2.4, 3.0%), associate professors (2.1, 2.3%), and professors (2.1, 3.6%) are underrepresented in comparison to the number of medical students (7.0, 6.6%) in the pipeline
- White male representation increases through the faculty tenure track: assistant professor (41.3%), associate professor (48.8%), and professor (66.1%)

### Race/Ethnicity at Stages of the Otolaryngology Pipeline

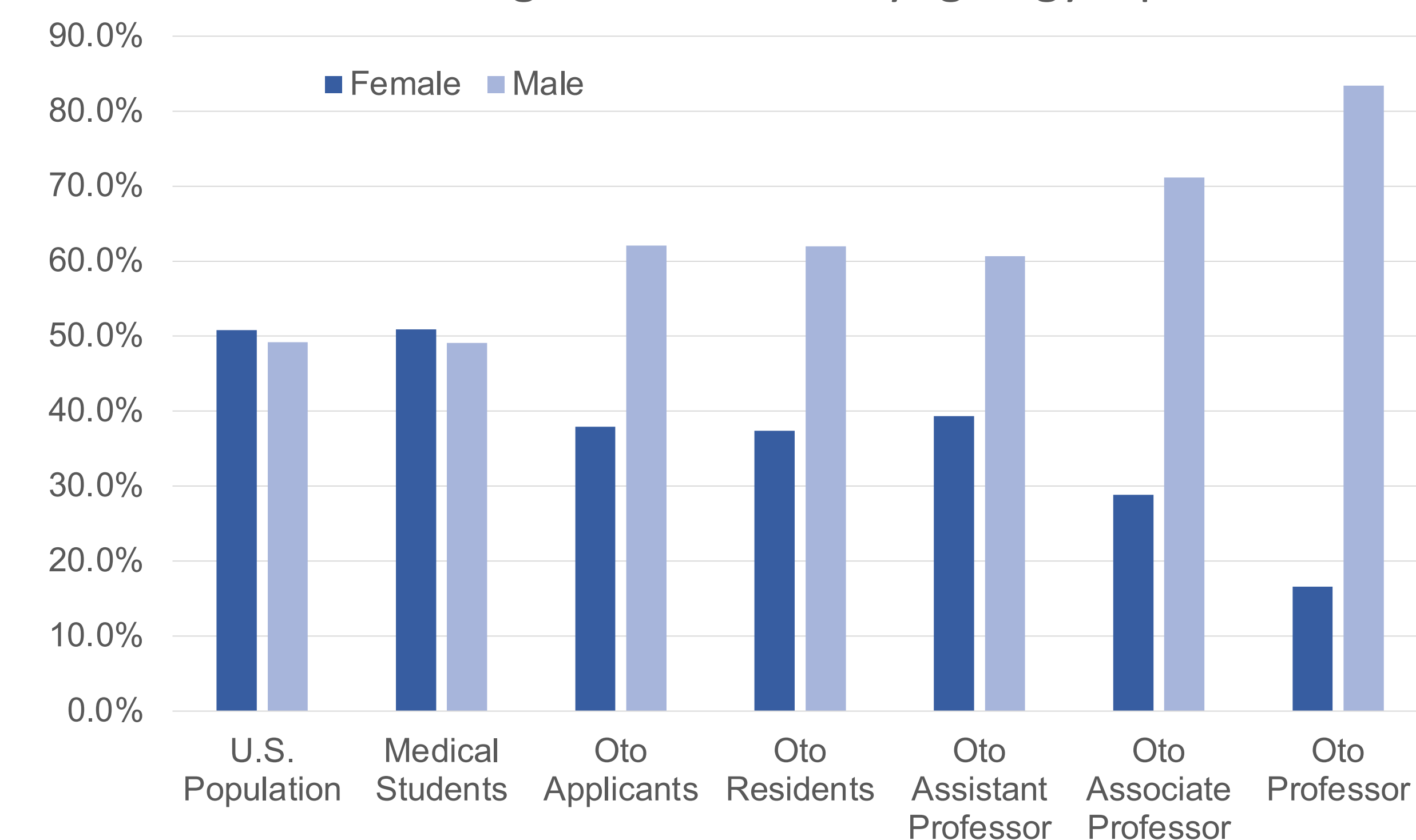


**Figure 1.** Race/ethnicity at stages of the otolaryngology pipeline, ranging from medical students, applicants, residents, assistant professor, associate professor, and full professor. Additionally, this is compared to the United States general population.

**Table 1.** Listed full Professors of Otolaryngology in academic institutions, stratified by gender and race/ethnicity

	Female (%)	Male (%)
Asian	3.4	13.6
Hispanic/Latino	0.6	3.0
Black	0.6	1.1
White	11.9	66.1

### Gender at Stages of the Otolaryngology Pipeline



**Figure 2.** Gender at stages of the otolaryngology pipeline, in comparison to the United States general population.

## Discussion

- Diversity at each population of the otolaryngology field—otolaryngology applicant, resident, associate professor, program director—has not significantly increased in the last decade despite knowledge of the need to diversify the field
- Multifactorial barriers, exist for females and racial/ethnic minorities early in the otolaryngology pipeline.
  - With the elimination of scores on USMLE Step 1 exams beginning in 2022, new trends may emerge that warrant further investigation
- Improvements are often focused on diversity of incoming applicants and mentorship
  - However, many female and racial/ethnic minorities note that they take diversity into account when considering programs
  - Increasing female and URM faculty is necessary
- A larger emphasis should also be placed on the diversification in associate professors and program directors

## Conclusions

- Otolaryngology at various stages of training exhibits less diversity when compared to U.S. total and medical school populations
- Further research and effort to improve the diversity of otolaryngology applicants, residents, and physician workforce should continue to better understand the relationship between the underrepresentation of females and minorities
- The results of this study indicate that diversity and inclusion initiatives of academic otolaryngology institutions (and pipeline programs) should expand to include initiative that increase the diversity of associate professors and program director
- Increasing the diversity of otolaryngology academic faculty could help to improve the diversification of incoming applicants

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