

# Do Medical Student Applications Contain Predictors of Otolaryngology Resident Success?



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## Introduction

- Traditionally, certain metrics of future performance as an Otolaryngology resident have been considered in medical student applications for residency. These include USMLE Step 1 and 2 scores, clinical rotation grades, and Alpha Omega Alpha (AOA) status.<sup>1,2</sup>
- Other competitive specialties, such as orthopedic surgery, have identified several additional measures that were predictive of resident success (measured as board scores, faculty rating):
  - Away rotation performance, grit<sup>3</sup>
  - High USMLE step scores only predicting board exam performance<sup>4</sup>
  - AOA membership predicting higher faculty rating<sup>4</sup>
- Current research challenges the predictive capacity of traditional measurements of academic performance, highlighting the importance of extracurriculars that cultivate teamwork, stress management, and resilience.<sup>5</sup>
- With **recent changes in Step 1 score reporting** and movement towards pass/fail grading, this necessitates the requirement for Otolaryngology residency programs to shift focus to other application variables.
- Objective of this study:** to examine which variables in medical student applications to Otolaryngology training programs best predict resident physician performance.

## Methods

- Retrospective cohort study using data of resident physicians who trained in the Department of Otolaryngology at the Albert Einstein College of Medicine/Montefiore Medical Center between 2010-2022
- Written informed consent was obtained prior to access to all records.
- Variables collected:
  - USMLE scores, clinical grades, research experiences, and extracurricular activities.
- Primary Outcomes:
  - Faculty Ratings (scale of 1-5), In-training board exam scores, Resident research productivity
- Data was analyzed via Spearman rank correlation and Mann-Whitney U test.

57 residents contacted

41 residents consented

29 data-containing files collected

Figure 1. Study Design Schematic

## Results

- 42 Otolaryngology residents consented to the study; data for 29 of these residents were available.
- Objective Resident Success Measures:
  - In-training board exam scores were positively associated with **USMLE Step 1 scores** ( $\rho=0.39$ ,  $p=0.038$ ), **USMLE Step 2 scores** ( $\rho=0.53$ ,  $p=0.020$ ), and **AOA status** (Mdn: 47.60% v 51.90%,  $p=0.024$ ).
- Subjective Resident Success Measures:
  - Honoring surgery clerkship** (Mdn: 5.56 v 4.81,  $p = 0.005$ ), higher **Step 1 scores** ( $\rho=-0.71$ ,  $p=0.003$ ), and a **greater number of national or oral presentations** ( $\rho=-0.71$ ,  $p=0.003$ ) were associated with **lower average faculty ratings**.
- No other significant relationships were observed between application variables and performance outcomes.

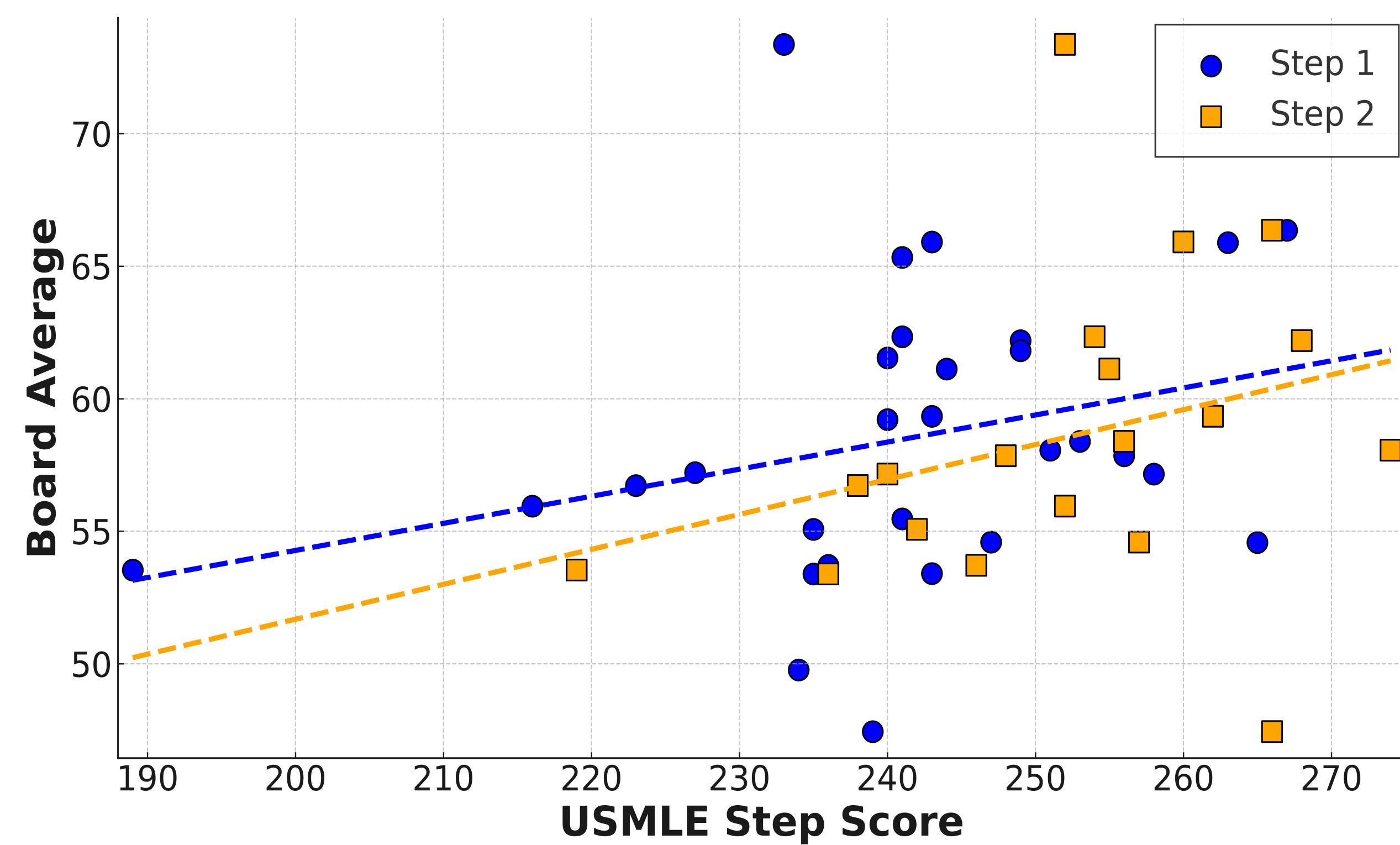


Figure 2. Correlation between In Training Score Averages and USMLE Step Scores

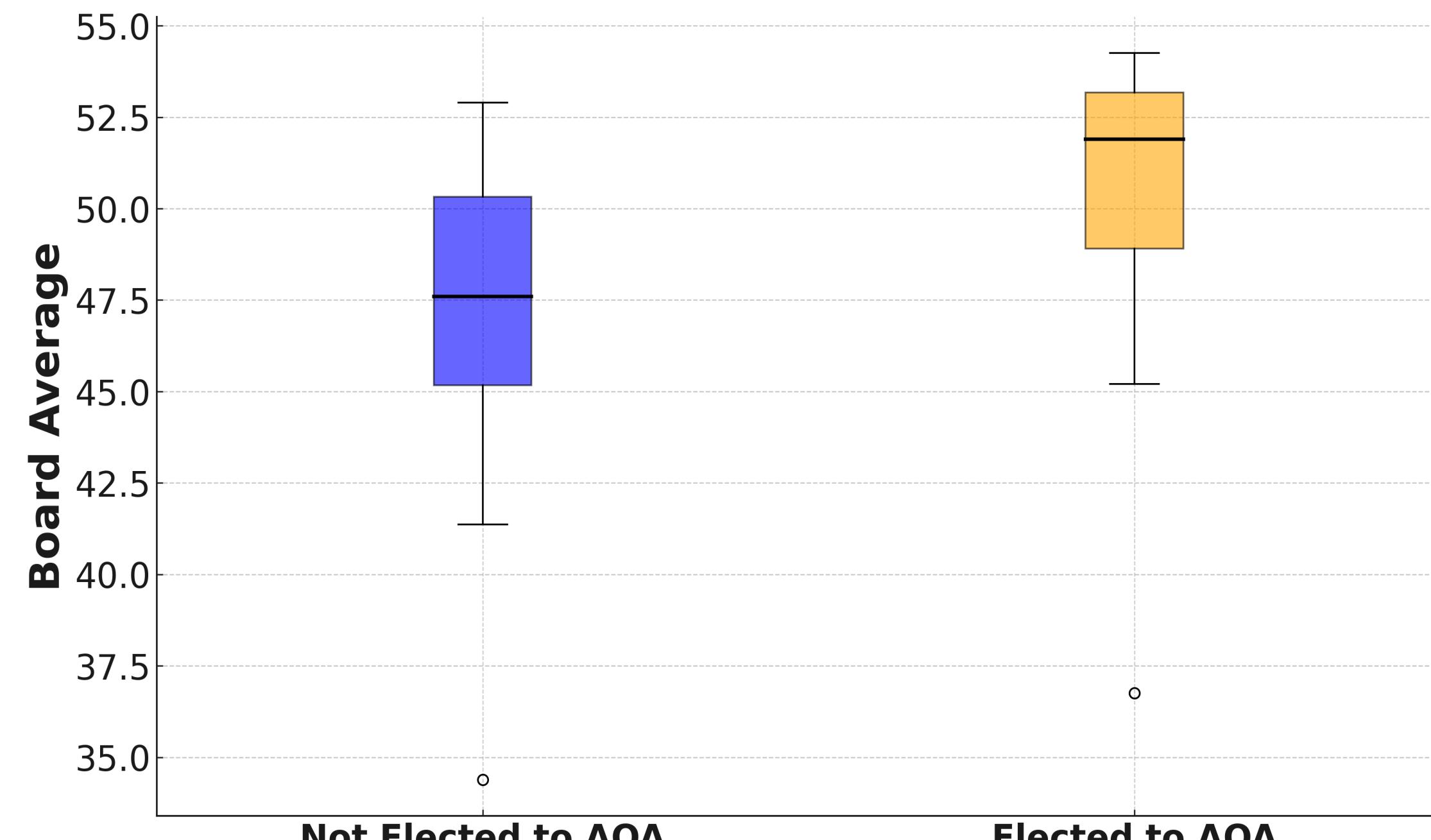


Figure 3. Comparison of In Training Score Averages between AOA Status

## Discussion

- Contrary to expectations, USMLE Step 1 Score was inversely associated with faculty rating. However, this does align with previous research indicating that objective metrics may not reliably predict clinical performance.<sup>5</sup>
- Individuals who performed well on USMLE Step 1 and Step 2 demonstrated a positive association with higher ENT board scores, suggesting that strong test takers tend to maintain their performance on formal assessments.
- This retrospective study was limited by the sample size of 29 residents. Additionally, nonresponse bias may have influenced the distribution of findings.
- Future research with larger, multi-institutional cohorts could provide more robust data to guide residency selection processes.

## Conclusions

Our data reveals that traditional metrics used to assess residency applications surprisingly correlated with lower faculty ratings. These findings challenge traditional assumptions, highlighting the need for a more nuanced approach such as potentially weighing subjective measures such as letters of recommendation and interviews more heavily.

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