



Students' Performance in Pharmacy Objective Structured Clinical Examination (OSCE) and Written Examinations – A Comparative Study

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Introduction

- The Objective Structured Clinical Examination (OSCE) is an objective circuit examination used to assess students' clinical competence through direct observation of their performance in different stations¹
- It enabled evaluation of "show how" as illustrated by the Miller's pyramid of competence assessment in 1990²
- Pharmacy OSCE has been used worldwide, but research comparing students' pharmacy OSCE performance with traditional written examination performance is limited and only conducted in Western countries
- Pharmacy OSCE has been adopted in Hong Kong since 2012, but there has been currently no published research regarding its use in Hong Kong

Aims

- To investigate the correlation between students' pharmacy OSCE performance and written examination performance
- To study the relationship between students' perceived stress towards pharmacy OSCE and their OSCE performance

Materials and Methods

- A retrospective comparative study
- Ethically approved by the Human Research Ethics Committee of the University of Hong Kong
- In a total of 132 University of Hong Kong Bachelor of Pharmacy graduates of 2012-2016 (5 student cohorts), 119 (90%) of them were included in the study while 13 of them were excluded due to deferral of the degree
- Subjects' OSCE results and written examination results were collected from the examination results database of the Department of Pharmacology and Pharmacy of the University of Hong Kong
- The questionnaire results were collected from the previous unpublished study called "Pharmacy Students' Attitude on Objective Structured Clinical Examination (OSCE) - A Hong Kong Perspective"³
- The identity of all subjects was masked by a third party and blinded from the investigators to ensure anonymity

Acknowledgement

I would like to express my sincere gratitude to my supervisor Ms. Phoebe Chan for her precious guidance and continuous support throughout the project. I would also like to offer special thanks to Ms. Janice Wong for her insightful survey results in the previous study. I am particularly grateful to Ms. Phoebe Lam for her generous help during data collection.

References

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Results

I. The OSCE and written examination results distribution

- Majority (70%) of the examination results of both OSCE and written examinations were in normal distribution with Shapiro-Wilk test significance values ranged from 0.057 to 0.981

II. Differences in cohort performance in the OSCE and written examinations

- The mean written examination score (70.59% ± 6.33%) was statistically significantly higher than the mean OSCE score (67.5% ± 12.1%) (t = 2.966, p = 0.004)
- The mean OSCE score of Class of 2012 (58.3% ± 11.9%) was statistically significantly lower than that of Class of 2016 (77.1% ± 8.8%) by 18.8% (t = -6.173, p = 0.000)

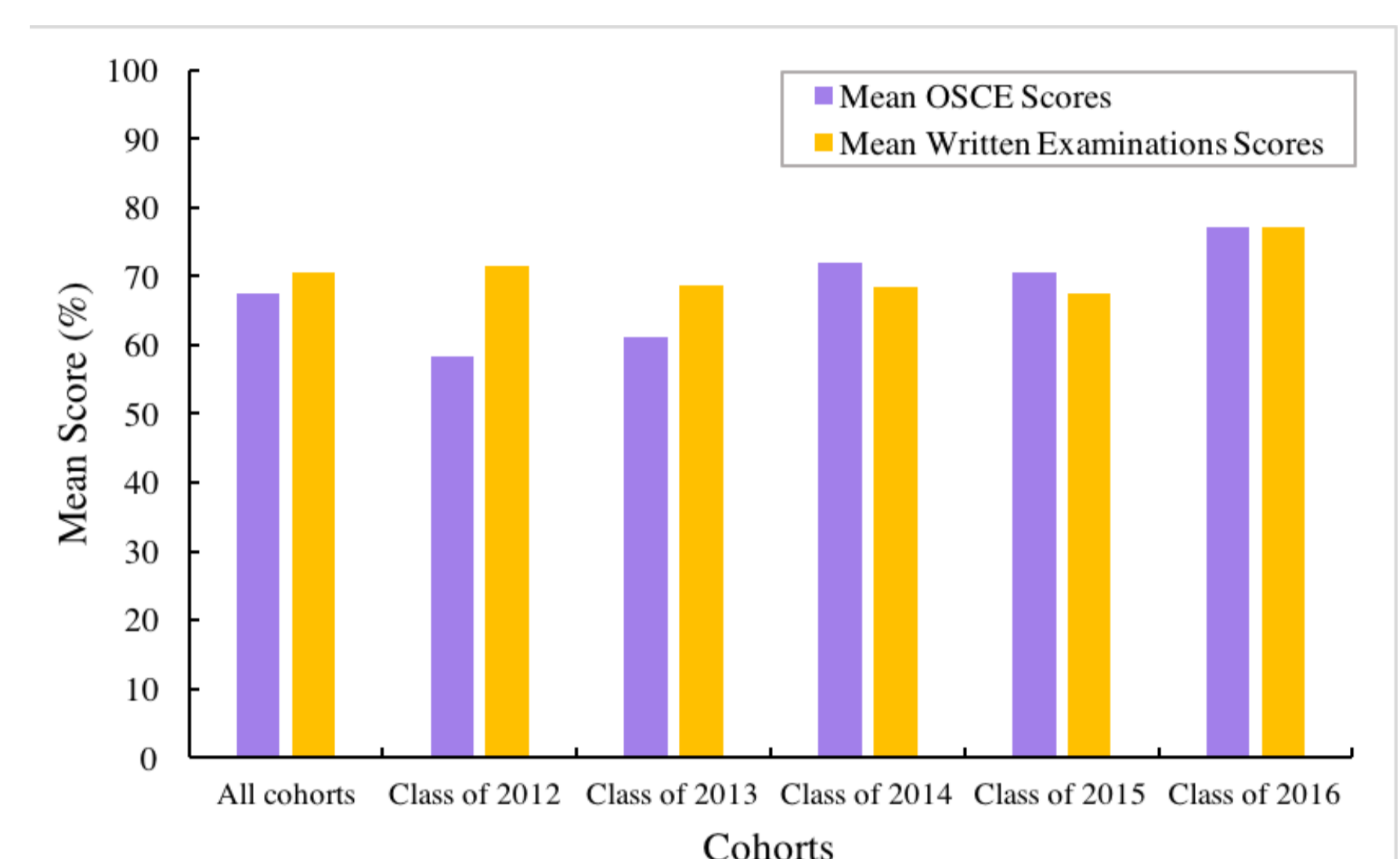


Figure 1. Mean OSCE and written examinations scores of all cohorts

III. Correlation between subjects' OSCE results and written examination results

- Weak correlation (r = 0.384, p = 0.000)

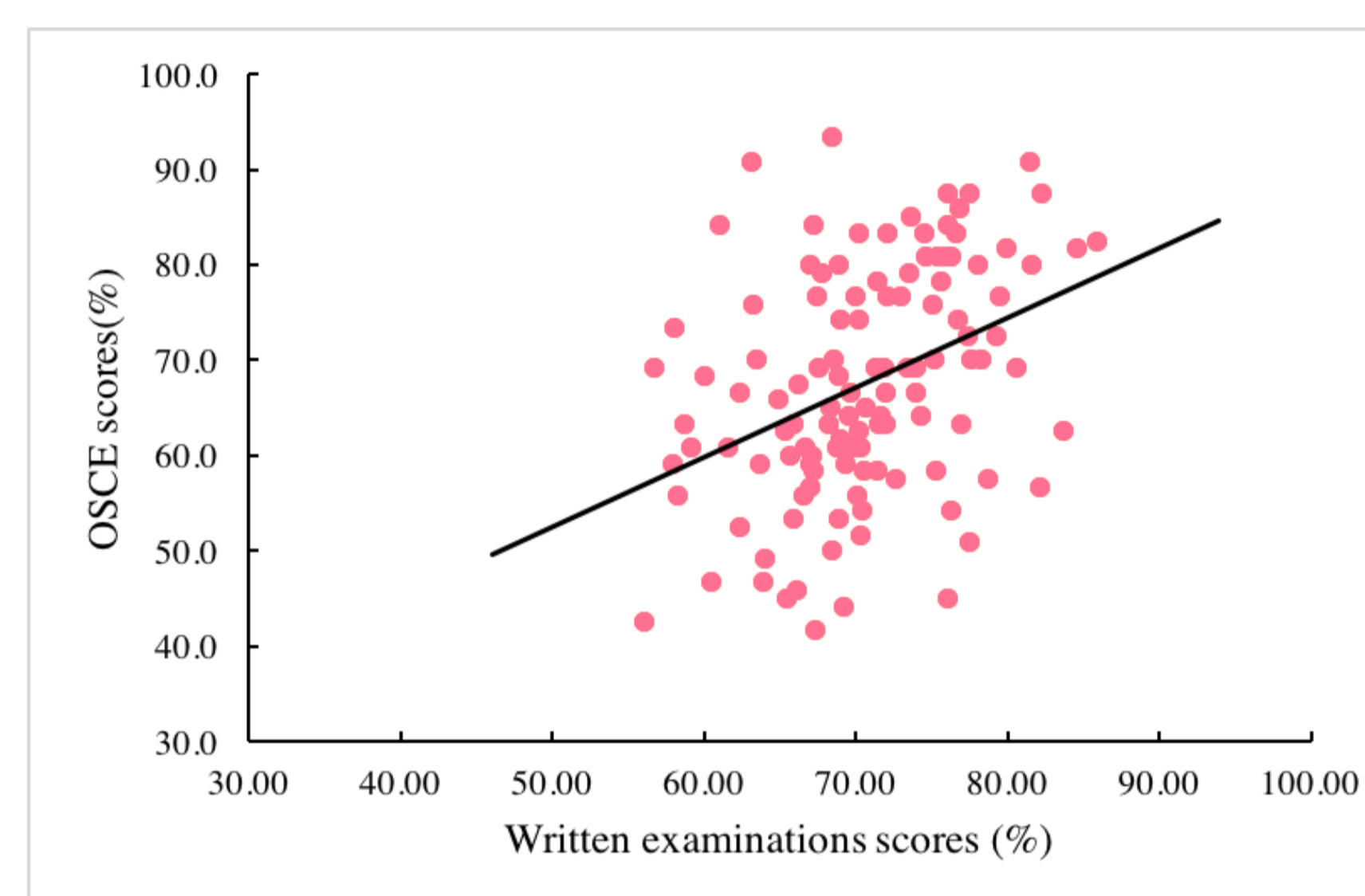


Figure 2. Scatterplot showing the correlation between OSCE results and written examination results

IV. Correlation between cohorts' perceived stress and performance of the OSCE

- A strong positive correlation (r = 0.931, p = 0.022)

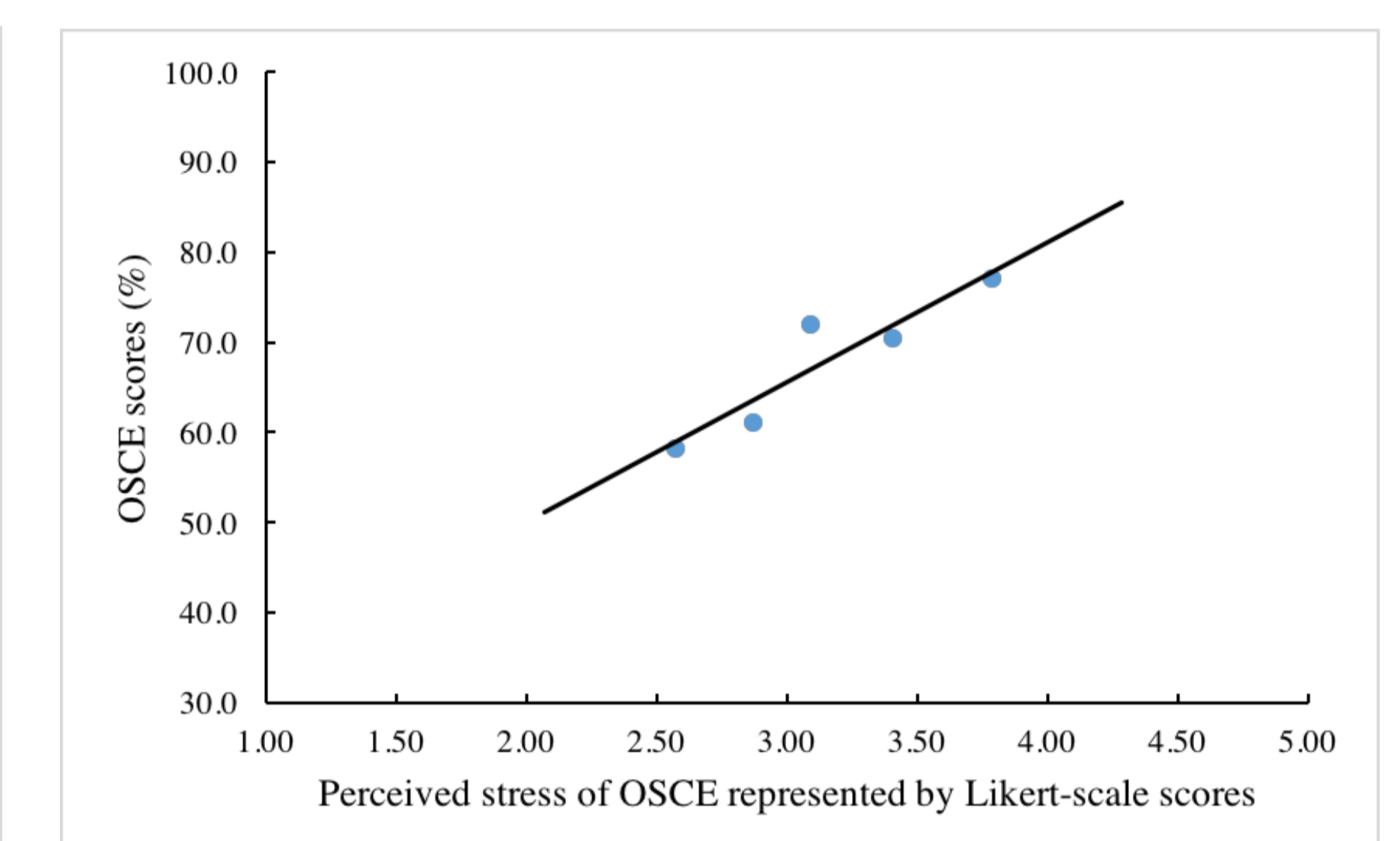


Figure 3. Scatterplot showing the correlation between perceived stress of OSCE (represented by Likert-scale scores) and OSCE results

Discussion

I. Validity in assessment

- Examination papers of both OSCE and written examinations were valid in grading students at different levels of academic and clinical competence

II. Correlation between performance in the OSCE and written examinations

- The OSCE and written examinations assess different levels of clinical competence
- They share the same knowledge basis in clinical pharmacy and pharmacy practice

III. Perceived stress and OSCE performance

- Eustress instead of distress experienced by students improves their OSCE performance
- Higher perceived stress appears to motivate students to have more preparation work
- Higher perceived stress promotes cooperative learning, which may have a positive effect on OSCE results

IV. Improvements in OSCE performance over the years

- Experience sharing from earlier cohorts allows students in the later cohorts to polish their skills and work collaboratively in developing strategies in preparing for the OSCE
- Receiving rumours from earlier cohorts motivates students to have better preparation for the OSCE

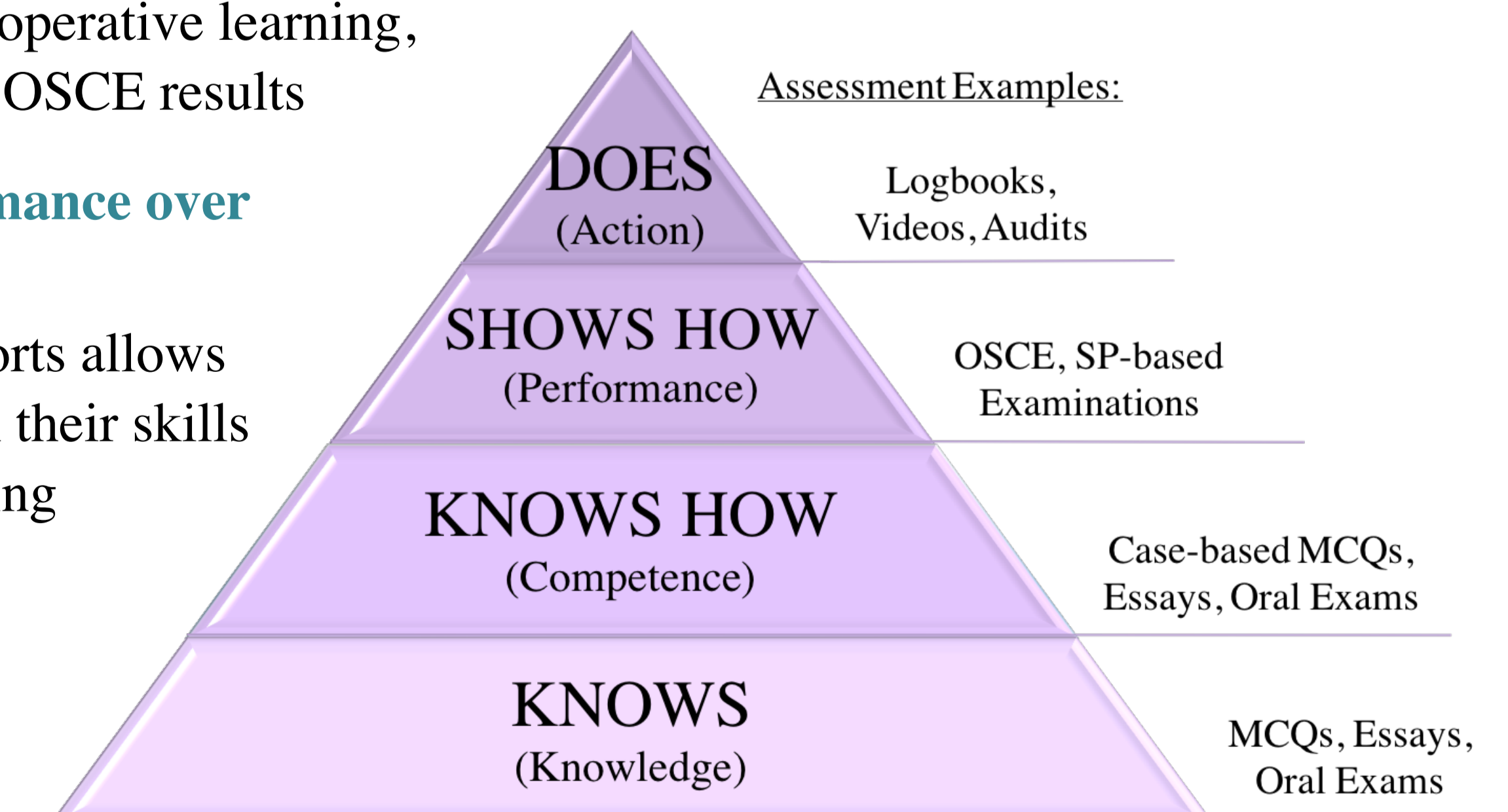


Figure 4. Miller's pyramid of competence assessment²

Conclusion

- Pharmacy OSCE helps evaluate different level of clinical competence from that assessed by written examinations and should therefore be used together for the comprehensive assessment of pharmacy students' clinical competence
- Perceived stress and test anxiety may have a positive effect on pharmacy OSCE performance