

AN ESCAPE ROOM ACTIVITY TO IMPROVE STUDENT PHARMACIST KNOWLEDGE AND CONFIDENCE IN TREATING MIGRAINE HEADACHE

An escape room activity embedded in a required pharmacy practice laboratory course improved student pharmacist knowledge and confidence in caring for patients with migraine headache.

INTRODUCTION

- Escape rooms have increased in popularity within pharmacy schools and have been implemented in both elective and required courses. (1,2)
- Published results from escape rooms implemented in required PharmD courses have focused on reinforcing and/or applying previously learned material. (2)
- In Spring of 2023, an escape room was implemented in a required application-based laboratory for third year pharmacy students to support traditional pharmacotherapy lectures.

OBJECTIVE

The purpose of this study was to develop and assess an escape room activity embedded in a required pharmacy practice laboratory course to improve student pharmacist knowledge and confidence in caring for patients with migraine headache.

METHODOLOGY

Escape Room Activity:

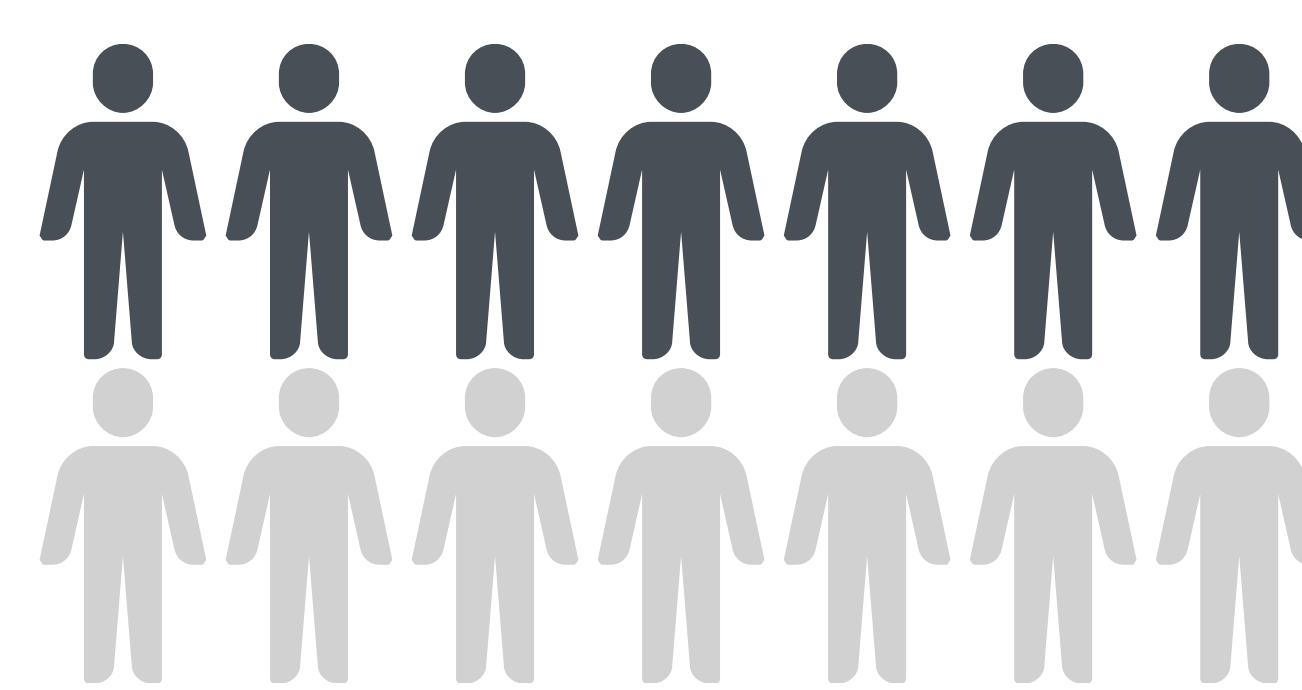
- 90-minute, 7-puzzle, escape room for skills lab
- Content focused on migraine headache which complemented a 2-hour lecture
- Completed in groups of 4-6 students

Research Survey:

- Pre-post, optional, anonymous survey
- Confidence measured by a 9-item, 5-point Likert-scale survey; knowledge measured by a 5-question MC quiz
- Knowledge retention evaluated through comparison of midterm and final exams
- IRB exempt project

DATA ANALYSIS

Confidence and knowledge scores were not normally distributed; thus, a two-sided Wilcoxon Signed Rank test was used to compare paired data from this pre-post survey. Chi-square test was used to compare the proportion of students from each year who answered items correctly on the midterm and final exam. P-values less than a pre-specified alpha of 0.05 were considered to be statistically significant.



Survey Response Rate = 53.1% (112/211)

CONFIDENCE SCORES			
Median (IQR)	Pre-Activity	Post-Activity	p-value
2023	2.44 (2.18-3.00)	3.89 (3.44-4.33)	p<0.0001
2024	2.89 (2.35-3.08)	4.06 (3.47-4.67)	p<0.0001
Combined (2023+2024)	2.67 (2.22-3.00)	3.94 (3.44-4.44)	p<0.0001

Table 1: Significant improvements were observed in student confidence immediately following the escape room activity.

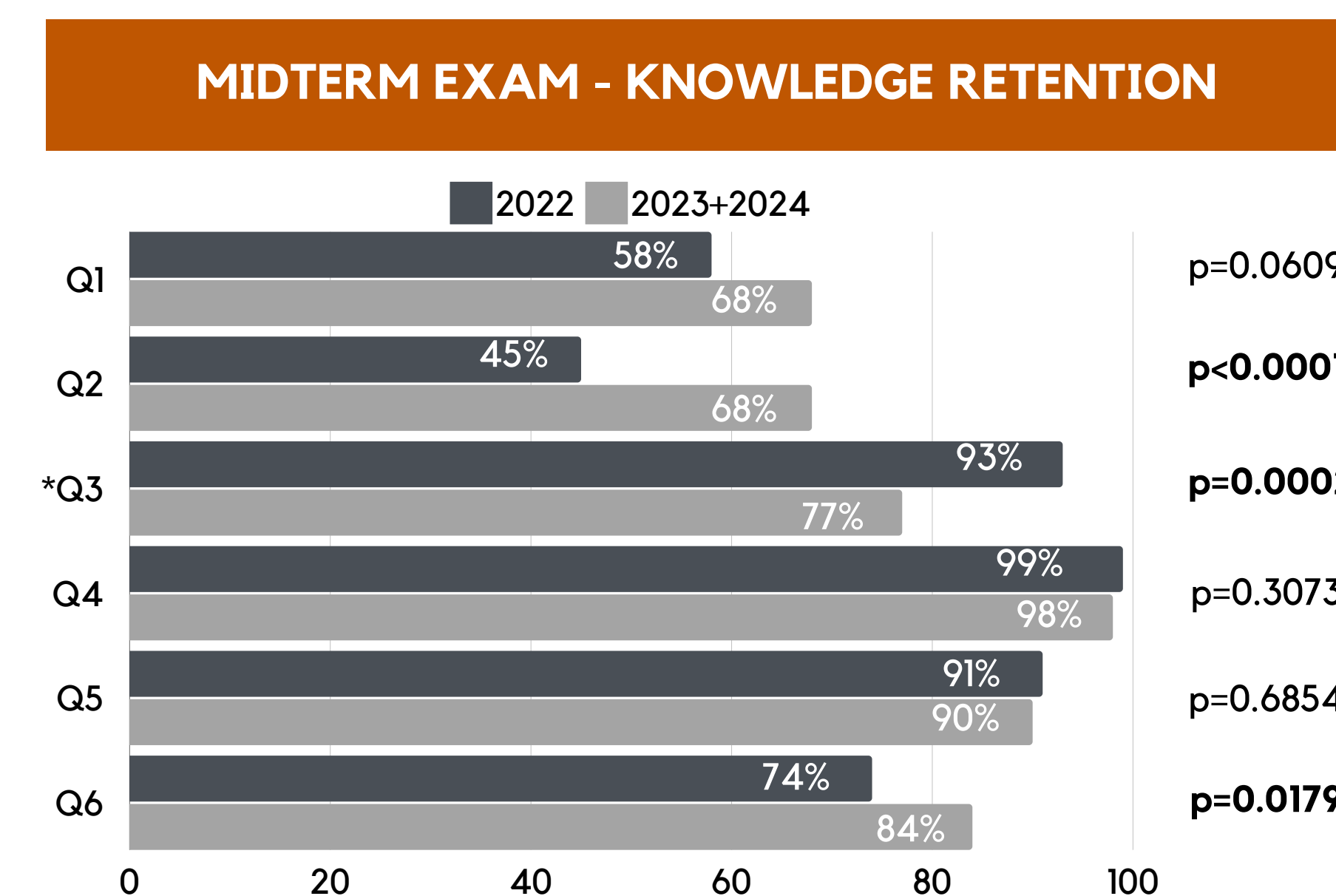


Figure 2: Significant improvements were observed in some aspects of student short-term knowledge acquisition.

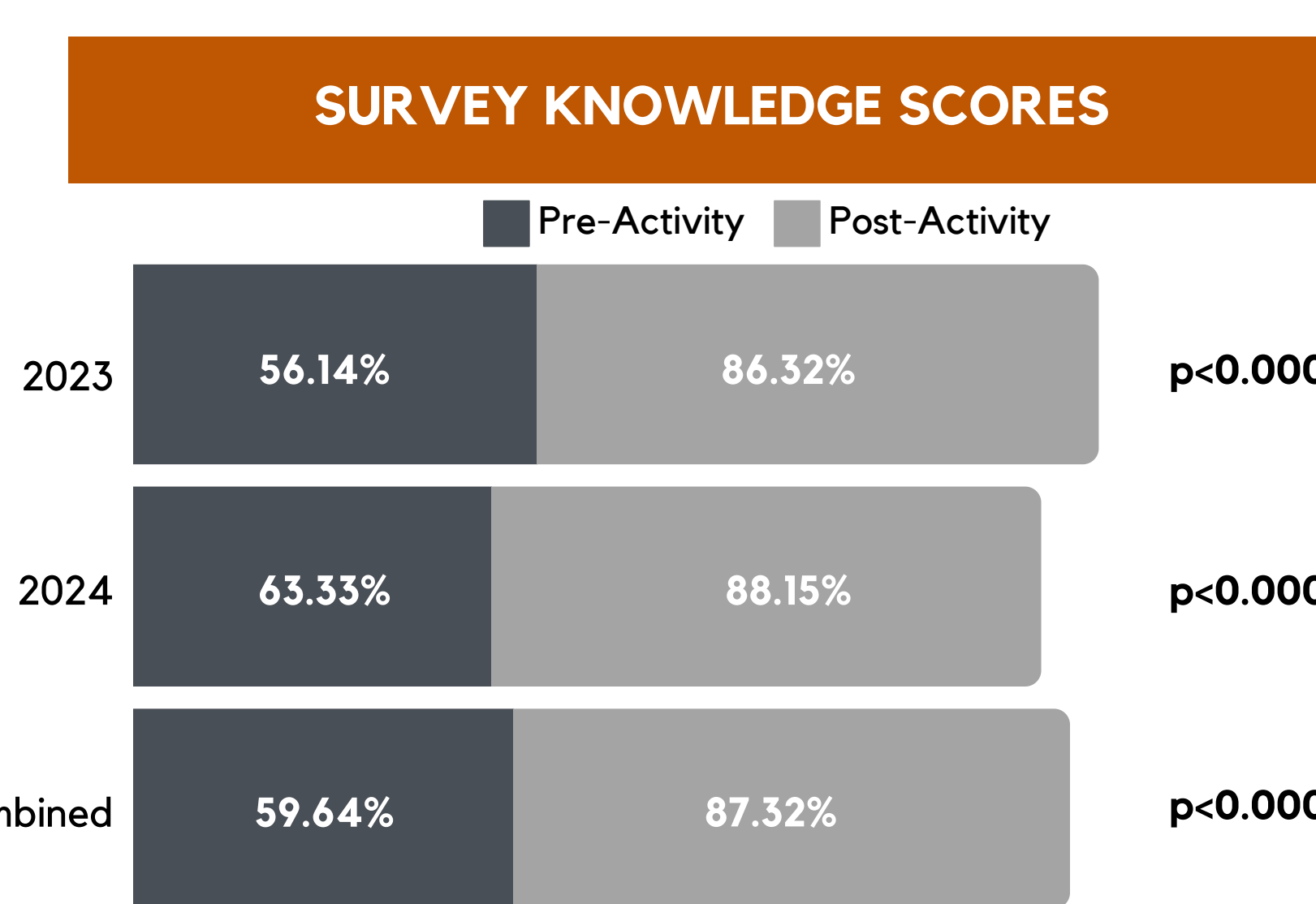


Figure 1: Significant improvements were observed in student immediate knowledge acquisition.

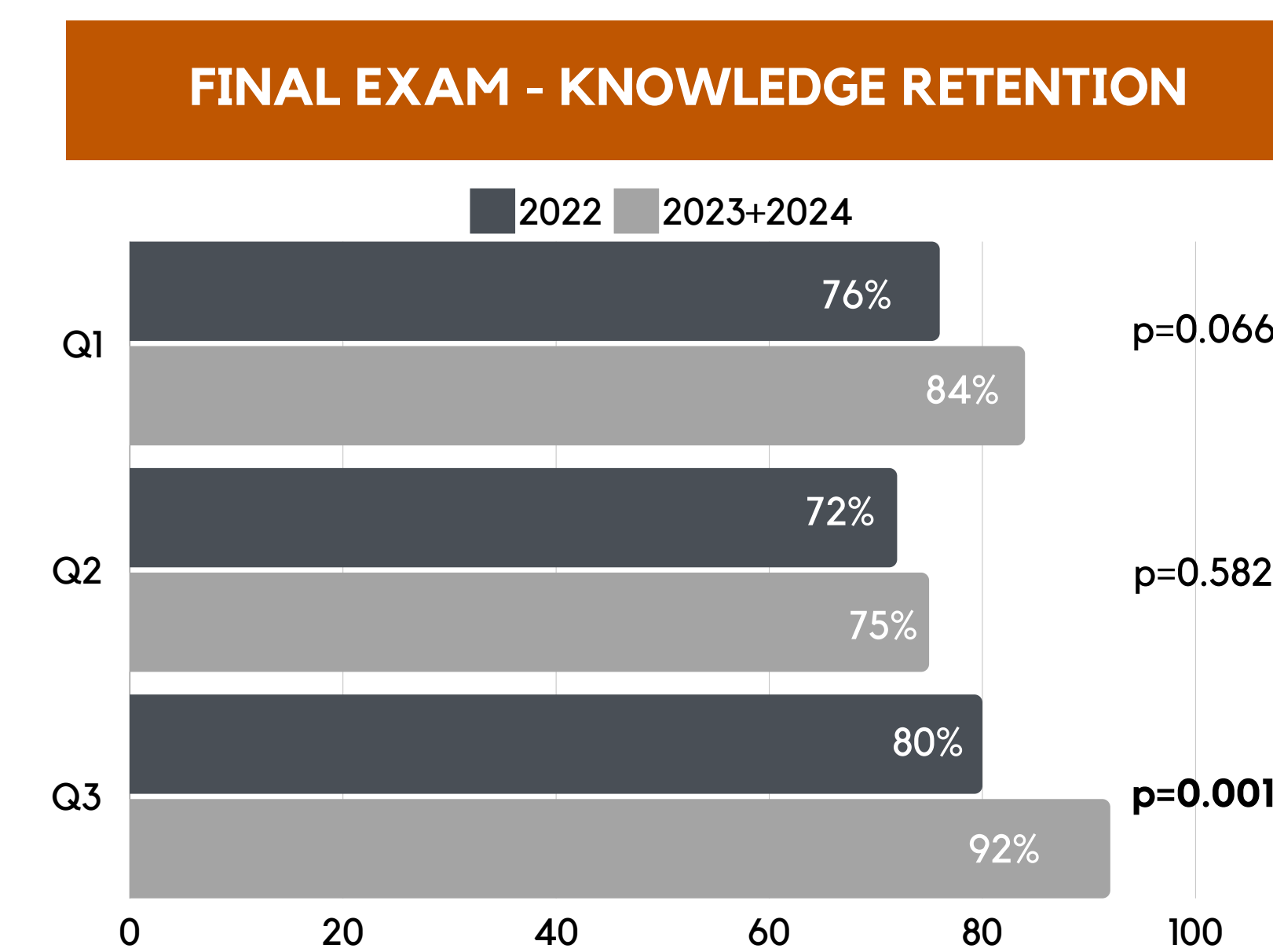


Figure 3: Significant improvements were observed in some aspects of student long-term knowledge acquisition.

RESULTS/FINDINGS

- * In 2022 (pre-implementation of escape room), Q3 on the midterm exam inadvertently had two correct answers which likely led to a falsely elevated score.
- In 2023, nearly all (4/103) students indicated not attending the accompanying lecture prior to lab. This question was not assessed in 2024.
- Midterm (M) and final (F) exam knowledge retention significantly improved on 33.3% of questions
 - M6 and F3 questions were aimed at identifying mechanisms of action of headache medications
 - M2 question was aimed at recommending an individualized treatment plan for acute migraines
- Supplemental information on the survey and assessment tools is available at the QR code.

DISCUSSION

- The results show that an escape room activity is an effective educational tool to teach new pharmacotherapy material in a required PharmD course and improve student confidence in decision making.
- Furthermore, knowledge retention appeared to sustain as a result of the escape room activity as evidenced by a trend towards improved midterm and final exam scores.
- Future studies may aim at whether completing escape room activities prior to or after lecture have a bigger impact on knowledge retention.

AUTHORS

Morgan P. Stewart, PharmD; Samantha Catanzano, PharmD; Christopher R. Frei, PharmD, MSc; Kathryn Litten, PharmD



The University of Texas at Austin
College of Pharmacy



REFERENCES

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