

COMMENTARY

A Paradigmatic Shift For Final Undergraduate Medical Students' Examination: The COVID-19 Pandemic Approach

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ABSTRACT

COVID-19 has made medical education delivery changed around the world. High stakes examinations have to take place despite the ongoing pandemic. Careful planning and considerations are mandatory in order to cater for the physical and social distancing new norms. The safety of everyone involved in the examinations (students, academics, patients and support staff) is put at the utmost priority to prevent further disease transmission. Universiti Sains Islam Malaysia (USIM) has made a drastic change in the conduct of its final professional examination for the undergraduate medical students. The traditional one long case and three short cases clinical examinations were converted to objective structured clinical examination (OSCE), comprising sixteen manned stations lasting 10 minutes each. The COVID-19 pandemic has become the stimulus for a paradigmatic shift in the final undergraduate medical students' examination at the Faculty of Medicine and Health Sciences, USIM. This paper describes how the paradigmatic shift resulted in a successful conversion of assessment method from the traditional one long case and three short cases clinical examinations to sixteen manned objective structured clinical examination (OSCE) stations. The feedback from the examiners and students were highlighted. The COVID-19 pandemic has brought a new insight to the faculty members on alternative teaching and learning methodologies as well as how assessments can be conducted in the faculty. When left with not many choices, faculty members who were previously not convinced towards OSCE for summative assessment are now seeing OSCE as the way forward

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INTRODUCTION

Malaysia was first hit with COVID-19 in January 2020 and cases were on the rise in March 2020 (1). The government then had to implement the Movement Control Order (MCO) throughout the country to prevent widespread disease transmission. During MCO, services deemed as non-essential were put on-hold. The education sector was unfortunately considered as a non-essential sector.

In response to the MCO, the Faculty of Medicine and Health Sciences USIM had to postpone all ongoing classes, reschedule the timetable and think of possible solutions to the unprecedented situation. Despite advances in assessment methods in medical education which have been proven to have better validity and reliability, most faculty members prefer to assess medical students in traditional method due to easy access to real patients in the hospital. The traditional examination comprised of one long case and three short cases. The medical undergraduate final professional examination was previously conducted in the teaching hospital and real patients were used. The COVID-19 pandemic has made the usual examination arrangement unrealistic.

In April 2020, USIM's Faculty of Medicine and Health Sciences have decided to convert the clinical examination system to manned and unmanned Objective Structured Clinical Examination (OSCE) for the medical undergraduate final professional examination. The examination was scheduled in August 2020. The lecturers and students were already familiarized with the traditional long case and short case examinations but not with OSCE. Although OSCEs have been used in end of rotation summative examinations, it was only carried out during Family Medicine and Psychiatry rotations. Hence, it is a challenge for the medical education unit in our faculty to train all faculty members and students to be familiar and ready for OSCE within four months period.

Approach

The best practices of OSCE implementation are the key determinants towards successful implementation and planning of the examination (2,3,4). The main aim of the conversion is to ensure that all students are examined fairly, validly and reliably. In order to proceed with OSCE for the medical undergraduate final professional examination, a careful planning and implementation was carried out by the medical education unit. An online training was conducted on three consecutive weeks in June to expose faculty members to the best practices of OSCE from the literature, how to create good OSCE questions, how to create good and reliable OSCE checklist and how OSCE questions should be vetted at disciplinary and department level. It was followed by a one-day face to face session on how to perform standard setting methods (borderline regression method) for OSCE as the faculty have decided to use checklist in combination with global rating scale. Evidences in the literature have indicated that OSCE's reliability and validity is inter-dependent on many confounding factors; such as: number of stations, number of examiners, time allocated, marking system (5), hence it is crucial to equipped the faculty member's with all the required knowledge prior to the examination. The OSCE stations were blueprinted to ensure that our future graduates are competent in every aspect laid out by the Malaysian Medical Council (MMC) (6).

Since the methodology of examination was changed, several steps were taken by the faculty to ensure that the university examination ruling were amended according to the Guidelines for Operating Medical Education Programs (Basic Degree) During and Post COVID-19 Movement Control Order published by the Malaysian Medical Council and the Advisory Note (No. 1/2020) Guidelines on the Delivery of Higher Education Programmes During and Post COVID-19 Movement Control Order (MCO) published by the Malaysian Qualification Agency (MQA). The conversion to OSCE was allowed in the current study regulations as it has been clearly stated that the clinical examination can be replaced with a suitable method when deemed

necessary. The proposal for conversion were tabled at the faculty's Academic Planning and Development Committee meeting, Faculty's meeting and the university's Academic Planning and Development Committee meeting for deliberation. It was then tabled at the university's Senate meeting for approval and endorsement. The conversion did not change the current programme educational objectives and programme learning outcomes.

Steps taken for Development and Implementation of the conversion

An OSCE examination coordinator was appointed by the faculty to lead a team of committee members to ensure a smooth running of the examination. The role of OSCE coordinator is crucial as he/she must have the essential experience and knowledge about the overall running of the examination. The task given for the team included determining the number of stations, duration of each station, the venue, the number of circuit as well as examiners', students' and simulated patients' training. Due to the MCO restriction during COVID-19 pandemic, all meetings and workshops were held online. Hence, three series of OSCE online training were done via Microsoft Teams for all the clinical lecturers encompassing the basic concept of OSCE, examination question design and marking concept to assist the lecturers in preparing for the examination.

Students' online classes commenced in June 2020 and face-to-face learning sessions only started in July 2020. The online learning was carried out using USIM's Moodle platform, Microsoft Teams, Google Hangouts or Zoom. Undoubtedly, this is the new norms that everyone needs to embrace despite the technical difficulties (7,8,9). Sessions of simulated patients training with the students were done by the lecturers, who themselves took the role as simulated patient. Although this arrangement was not ideal, it was the best option available during the MCO, until few exceptions were given by the Ministry of Health in July 2020 when COVID-19 cases started to decrease gradually (10). Prior to the final medical undergraduate examination, the students were also diligently exposed and get familiarized with the OSCEs through end of rotation examinations.

Simulated patients pool was then developed through advertisements in the social media namely Facebook, WhatsApp and USIM's mailing list. Online meeting was carried out for consultation with local universities who already have an established simulated patient pool and training programmes. By early August 2020, we managed to create a pool of 50 volunteers to be trained as simulated patients for the OSCE examination scheduled at the end of August 2020. The simulated patients were screened for COVID-19 risks before being recruited into the pool. Two series of training sessions were provided for the simulated patients prior to the examination. These trainings were done face-to-face

with strict COVID-19 Standard Operating Procedures (SOPs). The trainings were also made available online for simulated patients who could not attend the training sessions.

Outcomes of Conversion

Pre-examination

The faculty decided to have 16 manned stations with a 2-minute reading time and 8-minute task performance (11). The 16 stations were divided into two examination days with an additional of 2 rest stations for each day. The test specification table was prepared to ensure a fair distribution of domains to be assessed during the examination and there was no redundancy between OSCE manned stations, clinical data interpretation (equivalent to unmanned OSCE stations) and the theory examination.

There were 78 students grouped into 3 different circuits at three different times. Hence, only 10 students were allocated per circuit with three circuits running concurrently. An examination simulation (without the simulated patients) was carried out one day prior to the examination to ensure smooth flow and coordination of the circuits and support staffs were all aware of their roles during the examination.

During examination

To ensure COVID-19 SOPs were adhered to, the following steps were taken into considerations (12):

1. The examination was held at USIM's main hall rather than in the hospital. The stations were created using partitions ensuring social distancing were observed all the time. (Figure 1)
2. There were different entry and exit points dedicated for examiners and staff members, students and simulated patients accordingly, to ensure smooth flow of traffic coordination and physical distancing between each other.
3. All examiners, staff members, simulated patients and students were required to fill in a QR coded form which encompassed a COVID-19 risk stratification questionnaire by the Ministry of Health Malaysia.
4. All examiners', staff members', simulated patients' and student's body temperature were checked prior to entry to the examination venue.
5. A flow chart of action plan for anyone with body temperature above 37.5 degrees Celsius was formulated to ensure possible index case was appropriately identified and treated to avoid an emergent cluster of COVID-19 infection.
6. Hand sanitizers were placed in all the stations and throughout the examination hall.
7. Linens were changed for every new simulated patient in the station.
8. Equipment was changed or sanitized after each student had left the station during the examination.

9. Food were all packed for individual distribution as food buffet was strictly not allowed.



Figure 1 : Circuits are created in a big hall using partitions.

Critical Reflection

Despite COVID-19 pandemic, with careful planning, coordination and teamwork, the faculty managed to organize a well-structured clinical examination while still abiding the rules and SOPs laid out by the government.

COVID-19 is a blessing in disguise for the faculty. The pandemic has brought new insights to the faculty members on alternative teaching and learning methodologies as well as how assessments can be conducted in the faculty. When left with not many choices, faculty members who were previously not convinced towards OSCE for summative assessment are now seeing OSCE as the way forward. A survey was conducted among the lecturers to know their preference of examination conduct either in the traditional long case and short case or OSCE. The majority of lecturers who prefer OSCE (66.7%) cited the following reasons:

"OSCE is more organized and uniformed. OSCE ... because of it being objectively structured...so less room for subjective assessment" (Lecturer 1)

"OSCE ... it covers more sections and more standardised marking" (Lecturer 2)

Lecturers who prefer the traditional long case and short cases in comparison to OSCE (16.7%), cited the following reasons:

"Long and short cases – wide range of real clinical cases can be tested instead of one specific case, student may just follow and memorising the step wise answering the questions" (Lecturer 3)

Lecturers who preferred a mixture of both examination format (16.7%) cited the following reasons:

" Mixture of OSCE ,long and short cases. As it can't assess more knowledge especially discussion of depth in knowledge. OSCE good for procedure and specific skill assessment." (Lecturer 4)

The mixed findings from our examiners' feedbacks were in line with the findings from Majumder et al. (2019). They found that majority of the examiners agreed that the examination was fair, covered a wide range of clinical skills and knowledge, well-organized and well-administered. However, some of the examiners felt that the OSCE failed to create a positive impact on student learning and OSCE scores did not truly reflect competence in clinical skills (13).

Besides that, COVID-19 have impacted the faculty members teaching and learning strategies as they had to embrace educational technologies to support their teaching and learning activities. Among the adaptation of teaching methodologies done were case base discussion using simulated case scenarios, clinical examination task video using family members at home and adopting the online platform ie telegram, google meet, Microsoft teams, Zoom for teaching purposes (14 , 15). The lecturers also utilizes the full capacity of the Moodle platform by providing videos for the students as to enhances the logbook procedures requirement (14). Besides than that, the online platform was also adopted for live interaction with real patient which were followed by clinical case discussion; an innovative teaching method called Clinical Virtual Innovative Teaching (CVIT) (16).

The majority of the students preferred OSCE compared to long case and short cases examination (94.4% vs 5.6%). They felt that OSCE tested a wider range of knowledge and skills as it covered all the posting they had undergone throughout the study. Long case and short cases examination assess only 4 posting. Furthermore, they also believed that OSCE was fairer and less bias in terms of examiner evaluation and case equality. The following are some of the feedback received from the students:

"OSCE... Because, I feel everyone get the same case and if I didn't do well in one posting, other posting still can cover it. Unlike long case short case which is quite unfair because it only assesses on one posting. And it depends a lot on luck and human factor. Although the preparation time were short for OSCE, with lecturer help during revision class, we were able to familiarise with the format" (Student A)

"OSCE because it is fairer and cover more range in student's knowledge and skill. The less fear and anxiety feeling (compared to 1LC and 3 SC) does help the students remain cool and composed, pre and post exam, where they can share the same hurdle being thrown at them." (Student B)

In contrast; the students who preferred long and short cases given the following feedback:

"OSCE does not assess fully our knowledge. Some superficial knowledge was tested but in all postings as compared to long case where we are tested to the depth of knowledge." (Student C)

The positive feedbacks from our students in relation with the fairness of OSCE and comprehensive coverage of knowledge and competencies are in line with a study done by Majumder et al. (2019) among final year medical students from the University of West Indies. They found that students perceived positively about the attributes of OSCE, i.e. fair examination, covered required knowledge and competencies, well-administered and well-sequenced OSCE stations.

However, they also found that students perceived OSCE as stressful and intimidating examination. Unlike a feedback given by our student, she/he felt less fear and anxious in performing OSCE as compared to the traditional method of long case and short cases. The unsimilar findings might be due to different material tested rather than the assessment methods. The Cave Hill Campus of The University of West Indies did not use long and short cases for examinations and students perceived OSCE more stressful than written and other examinations (Majumder et al. 2019).

The overall performance of the students for the clinical examination component were comparable. The passing rate pre- and during COVID-19 pandemic is as shown in Table I :

Table I : The final undergraduate passing and failure rate before and during COVID-19 pandemic.

Academic Session of Graduation	Passing Rate	Failure Rate
Pre-COVID-19 2017/2018	96.25	3.75
Pre-COVID-19 2018/2019	96.34	3.66
During COVID-19 2019/2020	98.70	1.30
During COVID-19 2020/2021	96.15	3.85

Moving forward

The COVID-19 pandemic has changed the form of clinical assessment in the faculty. As the OSCE examination for the final professional examination was successfully conducted and having deliberated the benefits and limitations of the examination, the faculty decided to continue with OSCE examination from then on. We have adopted OSCE assessment for all clinical end posting examination and final professional examination for the undergraduate medical students. In light with the recent guideline of the COVID-19 in Malaysia (17), several measures have been taken to ensure examinations are done safely for everyone involved in running the examination. The following are the measures taken by the faculty:

1. All members (simulated patients, examiners, students, faculty members) involved with the examination are required to perform COVID-19 saliva test within three days prior to the examination.
2. All members are required to scan the QR code prior to entry of the examination venue.
3. Examination is carried out at the clinical skills laboratory level, ensuring social distancing at all times.
4. Food and drinks are individually packed, and no buffet are allowed.

CONCLUSION

The pandemic has been the stimulus for change in the faculty. A drastic change is not always easy. However, with the availability of guides from the literature, guidelines from the Ministry of Health and Malaysian Medical Council, as well as good support and careful planning from the faculty management, the transition had been smooth for the lecturers and the students. Collecting feedback from all stakeholders involved on the conversion is mandatory to ensure that the current conversion continue to remain valid even after the pandemic.

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