

Objective Structured Clinical Examination (OSCE) Performance Assessment of PharmD Student Pharmacists

Tiffany N. Do, Ashley N. Castleberry, Kenneth A. Lawson, W. Renee' Acosta

The University of Texas at Austin College of Pharmacy
Division of Pharmacy Practice

BACKGROUND

- Objective Structured Clinical Skills Examinations (OSCEs) were developed in 1975 to assess clinical skill performance and competence in a variety of health professions.¹
- Metacognition is “thinking about thinking” and it has been shown that having a self-awareness of one’s performance capabilities allows for better critical thinking and monitoring of actions.²
- Past studies have shown statistically significant positive relations between GPA and OSCE scores as well as Multiple Mini Interview (MMI) scores and GPA.^{3,4}
- In Fall of 2020, the UT Austin College of Pharmacy curriculum introduced the Pharmacy Practice Lab series, which is a combination of seven existing courses designed to reduce repetitiveness and to increase alignment and reinforcement.⁵ In each semester, students’ skills and knowledge are assessed through one midterm OSCE and one final OSCE.

OBJECTIVES

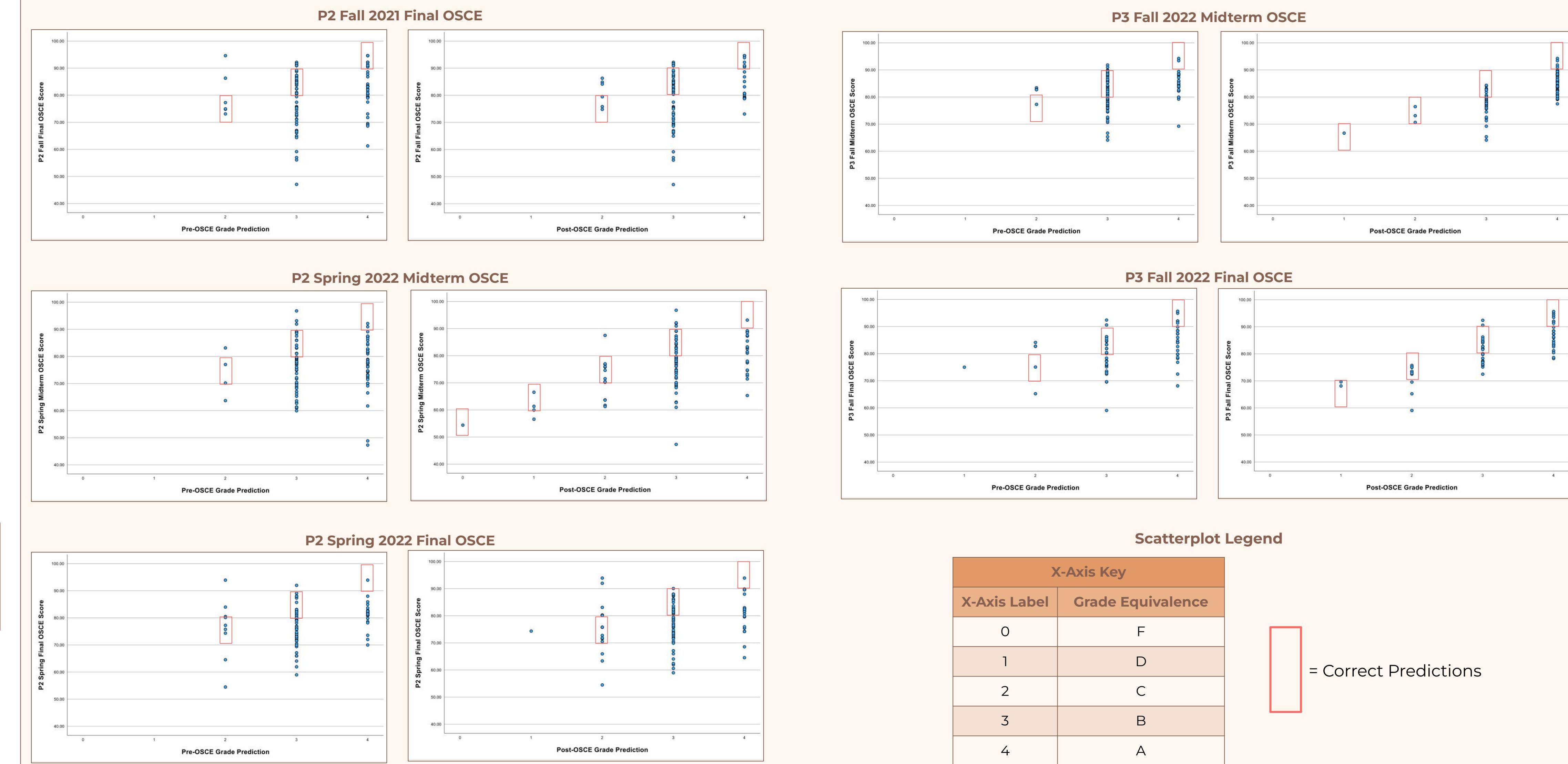
- Assess the students’ ability to accurately predict their OSCE performance outcomes before and after the OSCE.
- Determine the correlations between OSCE scores and objective data including MMI scores, pre-pharmacy GPA, pharmacy GPA, and composite PCAT scores.
- Determine the correlations between OSCE scores and subjective data including preparation time, preparedness (prep) level, and stress level.

METHODS

- De-identified MMI scores, pre-pharmacy GPA, pharmacy GPA, and composite PCAT scores were obtained from the college administration.
- Qualtrics surveys containing the following questions were distributed to the Class of 2024 through the Pharmacy Practice Lab Sequence:
 - Pre-OSCE survey only:
 - How much time (hrs) did you spend outside of class preparing for the OSCE?
 - Both pre- and post- OSCE surveys:
 - On a scale of 1-10 (1=not prepared & 10=very prepared) how prepared are/were you for the OSCE?
 - On a scale of 1-10 (1=not stressed & 10=very stressed) how stressed are/were you for the OSCE?
 - What grade (A-F) do you anticipate earning on the OSCE?
- Compiled data was analyzed using Pearson’s correlation and scatterplots.

RESULTS

Students’ Perceptions of their OSCE Performance



Pearson’s Correlation Coefficients

OSCE Scores	Pre-Pharm GPA <i>r</i> (<i>p</i>)	PCAT Score <i>r</i> (<i>p</i>)	MMI Score <i>r</i> (<i>p</i>)	Corresponding Semester GPA <i>r</i> (<i>p</i>)
P2 Fall 2021 Final OSCE Score	0.103 (0.306)	0.243 (0.014)	0.201 (0.044)	0.434 (<0.001)
P2 Spring 2022 Midterm OSCE Score	0.102 (0.310)	0.058 (0.566)	0.249 (0.012)	0.487 (<0.001)
P2 Spring 2022 Final OSCE Score	0.147 (0.145)	0.032 (0.753)	0.422 (<0.001)	0.461 (<0.001)
P3 Fall 2022 Midterm OSCE Score	0.304 (0.002)	0.152 (0.129)	0.165 (0.098)	0.373 (<0.001)
P3 Fall 2022 Final OSCE Score	0.172 (0.086)	0.346 (<0.001)	0.216 (0.030)	0.436 (<0.001)

Table 1: Pearson Correlation Coefficients for OSCE Scores, Pre-Pharm GPAs, PCAT Scores, MMI Scores, and Corresponding Semester GPAs

OSCE Scores	Corresponding Prep Time <i>r</i> (<i>p</i>)	Corresponding Prep Level Pre-OSCE <i>r</i> (<i>p</i>)	Corresponding Prep Level Post-OSCE <i>r</i> (<i>p</i>)	Corresponding Stress Level Pre-OSCE <i>r</i> (<i>p</i>)	Corresponding Stress Level Post-OSCE <i>r</i> (<i>p</i>)
P2 Fall 2021 Final OSCE Score	0.144 (0.180)	0.009 (0.936)	0.239 (0.031)	0.250 (0.018)	0.042 (0.711)
P2 Spring 2022 Midterm OSCE Score	0.076 (0.459)	-0.090 (0.377)	0.264 (0.009)	0.126 (0.216)	-0.042 (0.683)
P2 Spring 2022 Final OSCE Score	0.058 (0.613)	0.205 (0.074)	0.278 (0.008)	0.088 (0.442)	-0.035 (0.738)
P3 Fall 2022 Midterm OSCE Score	-0.025 (0.810)	0.080 (0.441)	0.544 (<0.001)	-0.007 (0.946)	-0.210 (0.051)
P3 Fall 2022 Final OSCE Score	0.023 (0.866)	0.025 (0.851)	0.449 (<0.001)	-0.079 (0.552)	-0.285 (0.024)

Table 2: Pearson Correlation Coefficients for OSCE Scores, Corresponding Prep Time, Corresponding Prep Level Pre-OSCE, Corresponding Prep Level Post-OSCE, Corresponding Stress Level Pre-OSCE, and Corresponding Stress Level Post-OSCE

Statistically significant correlation coefficients are bolded

RESULTS SUMMARY

- Generally, there are weak to moderate positive correlations between the following:
 - OSCE scores and MMI scores
 - OSCE scores and pharmacy GPA
 - OSCE scores and perceived preparedness post-OSCE
- The average percentage of students who correctly predicted their performance score is 32.86%.

CONCLUSIONS

- Students who perform better on their MMI and have a higher pharmacy GPA are likely to score higher on OSCEs.
- Students have a better perception of their preparedness after completing the OSCE.
- The majority of students are unable to correctly predict their OSCE score, possibly indicating low self-awareness and overconfidence as most scored lower than they predicted.
- Future studies may investigate what students take into account when predicting their score.

LIMITATIONS

- The data was collected from only one cohort; therefore, generalizability beyond that group is limited.
- Not every OSCE survey had the same number of respondents. Therefore, missing data was omitted that could have been meaningful.

ACKNOWLEDGEMENTS

Thank you to the UT Austin College of Pharmacy Class of 2024 for their participation. Thank you to the Pharmacy Practice Lab Coordinators for providing bonus points as an incentive for completing the surveys.

REFERENCES

- Onwudiegwu U. OSCE—DESIGN, DEVELOPMENT AND DEPLOYMENT. *J West Afr Coll Surg*. 2018 Jan-Mar;8(1):1-22. PMID: 30893701; PMCID: PMC6239851.
- Medina MS, Castleberry AN, Persky AM. Strategies for Improving Learner Metacognition in Health Professional Education. *Am J Pharm Educ*. 2017 May;81(4):78. doi: 10.5688/ajpe81478. PMID: 28630519; PMCID: PMC5468716.
- Tatachar A, Wettergreen S, Summers S. Reflective metacognition and objective structured clinical examination performance in introductory pharmacy practice experiences. *Curr Pharm Teach Learn*. 2020 Oct;12(10):1208-1214.
- Cowart K, Dell K, Rodriguez-Snapp N, Petrelli HM. An Examination of Correlations between MMI Scores and Pharmacy School GPA. *Am J Pharm Educ*. 2016 Aug;80(8):98. doi: 10.5688/ajpe80698. PMID: 27667835; PMCID: PMC5023996.
- Castleberry AN. Pharmacy Practice Lab Redesign. The University of Texas at Austin Center for Teaching and Learning. Retrieved April 4, 2023, from <https://ctltexas.edu/grants-fellowships/provosts-teaching-fellows/initiatives/pharmacy-practice-lab-redesign>