

# The Potential of Implementing Videotaped OSPE Assessment in Health Sciences

**Vinodhkumar Ramalingam<sup>1</sup>, Pradeep Balakrishnan<sup>2</sup>, Ling Shing Wong<sup>3</sup>, Sankara Kumaran Pandian<sup>4</sup>, Chidambaram Rajavannian<sup>5</sup>, Sinouvassane Djearamane<sup>6\*</sup>**

<sup>1,3</sup> Faculty of Health and Life Sciences, INTI International University, Nilai, Negeri Sembilan, Malaysia

<sup>2</sup> School of Health Sciences, KPJ University College, Kota Seriemas, Nilai, Negeri Sembilan, Malaysia

<sup>4</sup> School of physiotherapy, AIMST University, Bedong, Kedah, Malaysia.

<sup>5</sup> SRM College of Physiotherapy, SRM Institute of Science and Technology, Kattankulathur, Chengalpattu, Tamil Nadu, India

<sup>6</sup> Department of Biomedical Science, Faculty of Science, Universiti Tunku Abdul Rahman, Kampar, Perak, Malaysia

\*Corresponding Author: Sinouvassane Djearamane

Email: <sup>6</sup>sinouvassane@utar.edu.my/ biochsinouvas07@gmail.com

## ABSTRACT

Objective Structured Practical Examination (OSPE) is the mostly practiced method for assessing the practical skills among health science students. OSPE is considered as a reliable method to examine the competency level of the students through the assessment using numerous practical stations. The lack of adequate number of qualified examiners and the fatigue of examiners during the long-term OSPE session are the common challenges faced in the conventional OSPE. Recently the focus is on the videotaped OSPE as an alternative to conventional OSPE to overcome the challenges faced. However, the consistency in marking the videotaped OSPE needs to be validated. Hence, the present study was aimed to study the consistency in marking the videotaped OSPE of 15 health science students by three examiners including 2 internal examiners and 1 external examiner using a content validated rubrics. The results of the present study revealed that the awarded scores were found to be consistent among all three examiners as the statistical analysis showed no significant difference ( $p > 0.05$ ) between the scores conferred by the examiners for the majority of the assessed components. The present study findings suggest that the videotaped OSPE is an alternative reliable and feasible method to assess the practical skills of the health science students. The practice of videotaping the OSPE procedures can overcome the challenges faced during the conventional OSPE such as the non-availability of the qualified examiners and the fatigue of the examiners. Further, the videotaping method gives an opportunity to have more number of practical stations for better assessment on students' skills and to archive the videotaped practical procedures as an evidence of students' performance. Hence, the videotaping of OSPE can be a feasible method for the online assessment especially during the pandemic situations like the present Covid-19 pandemic.

## Keywords

Videotaped OSPE, Consistency in marking, Health Science Students, Practical examination

## Introduction

The evaluation of the practical skills plays an important role in health care professionals that has to be ensured with quality assessment (Kumar, 2016). According to a hierarchical model proposed by Miller that the assessment of clinical competency in the healthcare profession is important to examine the students' behavior in practical examinations (Miller, 1990; Vijayalakshmi et al., 2014). The conventional method of practical examination in clinical practice was stepped forward to a structured examination in health care institutions as the objective structured practical examination (OSPE) to enhance the quality of student's assessment and unbiased results in practical assessment (Malik et al., 2009; Harasym et al., 2008). OSPE is a feasible

procedure commonly used in healthcare professions to evaluate student's practical performance since 1979, the concept of OSPE was derived from OSCE (objective structured clinical examination) (Harden et al., 1975). However, the lack of adequate number of qualified examiners, fatigue of examiners during OSPE and the reduced number of OSPE stations are the challenges for OSPE to attain the quality outcomes (Ananthakrishnan, 1993; Kumar, 2016). Hence, implementation of technologies in professional practice can minimise the existing major issues in the conventional method of practical examination (Singleton, Smith, Harris, Ross- Harper, & Hilton, 1999). A study by Vivekananda- Schmidt et al., (2007) stated that videotaping of OSCE is reliable and advantageous in the use of examiners' timing, increased fairness in marking, and monitoring. In medical education,

the videotaped procedures have been applied for evaluating the performance and competency level of students (Ritchie & Cameron, 1999) and also used for students' self-learning, tutor assessment (Lane & Gottlieb, 2004; Winters et al., 2003) and educational interventions over the years (Yudkowsky et al., 2004). Further, videotaping technique has been perceived as the effective sources of learning resources in the field of communication skills (Marita., 1999; Mir et al., 1984). Besides, it has an advantage in developing interviewing skills and self-assessment by self-reflection (Lane & Gottlieb, 2004). Furthermore, videotaping of OSPE procedures acts as an evidence during student's appeal and also during the audit by the institutions and professional bodies (Kumar, 2016). The videotaping of OSPE also supports students self-learning to gain better results in the OSCE conducted at the clinical training (Hamdy, 2015). Although videotaped OSPE has numerous advantages in benefitting the students and also the examiners, it is also important to assess the consistency in marking the videotaped OSPE by different examiners to validate the implementation of videotaping assessment in the practical settings. Hence, the present study was carried to evaluate the

consistency in marking the videotape OSPE by three examiners.

### Methodology

The present study involved 15 bachelor degree students from the Faculty of Health and Life Sciences, INTI International University, Malaysia. The OSPE contained five stations namely station 1 to 5. Among the five stations, station 1 was chosen for this study as it was videotaped, and the other four stations proceeded with the traditional assessment method, which were not included in this study. The practical assessment procedure was videotaped with an informed consent obtained from the students for station 1. The digital video camera was fixed at station 1 using tripod to videotape the students' performance on simulated patient. Demonstrate the true limb measurement for lower limb was the OSPE question displayed at station 1. Each student was instructed to on and off the camera during the performance at station 1. The stimulated patient in station 1 was also clearly instructed with the procedures would be performed by the students. An assigned timekeeper controlled the timing of the OSPE cycle by alarming at each 5 minute to move to another station in a clockwise direction as shown in Figure.1.

**Table 1.** Scoring sheet for the videotaped OSPE performance

Components	Description of procedure	Maximum Points
C1.	Introduction Student self-introduction and receiving the stimulated patient	2
C2.	Explanation to the patient Explaining the technique briefly (side, site, etc.,)	2
C3.	Preparation of the patient Patient's position (comfortable and supported) and adequately expose the parts to be assessed	2
C4.	Observe and position the alignment of both the limbs	2
C5.	Palpation of the site (ASIS, MALLEOLUS)	2
C6.	Examination (Apply the technique in a professional way) Start positioning the limb by measuring the distance between both the malleolus	2
C7.	Level both the ASIS	2
C8.	Proceeding with upper hand tape at ASIS and lower hand tape at the medial malleolus	2

The Videotaped performance of each student was evaluated by two internal examiners (examiner 1 and 2) and also by one external examiner (examiner 3) from the local university using a content validated practical rubric (Table 1). The

assessment was done using a scoring sheet, which consisted 8 components (C1- C8) as shown in Table 1. The grading scale in the scoring sheet was set as 0- not done/ done incorrectly, 1 - Fairly

well done/ done with minimum mistakes, 2 - Well done.



**Figure 1. OSPE station arrangement**

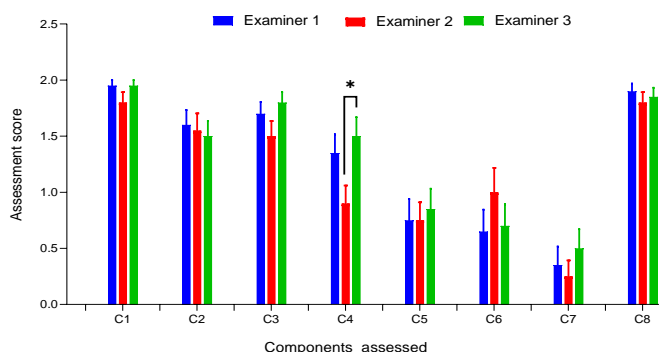
### Data Analysis

The one-way ANOVA (IBM SPSS version 22.0) was used to report the significant difference among the scores awarded by the examiners at  $p < 0.05$ .

### Results

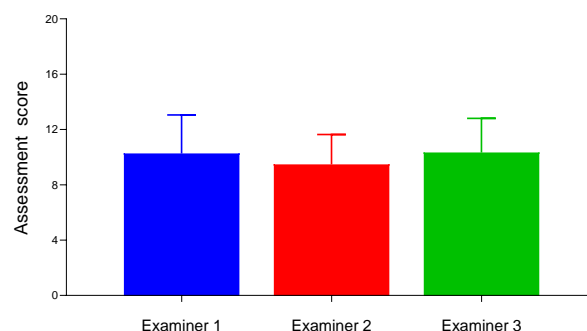
The present study involved 73.3% of female and 26.7% male students with an age range of 18 - 20 years and the majority of the students were Malaysian Chinese (53.3%) followed by Malaysian Indians (26.7%) and Malaysian Malays (20%) as shown in Table 2. The evaluation scores for the assessed eight components by all three examiners on the videotaped OSPE performance are shown in Fig. 2.

The results of the present study showed the closer assessment scores awarded by all three examiners including 2 internal examiners (E1 & E2) and 1 external examiner (E3), for an instance, the mean assessment score of  $1.95 \pm 0.22$ ,  $1.8 \pm 0.41$ ,  $1.95 \pm 0.22$  out of 2.0 points conferred by E1, E2 and E3 respectively for the component 1 (C1).



**Figure 2. The examiners mean score for the individual components (C1 – C8). \* indicates the statistical significance at  $p < 0.05$ .**

The results of one-way ANOVA showed a non-significant difference ( $p > 0.05$ ) between the scores awarded by all three examiners. Similarly, no statistical difference ( $p > 0.05$ ) between the scores given by all three examiners was reported for C2, C3, C5, C6, C7 and C8 as the scores were closer, such as the mean score of  $1.90 \pm 0.31$ ,  $1.80 \pm 0.41$ , and  $1.85 \pm 0.36$  out of 2.0 points awarded by E1, E2 and E3 respectively for C8. However, a statistically significant ( $p < 0.05$ ) difference among the scores given by the examiner 2 and 3 was reported for C4 since the scores given by the examiners were not closer as the awarded points for C4 were  $1.35 \pm 0.74$ ,  $0.90 \pm 0.72$ ,  $1.50 \pm 0.76$  from E1, E2 and E3 respectively (Figure.2). It is evident from the present study findings that the scores awarded by all three examiners, including internal and external examiners, for majority of the components assessed were closer and statistically non-significant (Figure.3).



**Figure 3. The overall mean assessment of all three examiners on videotaped OSPE performance**

A few earlier studies have reported the videotaped OSCE as a reliable method for the clinical assessment of students. Bautista & Manalastas, (2017) reported no significant difference between the median scores of the students from the OSCE group and the VOSCE group. Likewise, Tan et al., (2020) demonstrated no difference in pass/fail outcome between live and video OSCE examiners. Since the examiners, fatigue and shortage of manpower are the common challenges faced while conducting OSPE (Ananthakrishnan, 1993; Gitanjali, 2004), less numbers of OSPE stations are practiced commonly in assessing the students' skills, which is inadequate to test the learning outcomes (Nayar et al., 1986). Hence, the videotaped OSPE method can be an alternative to overcome these challenges and to have more

number of OSPE stations for the assessment. Further, the videotaped OSPE assessment can be a feasible method for online assessments (Khan & Jawaaid, 2020), especially during the pandemic situations like the present Covid-19 pandemic. In addition, the archiving of videotaped practical procedures will have an advantage as an evidence of students' performance for future reference and also will be useful for remarking the OSPE in case of an appeal from the students.

### Conclusion

Overall, the results of the present study reported a non-significant difference between the scores awarded by three examiners, including 2 internal examiners and 1 external examiner, on the videotaped OSPE performance which in turn confirms the consistency in marking the videotaped OSPE performance. The positive outcome of our study indicates the reliability and suitability of videotaped OSPE and also recommends the implementation of videotaped assessment practice to overcome the challenges faced in the conventional OSPE.

### Acknowledgement

Authors would like to thank the examiners and the students for their valuable participation in the present study.

### References

- [1] Ananthakrishnan, N. (1993). Objective structured clinical/practical examination (OSCE/OSPE). *Journal of Postgraduate Medicine*, 39(2), 82.
- [2] Bautista, J. M. D., & Manalastas, R. E. C. (2017). Using video recording in evaluating students' clinical skills. *Medical Science Educator*, 27(4), 645–650.
- [3] Gitanjali, B. (2004). The other side of OSPE. *Indian Journal of Pharmacology*, 36(6), 388.
- [4] Hamdy, H. (2015). Problem-based learning, team-based learning, task-based learning, case-based learning and the blend. *Routledge International Handbook of Medical Education*, 128.
- [5] Harasym, P. H., Woloschuk, W., & Cuning, L. (2008). Undesired variance due to examiner stringency/leniency effect in communication skill scores assessed in OSCEs. *Advances in Health Sciences Education*, 13(5), 617–632.
- [6] Harden, R. M., Stevenson, M., Downie, W. W., & Wilson, G. M. (1975). Assessment of clinical competence using objective structured examination. *Br Med J*, 1(5955), 447–451.
- [7] Khan, R. A., & Jawaaid, M. (2020). Technology enhanced assessment (TEA) in COVID 19 pandemic. *Pakistan Journal of Medical Sciences*, 36(COVID19-S4), S108.
- [8] Kumar, R. V. (2016). Videotaped OSPE: Is This a Right Procedure to Assess Health Science Students' Performance?--A Pilot Study. *International Journal of Information and Education Technology*, 6(3), 211.
- [9] Lane, J. L., & Gottlieb, R. P. (2004). Improving the interviewing and self-assessment skills of medical students: is it time to readopt videotaping as an educational tool? *Ambulatory Pediatrics*, 4(3), 244–248.
- [10] Malik, S., Hasan, S., Hamad, A., Khan, H., & Bilal, M. (2009). Conventional/traditional practical examination (CPE/TDPE) versus objective structured practical evaluation (OSPE)/semi objective structured practical evaluation (SOSPE). *Pakistan Journal of Physiology*, 5(1).
- [11] Marita, P., Leena, L., & Tarja, K. (1999). Nurses' self-reflection via videotaping to improve communication skills in health counseling. *Patient Education and Counseling*, 36(1), 3–11.
- [12] Miller, G. E. (1990). The assessment of clinical skills/competence/performance. *Academic Medicine*, 65(9), S63-7.
- [13] Mir, M. A., Marshall, R. J., Evans, R. W., Hall, R., & Duthie, H. L. (1984). Comparison between videotape and personal teaching as methods of communicating clinical skills to medical students. *Br Med J (Clin Res Ed)*, 289(6436), 31–34.
- [14] Nayar, U., Malik, S. L., & Bijlani, R. L. (1986). Objective structured practical examination: a new concept in assessment of laboratory exercises in preclinical



- sciences. *Medical Education*, 20(3), 204–209.
- [15] Ritchie, P. D., & Cameron, P. A. (1999). An evaluation of trauma team leader performance by video recording. *Australian and New Zealand Journal of Surgery*, 69(3), 183–186.
- [16] Singleton, A., Smith, F., Harris, T., Ross- Harper, R., & Hilton, S. (1999). An evaluation of the team objective structured clinical examination (TOSCE). *Medical Education*, 33(1), 34–41.
- [17] Tan, J.-Y., Ma, I. W. Y., Hunt, J. A., Kwong, G. P. S., Farrell, R., Bell, C., & Read, E. K. (2020). Video Recording in Veterinary Medicine OSCEs: Feasibility and Inter-rater Agreement between Live Performance Examiners and Video Recording Reviewing Examiners. *Journal of Veterinary Medical Education*, e20190142.
- [18] Vijayalakshmi, K., Venkatesan, L., & Revathi, S. (2014). OSPE-Objective structured practical examinations in psychiatric nursing: current practices, needs and challenges. *The Journal of Nursing Trendz*, 5(3), 24–30.
- [19] Vivekananda- Schmidt, P., Lewis, M., Coady, D., Morley, C., Kay, L., Walker, D., & Hassell, A. B. (2007). Exploring the use of videotaped objective structured clinical examination in the assessment of joint examination skills of medical students. *Arthritis Care & Research: Official Journal of the American College of Rheumatology*, 57(5), 869–876.
- [20] Winters, J., Hauck, B., Riggs, C. J., Clawson, J., & Collins, J. (2003). Use of videotaping to assess competencies and course outcomes. *Journal of Nursing Education*, 42(10), 472–476.
- [21] Yudkowsky, R., Downing, S., Klamen, D., Valaski, M., Eulenberg, B., & Popa, M. (2004). Assessing the head-to-toe physical examination skills of medical students. *Medical Teacher*, 26(5), 415–419.