

Introduction

- Ophthalmology is a field that is *briefly covered* during medical school.
- Electing to take an Ophthalmology rotation can be daunting due to the **steep learning curve** of unfamiliar techniques and abbreviations that can pose a **significant barrier to a student's understanding**.
- The amount of learning and skills that are developed during this one-month elective are extensive.
- To quantify this, surveys were given to medical students rotating at Henry Ford Hospital prior to and after an elective Ophthalmology rotation that assessed their comfort, previous exposure, and understanding with different essential Ophthalmologic topics.
- The objective was to determine whether a one-month rotation significantly improves exposure and advancement of these skills on an individual basis.

Background

- Students may have a foundation in the anatomy and physiology, but frequently do not have familiarity with actual clinical practice.
- The literature suggests that residents in specialties such as family medicine and emergency medicine commonly feel underprepared to tackle common ophthalmologic conditions.

Methods

- 16 medical students over the course of one year who completed a month-long Ophthalmology rotation at Henry Ford Hospital were given surveys that quantified their understanding and exposure to various ophthalmologic pathology and procedures using Likert scales.
- The data collected included familiarity and autonomy with various exam techniques such as slit lamp exam, using 90D lens with indirect ophthalmoscope to examine the retina, and grading a cataract.
- Knowledge about common pathologies such as acute angle closure, retinal detachments, and cataract surgery were also collected.
- The data was recorded, de-identified, and then input virtually where statistical analysis using nonparametric methods with R-studio was used to accurately determine if there was a statistically significant difference between participants of varying levels of prior experience in Ophthalmology.

Figures

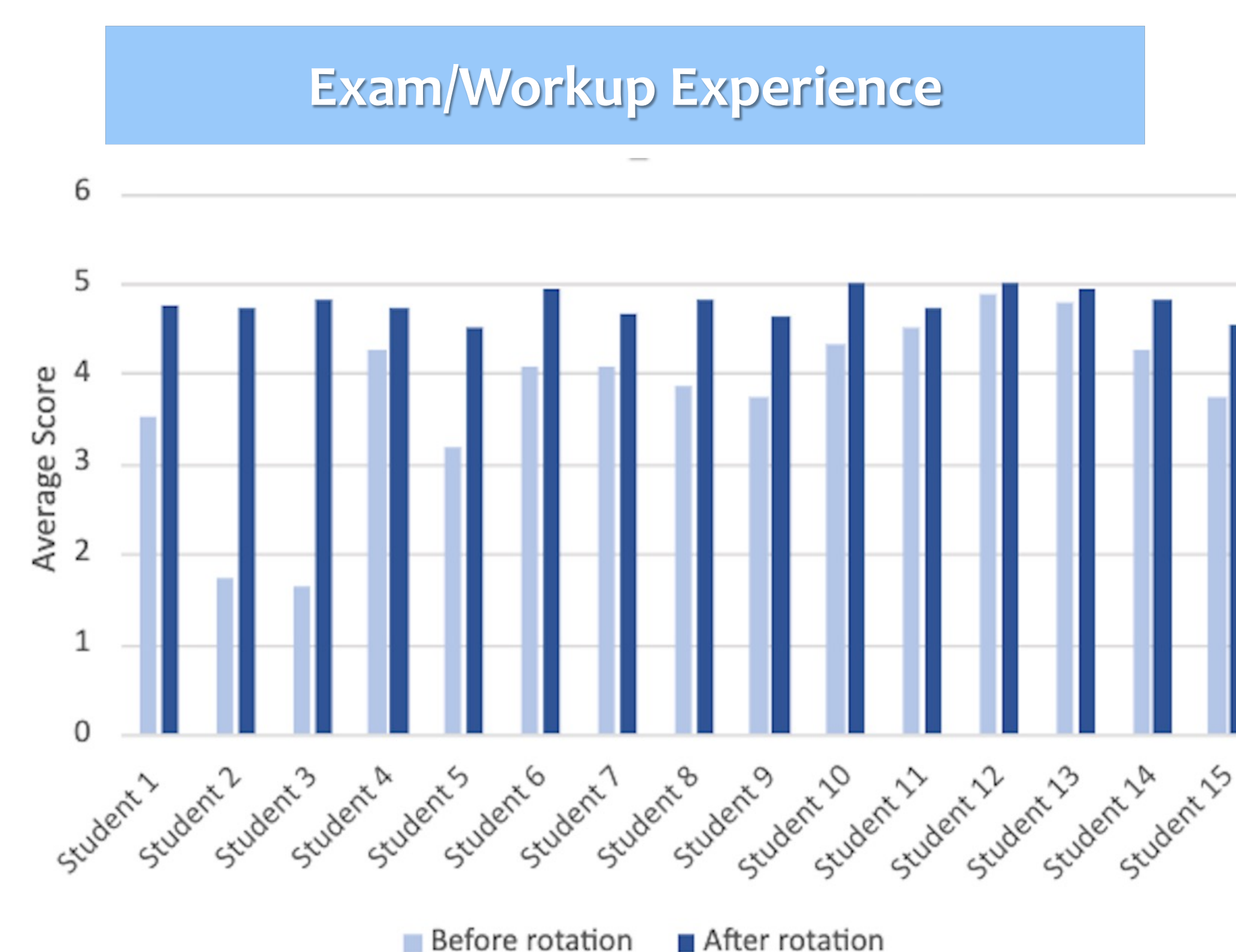


Figure 1: Likert Scale Description: Likert Scale Description: 1= Never seen it, 2= Watched it once, 3= Watched it multiple times, 4= Done it once, 5= Done it Multiple Times

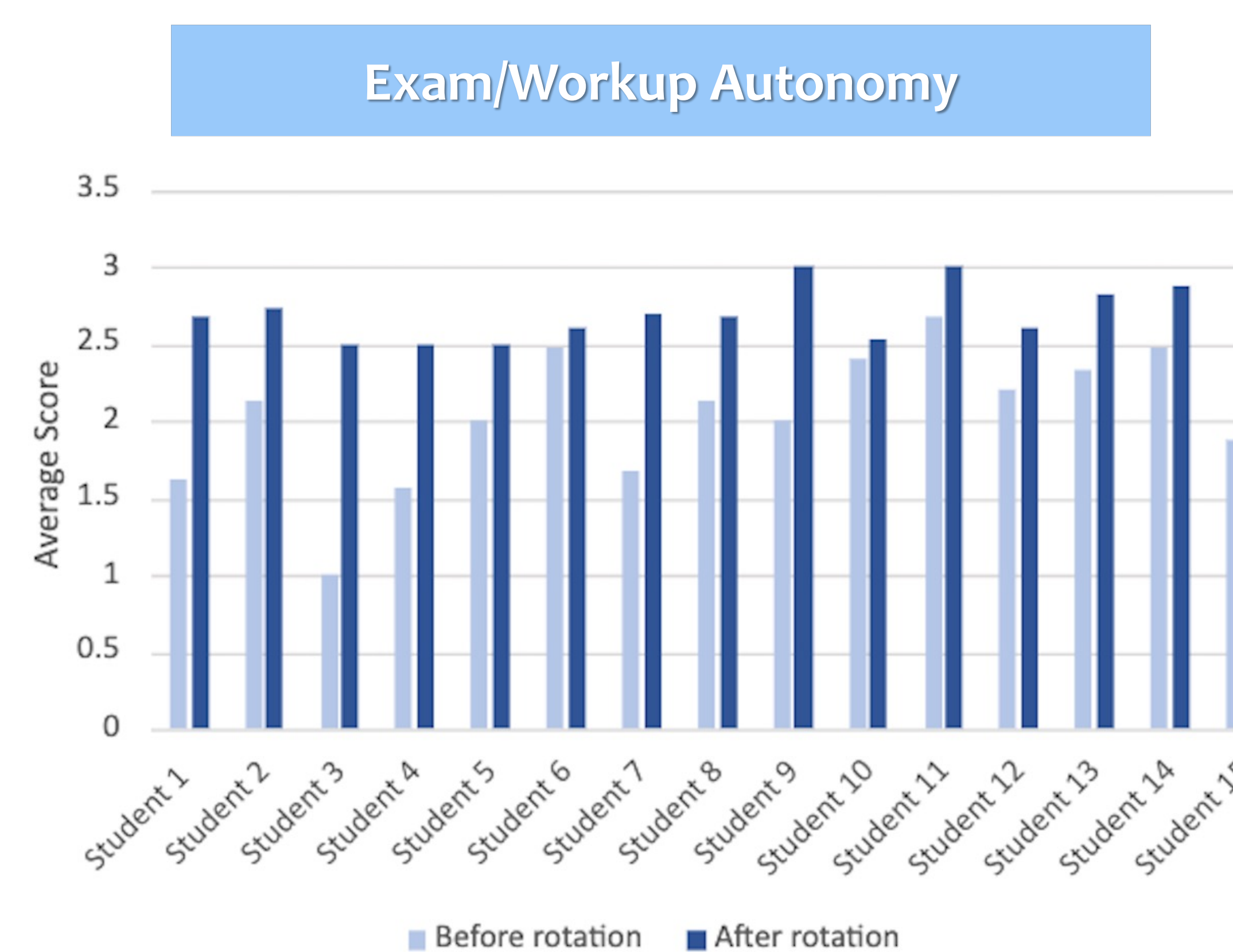


Figure 2: Likert Scale Description: 1= I could use more instruction, 2= I could use supervision, 3= I feel comfortable independently

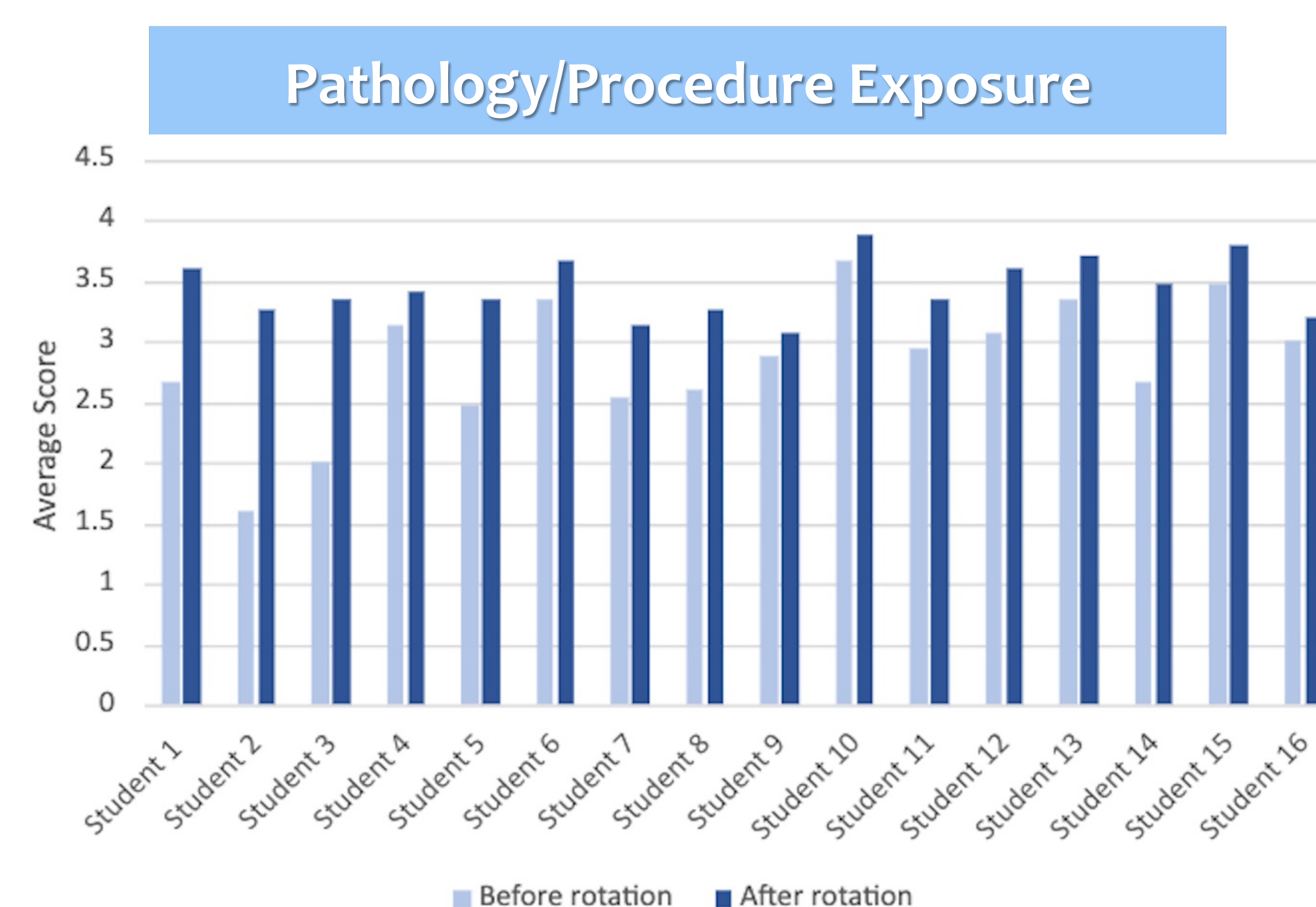


Figure 3: Likert Scale Description: 1= What is that?, 2= I've heard of that, 3= I've seen it once, 4= I've seen it multiple

Results and Discussion

- In all 16 participants, there was a **statistically significant difference (p<0.05)** between their subjective scores of indicated comfort and understanding with various core Ophthalmologic topics prior to the rotation as compared with their scores after the rotation.
- Further stratification was done utilizing the degree of previous experience that each student had in Ophthalmology. These categories were defined to be zero to one month of prior experience, one to two months, and two or more months.
- The analysis shows that regardless of prior Ophthalmology experience, there is a statistically significant increase in the comfort and familiarity of medical students with clinical Ophthalmology.
- Evaluation for sources of error include inherent recall bias and response bias that may occur when answering a questionnaire.
- Measures to reduce bias in the future include increasing the sample size to increase the likelihood of normal distribution, potentially implementing a less subjective method of quantifying each participant's understanding, and further stratifying each core topic to see if there are trends in the weaknesses of certain areas.
- Potential implications of this study include the requirement of an Ophthalmology rotation for specialties that commonly encounter ocular complaints, as our study suggests that even a month rotation is sufficient in increasing participant confidence when evaluating common ocular complaints.

Conclusion

Ophthalmology is often a briefly covered subject throughout medical school while the clinical burden and relevance only continues to increase in our aging population; extensive ophthalmic manifestations of systemic diseases further contributes to the significance of adequate preparation and competency in ophthalmic disease screening and management in modern medical education.

References

Moxon, N. R., Goyal, A., Giaconi, J. A., Rosenberg, J. B., Graubart, E. B., Waxman, E. L., Knoch, D., Forster, S. H., Sankar, P. S., & Mirza, R. G. (2020). The State of Ophthalmology Medical Student Education in the United States: An Update. *Ophthalmology*, 127(11), 1451–1453. <https://doi.org/10.1016/j.ophtha.2020.05.001>