

EVALUATING THE EFFICACY OF A CHEST X-RAY INTERPRETATION SERIES FOR MEDICAL STUDENTS

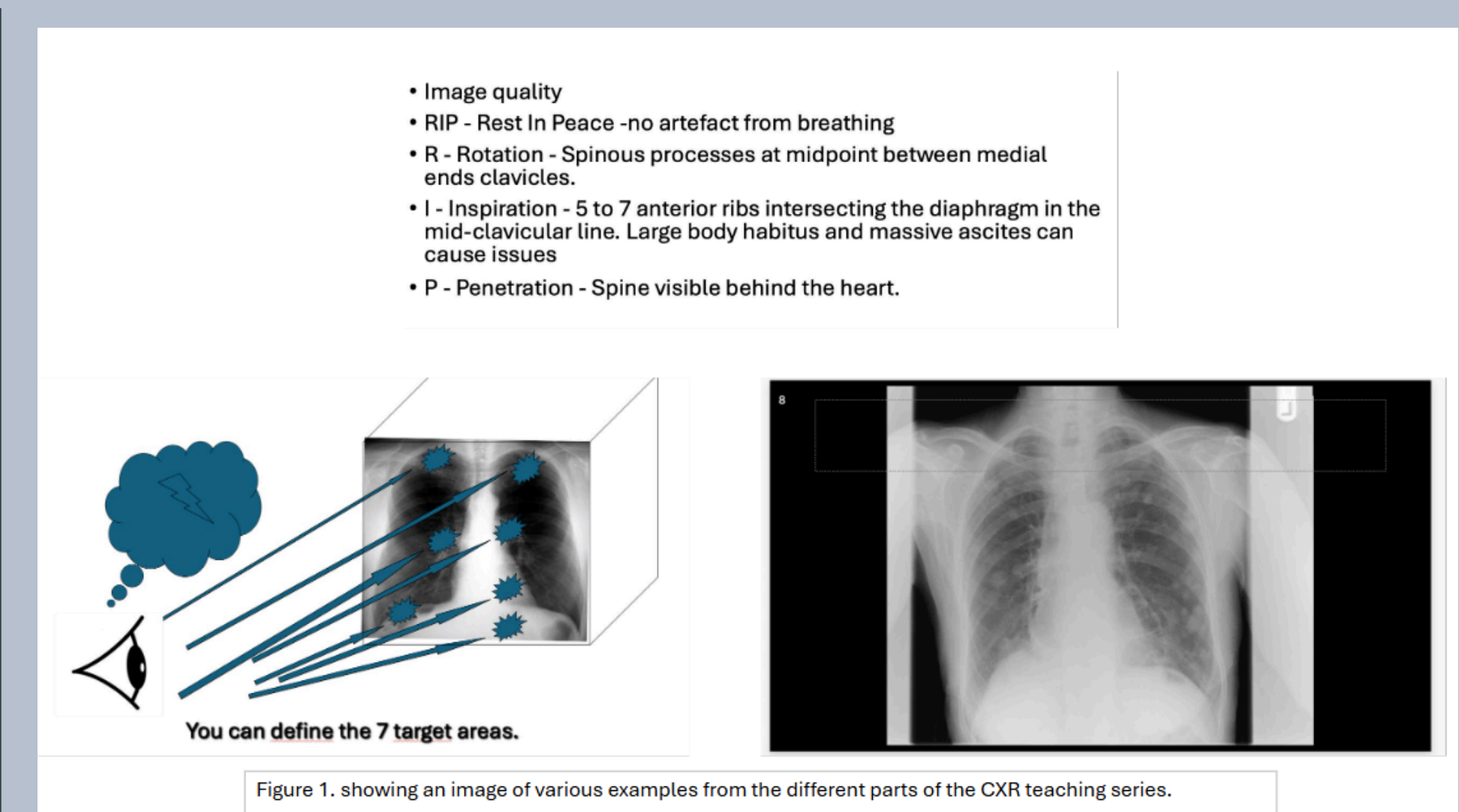
Dr Sung Jin Park & Dr. Guido Jürgen Brand – Department of Medical Education, Glangwili Hospital, Carmarthen, United Kingdom
Contact: sung.park@wales.nhs.uk

INTRODUCTION

Chest X-ray (CXR) interpretation is a core clinical skill required of medical graduates [3]. It is one of the most common investigations along with ECGs and bloods [1]. CXRs account for a large amount of imaging. 25% of the annual total numbers of diagnostic imaging procedures are CXRs [2]. Students often report low confidence and insufficient exposure to radiographic analysis during training [3]. Therefore, it is an important clinical skill as part of medical student teaching.

OBJECTIVE

1. To improve chest X-ray (CXR) interpretation confidence and ability in medical students.
2. For medical students to become familiar with common CXR pathologies relevant at F1 level
3. To evaluate the effectiveness of an interactive teaching series in improving medical students' competency and confidence in CXR interpretation.



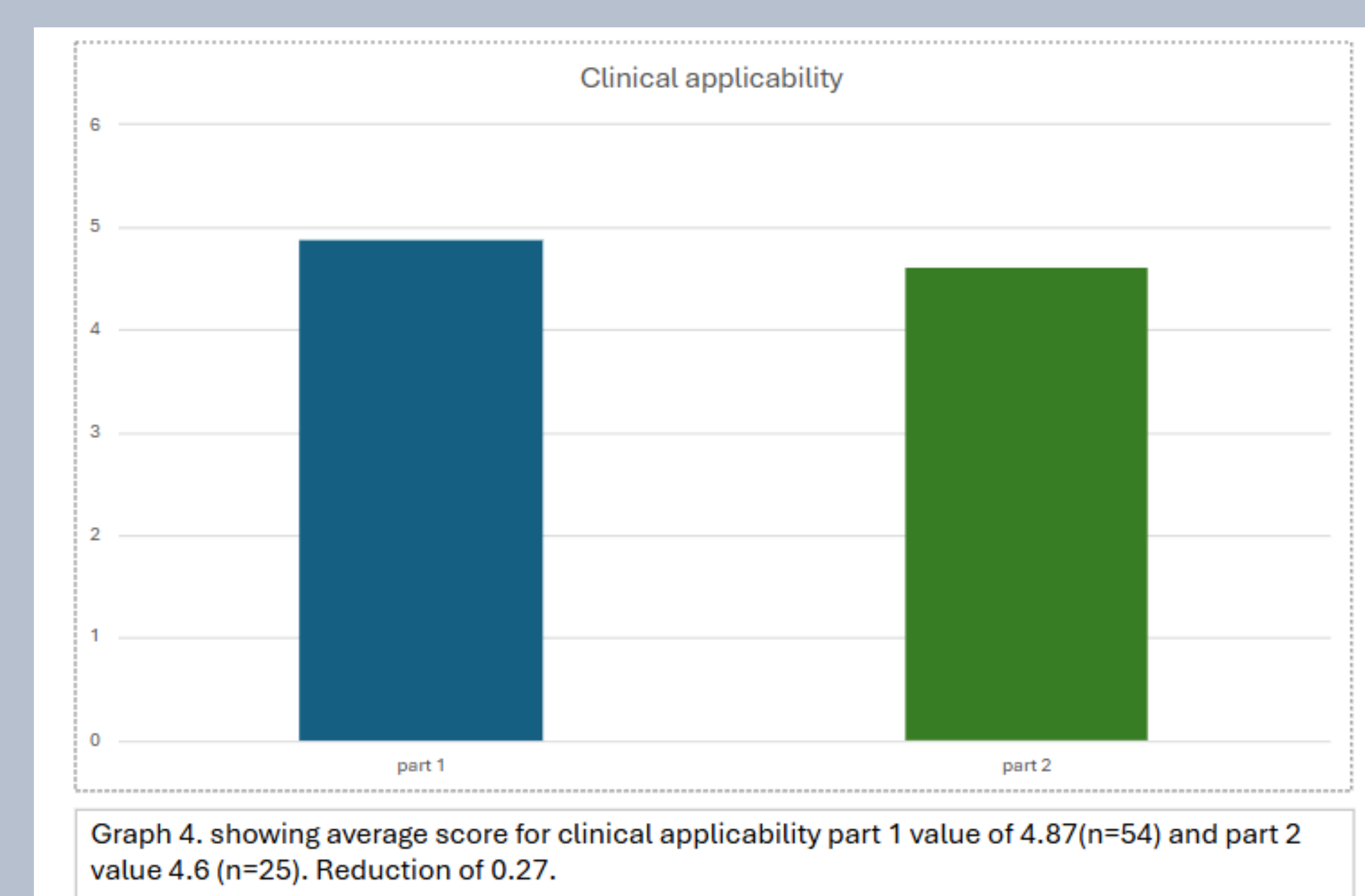
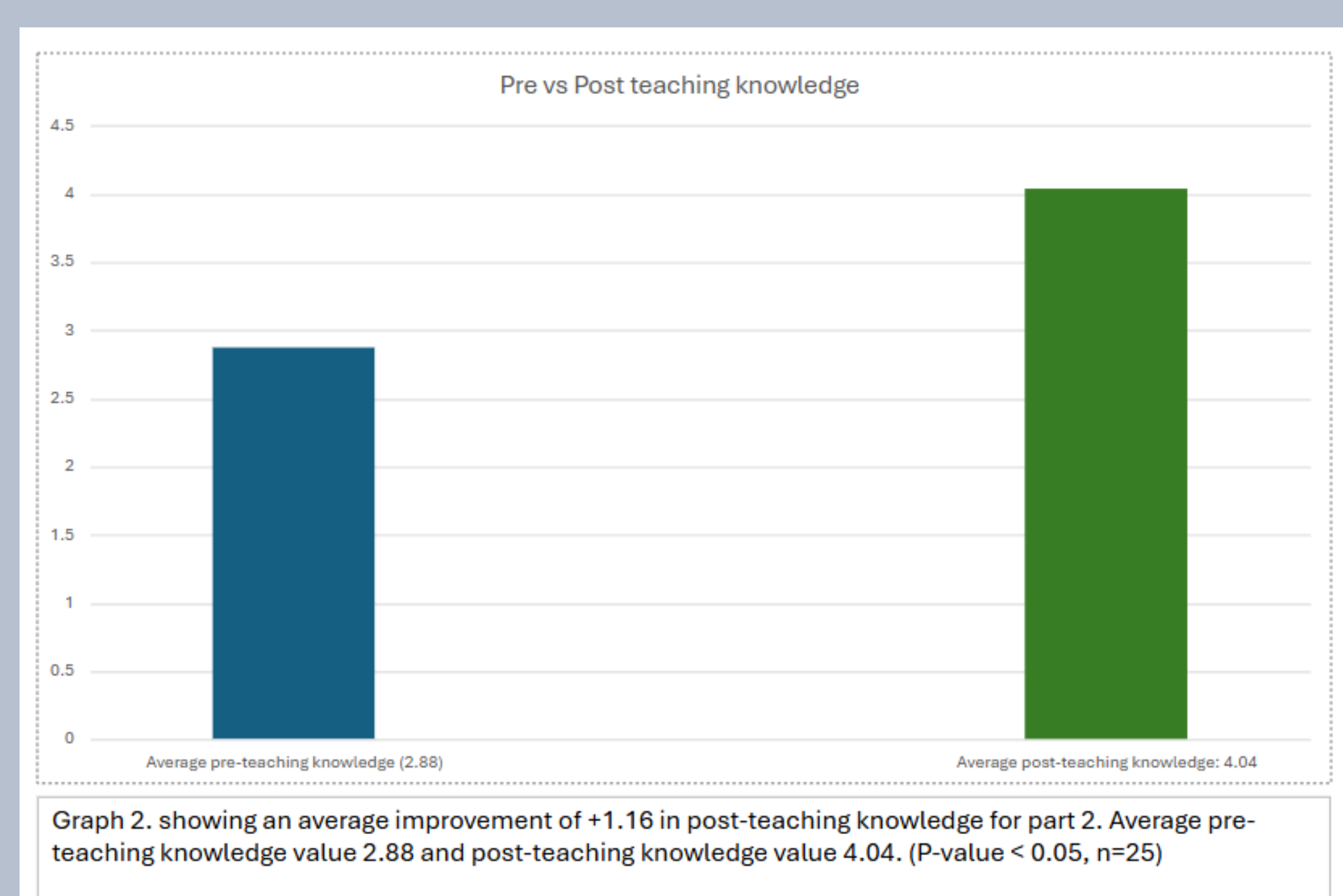
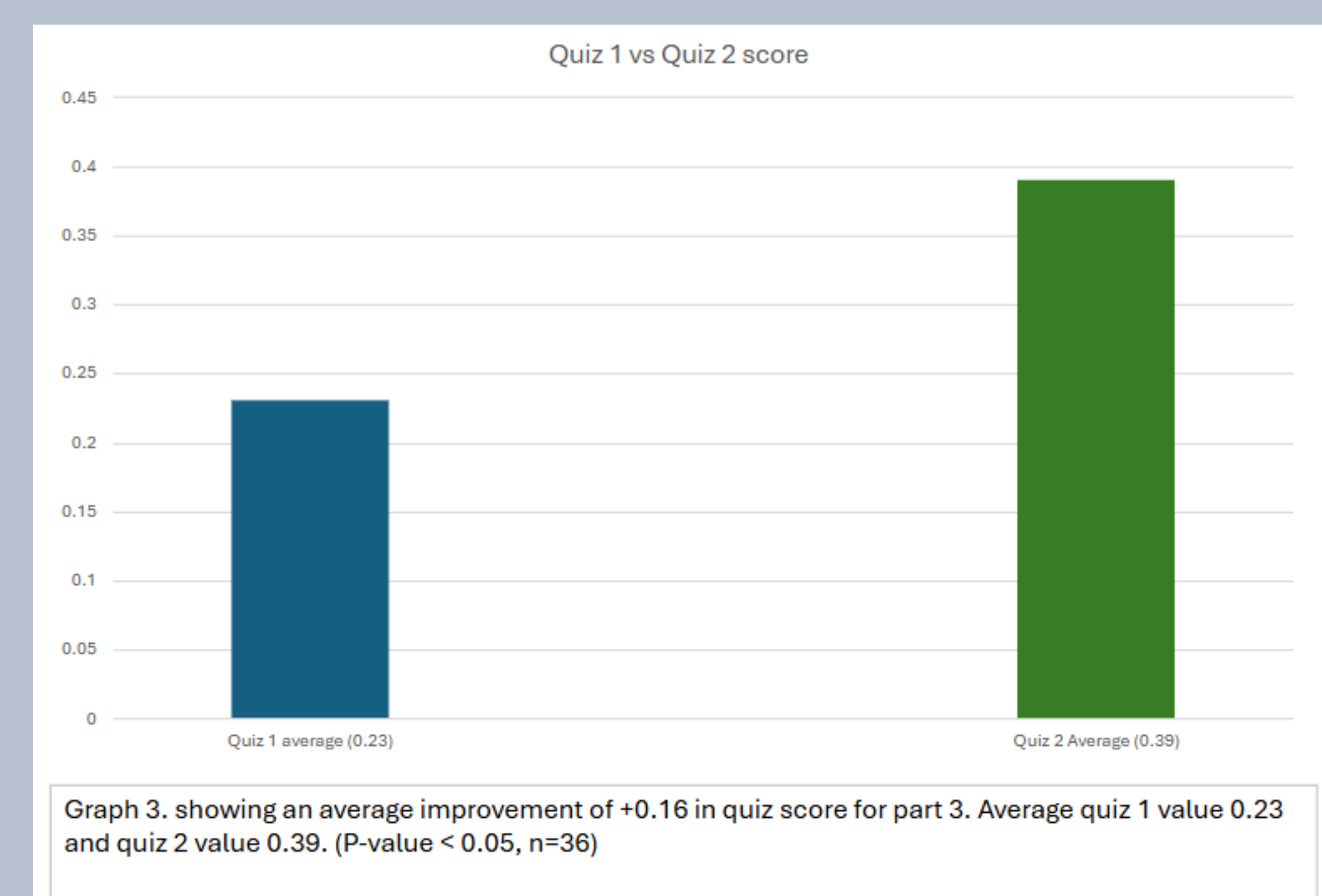
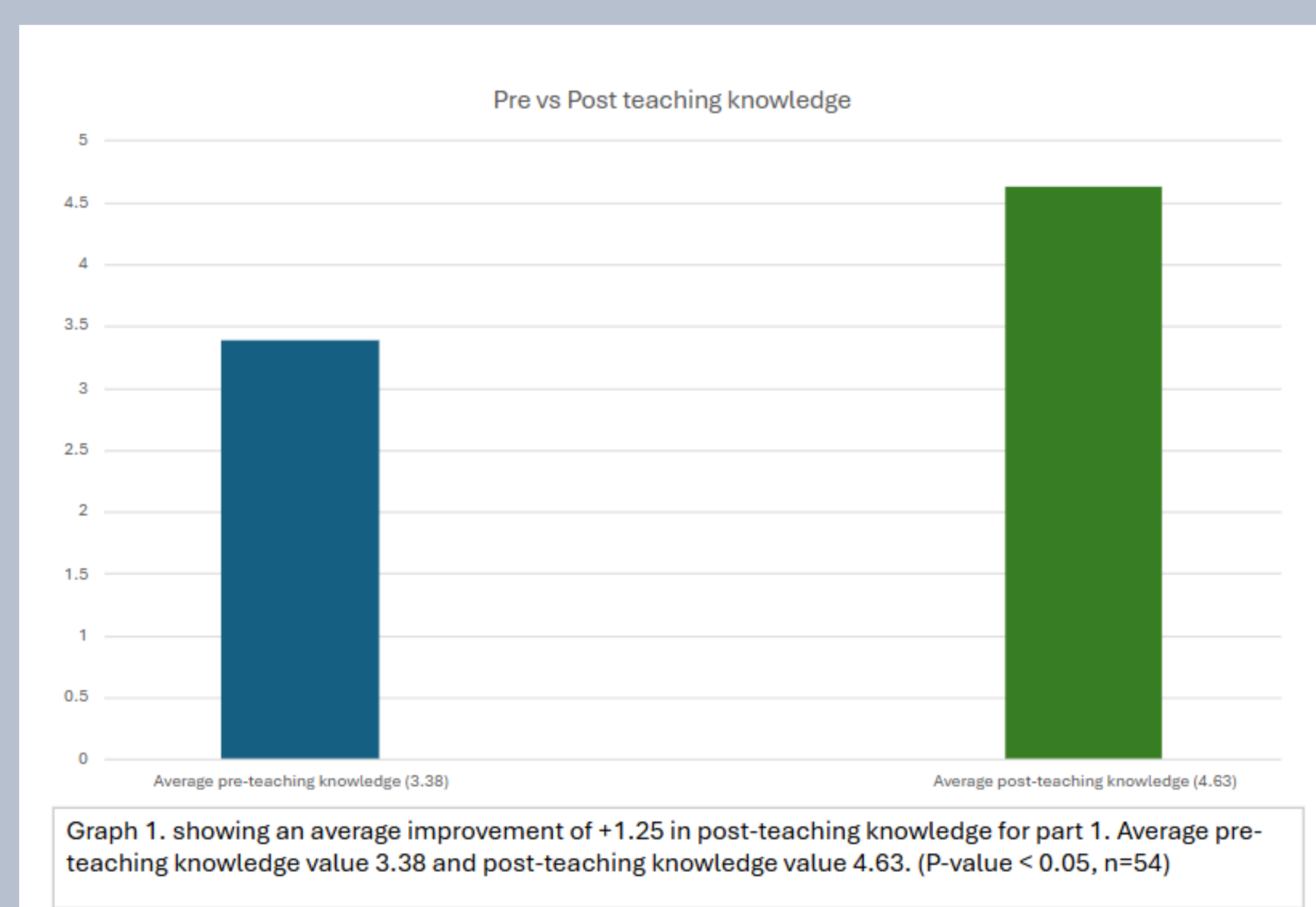
METHODOLOGY

A 3-part chest X-ray (CXR) series was developed incorporating quizzes, mnemonics (RIP, ABCDEF) and interactive image interpretation practice sessions for a 3 month period. Medical students (year 2 to 5) and PA students were invited to participate. The intervention included assessments to measure knowledge gain before/after (before part 1 and at part 3) alongside a self-reported pre and post knowledge survey. Then feedback was collected with a scale of 1-5 with 1 being the lowest and 5 being the highest.

RESULTS

1. There was an average improvement of +1.25 in post-teaching knowledge after part 1.
2. An average improvement of +1.16 in post-teaching knowledge after part 2.
3. A 16% improvement in average quiz score at part 3.
4. The clinical applicability showed a reduction at part 2.

ANALYSIS



DISCUSSION

For the teaching series, it was important to consider standardising the difficulty level of quiz 1 and quiz 2 to accurately assess retention and application of knowledge. There were also various levels of exposure to CXR between the different year groups so assessing each year group separately would be useful. There was a reduction in clinical applicability after part 2 which may indicate that it was more challenging or too niche.

In the future, addition of repeat cycles and incorporating e-learning resource as an intervention can aid in learning experience and knowledge retention. Also, to compare each year groups separately to accurately explore retention CXR interpretation.

CONCLUSION

The chest X-ray interpretation series significantly improved both competence and confidence among medical students. Integrating active learning can enhance radiographic education in undergraduate education.



REFERENCES

1. Fatihoglu, E., Aydin, S., Gokharman, F. D., Ece, B., & Kosar, P. N. (2016). X-ray use in chest imaging in emergency department on the basis of cost and effectiveness. *Academic Radiology*, 23(10), 1239–1245.
2. Speets, A. M., van der Graaf, Y., Hoes, A. W., Kalmijn, S., Sachs, A. P. E., Rutten, M. J. C. M., Gratama, J. W. C., Montauban van Swijndregt, A. D., & Mali, W. P. Th. M. (2006). Chest radiography in general practice: Indications, diagnostic yield and consequences for patient management. *British Journal of General Practice*, 56(529), 574–578.
3. Wentzell, S., Moran, L., Dobranowski, J., Levinson, A., Hannigan, A., Dunne, C. P., & McGrath, D. (2018). E-learning for chest X-ray interpretation improves medical student skills and confidence levels. *BMC Medical Education*, 18, Article 256.