

Students' Viewpoint: Challenges and Preparation of Medical Students for Final Clinical Examination during COVID-19

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Abstract

The COVID-19 pandemic has caused the clinical attachment for medical students to be deferred in ensuring reduction of viral transmission. Patients encounter was near impossible, thus suspending medical students' clinical skills on real patients. Despite this, the final examination had to be conducted. Hence, appropriate planning was made to ensure candidates were well prepared. A paradigm shift was made by Universiti Sains Islam Malaysia (USIM) with regards to the medical education delivery and the final undergraduate examination organization. The traditional in-person teaching and learning sessions were converted to video conferences and small group discussions to ensure social distancing. Objective structured clinical examination (OSCE) consisting of sixteen manned and twenty unmanned stations were introduced to replace the conventional one long and three short cases clinical examinations. The pandemic became the biggest obstacle for the final year medical students physically and psychologically. Familiarisation with the new format of learning

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and examination has to be made within three months. Online learning materials became resourceful during revisions. Simulated OSCE conducted by the lecturers, were advantageous to the students in ensuring familiarity to the new examination technique. Role-plays involving students' family members and colleagues as patients, aided the candidates to rehearse their physical examinations and history taking techniques. The intensive teaching and learning sessions have enabled the candidates to be equipped with the new examination requirement. Reflection: Generally, candidates favour OSCE over traditional clinical examinations. This preponderance was due to OSCE capability in assessing the entire aspects of knowledge and skills in variable rotations throughout medical school.

Keywords: *COVID-19, medical school examination, preparation, medical undergraduate*

1. Background

The novel coronavirus disease 2019 (COVID-19) emerged at the end of December 2019 in Wuhan city of China. The initial outbreak of COVID-19 in Wuhan spread rapidly, affecting other parts of China. Within a few weeks, cases of COVID-19 were detected in several other countries and soon, it became a global threat (Rothan & Byrareddy, 2020). Meanwhile, in Malaysia the first case of COVID-19 was reported at the end of January and cases began to rise thereafter. Following the WHO recommendation, Malaysian government implemented Movement Control Order (MCO) in order to curb the disease (Kronologi COVID-19 di Malaysia, 2020). Unfortunately, education was deemed as unessential service under the MCO hence teaching and learning was put on hold affecting the medical schools throughout Malaysia.

William Osler once said, "Medicine is learned by the bedside and not in the classroom (10 Oslerisms to Remember in Your Daily Practice, 2014). Medical education in comparison to other fraternities focuses more on patient-centred teaching and learning. Current unprecedented event has raised many questions that lead to modifications in medical education. How can medical training be done within the limitations of physical distancing? How can virtual patient encounters be simulated as an adjunct to web-based learning and digital content? What are the consequences of evading patient encounters for the learners' professional identities and accountabilities as members of health-care teams? The answers to these questions will depend on the duration of this pandemic and associated behavioural changes, which are anticipated to remain in effect well beyond original estimates (Ahle, 2020).

Globally, COVID-19 has brought a dramatic change in medical education. Medical student participation in clinical care has diversified across institutions due to global unpredictability and disagreement about the appropriate roles for medical students during a pandemic. Some schools prohibit any patient interaction, whereas others have recruited students for hospital-based roles or even graduated medical students early so that they can serve as frontline clinicians (Miller et al., 2020).

During the COVID-19 pandemic, all medical universities in Malaysia have to comply with the rules laid out by the ministry which lead to the postponement of high stake undergraduate final examinations. However, in late August 2020, Universiti Sains Islam Malaysia (USIM) embraced the challenge by organizing their high stake undergraduate final year examination, marking the first public university in Malaysia holding such examination during the pandemic. This was done in

ensuring competent medical graduates to enter the medical workforce in Malaysia and enable their graduates to complete their study without delay. USIM have adopted to alternative methods of learning and examination, in accordance with the guidelines implemented by the Malaysian Medical Council, Ministry of Higher Education and the Ministry of Health to curb the spread of COVID-19, without compromising on the quality of its graduates (Majlis Perubatan Malaysia, 2020; Malaysian Medical Council, 2020). The challenges and adaptation faced by the students in preparing for the examination are further discussed in this paper.

2. Approach

Traditional clinical examination method

USIM’s Faculty of Medicine and Health Sciences is among the institutions which uses the traditional clinical assessment method consisting of long and short cases up until the pandemic struck globally. Formerly, the clinical examination will take two days whereby long and short cases are done on different days for each student.

During long cases, students were given an hour to complete the task of history taking and physical examination with their own patient and a further thirty minutes with the examiners for question and answer sessions. Three examiners were assigned for one long case examination, whereby one of them would lead the examination based on the case given. For example, a physician would be the lead examiner if it is a medical case and for another student, a surgeon would lead if it is a surgical case. The cases were selected to ensure that students encounter common conditions.

For short cases on the other hand, students were given ten minutes for each case and three cases were allocated for them. The variability or mixture of cases were depending on the specialty of the examiner. For example, student A is given an inguinal hernia case, examination of the fundus and obstetric case as his examiners are a combination of a surgeon, ophthalmologist and an obstetrician. Meanwhile, student B had examinations of the respiratory system, cardiovascular assessment and developmental assessment as his examiners consisted of a family medicine specialist, physician and a pediatrician. Each student will have different types of cases and different combinations of examiners. Hence leading to no standardization and high possibility of biasness.

Objective Structured Clinical Examination (OSCE)

COVID-19 pandemic has brought changes to the examination system in the faculty. The university has adopted the OSCE for the final undergraduate examination. A total number of 78 students sat for the examination and they were divided into eight cohorts. The same cohorts were maintained throughout the two days of the OSCE examination. Three circuits were set up, and it was run simultaneously for three times i.e in the morning, noon and afternoon. The morning and noon sessions both had three cohorts each, whereas the afternoon session only ran two circuits for the remaining two cohorts. Each cohort was managed separately, and administrative staff were allocated at each circuit to facilitate the examination process (Figure 1). Students were quarantined before and after the examination to ensure confidentiality of the examination questions.

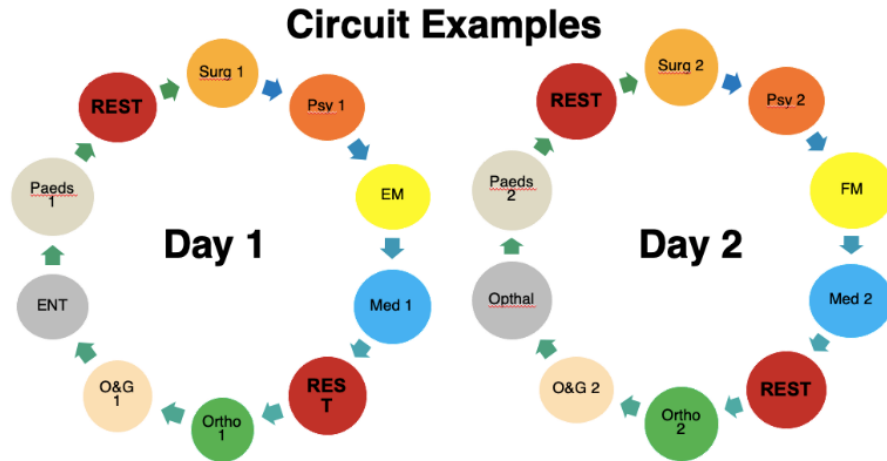


Figure 1: There were sixteen different stations allocated for two days examination

As compared to the traditional examinations where it was conducted in the outpatient clinics, the OSCE was done in a non-clinical venue which was the main hall of the university. Partitions were set up to separate the three circuits as well as the ten spaces in each circuit (Figure 2). The ten spaces in each circuit consisted of eight OSCE stations and two rest stations. There were 16 OSCE stations designed consisting of different domain ranging from history taking, clinical examination and counselling skills, decision making, diagnostic acumen and management planning.



Figure 2: OSCE venue in the Dewan Tunku Canselor, USIM. Three circuits with ten stations for each examination session.

The examination was carried out with strict adherence to the COVID-19 pandemic guideline as laid out by the Ministry of Health Malaysia and Ministry of Higher Education. Individual temperature was taken on arrival along with completion of health declaration form recorded using google forms. The candidates and staff were advised on social distancing as well as usage of masks and hand

sanitizers during the examination. Such success in conducting an OSCE examination has been accomplished by National University of Singapore (NUS) Medical School (Boursicot et al., 2020).

Theory Examination

The theory examination consists of multiple-choice questions (MCQ), patient management problems (PMP) and data interpretation. Modifications in the conduct of theory examination were made accordingly in line with the pandemic. The data interpretation was structured as unmanned OSCE and pooled marked as clinical examination. Formerly the data interpretation was done requiring students to move from one station to another. However, to reduce students’ movement, a projector was utilized replacing the different stations during the examination. All the other components of theory examinations were carried out in the examination hall ensuring physical distancing. In addition, sanitizers and masks were provided throughout the examination (Figure 3).



Figure 3: Theory examination held in a hall ensuring physical distancing between the students and examiners. Masks were provided throughout the examination

3. Evaluation: From Students’ Perspective

Traditional Clinical Examination Method

Long cases examination is seen as a “do-or-die” examination, or a “game of luck” whereby a student may fail despite being knowledgeable in other diseases but was not well versed with the case allocated to them during the exam. This occurs when the students tend to focus on a single or only several diseases. Besides that, there are other confounding factors that may contribute to the failure, which varies from the level of difficulty presented by different patients and the diverse definition of marking standards practised by different examiners. In other occasions, patients may not be able to fully explain their complaints or issues, which may pose additional challenges for the students to get a complete history. Undeniably, studies have shown that long case examinations only test the

depth of a particular knowledge with a disadvantage of inability to sample the curriculum widely. Possibly the “game of luck” perception of the long case examination can be feasibly tackled by evenness of cases either by using standardized or simulated patients (Ponnampertuma, et al., 2009). Meanwhile for the short cases, students had to perform 3 physical examinations back-to-back. It was done consecutively without any rest in between cases which was exhausting and challenging, both mentally as well as physically.

The COVID-19 pandemic has made the students fear that the traditional long case and short case methods might put a higher proportion of people at risk of COVID-19 infection as compared to the OSCE. This is due to the fact that the traditional clinical assessment requires involvement of more real patients than the OSCE style.

Objective Structured Clinical Examination (OSCE)

The traditional clinical examinations were converted to objective structured clinical examination (OSCE) consisting of 16 manned and 20 unmanned stations. From the faculty's point of view, this new style of the examination will minimize the risk of viral transmission and ensure the safety of students, patients and staff. This is because real patients were not involved in the examination and all simulated patients were healthy individuals who had undergone vigorous training and healthcare screening prior to the examination.

Despite being the first batch of USIM medical students who had OSCEs as the final undergraduate examination, there were several advantages that candidates encounter. Firstly, the students viewed OSCE as a fairer way for assessment as it removes prejudice in examining students and enables all to go through the same scope and criteria for assessment (Vu & Barrows, 1994). OSCEs are more standardized and minimizes any biases which may arise from the questions, patients or even examiners themselves, this was proven in the literature (Tekler & Odabaşı, 2018; Saeed, 2016).

Prior to the examination, students were briefed regarding the marking system in OSCE. It is objectively designed in a concise and well-focused manner to differentiate between good and poor performing candidates. This is advantageous to the examinee as the outcome of the examination is not affected by biases and standards get determined by examiners looking at a particular point in the examination (Hamann et al., 2002).

In addition, the history taking station in the OSCEs trains the students to be more effective with their time management. This in turn, will instil the students to be efficient and swift when dealing with the abundance of patients in their clinical practice later; particularly in government hospitals where time is the essence. Besides that, the direct observation of the history taking process by the examiner enables assessment of communication skills of the candidate, unlike in the traditional long case.

OSCEs' physical examination stations are fairly similar to the traditional short cases. Hence, preparation for the examinations did not require a broader change. The only difference in OSCE is time allocation; whereby two minutes is allocated for task comprehension and eight minutes is dedicated for the examination session. Candidates found that the two-minute break is extremely valuable. Examinees were able to organize their thoughts and recuperate from the previous station, if they had performed unsatisfactorily.

In students' view, the tasks given in OSCE stations were not in depth for a particular disease or topic as compared to long case examinations. However, the lack of depth is compensated for by the theory examinations. For example, even if some but not all OSCE stations do not ask for investigations or even management, such questions can be asked in the theory examination. Written examination in a clinical context assesses the 'knows how' level, while OSCEs assess the 'shows how' level. This encompasses the communication and clinical skills, hence, substituting an OSCE for a traditional long case has changed the direction of students' learning (Schoonheim-Klein et al., 2006).

USIM students rated OSCEs as stressful and they were nervous sitting for the examination. The OSCE was proven to be the most anxiety-provoking assessment method and students prepared more for the OSCE in comparison to other types of examinations. The expectation to succeed was also higher for the OSCE. A study done in a dental faculty found that the state of anxiety during the OSCE was associated with the level of preparation but not with scores obtained (Brand & Schoonheim-Klein, 2009). Therefore, measures were taken by the faculty to reduce the examination induced anxiety. The end of rotation examination was done in OSCE manner, so as to give a glimpse on the real final examination. Feedbacks were obtained from the candidates after the examination and improvements were made by the faculty which were materialized during the final OSCE. A good example is the one minute reminder during examination. It was absent at the end of OSCE rotations but present in the final examination. Besides that, students were briefed about the running of the whole examination system; starting from the examination layout up till the COVID-19 guideline for examination. This has reassured the students with regards to their health safety throughout the examination week.

Students' preparation

Although it is generally assumed that assessment drives learning, this relationship has not been much studied in medical education, possibly because it is highly context dependent (van der Vleuten & Schuwirth, 2005). The challenges that students faced were the change in examination method, as they were used to long and short cases. The issue was tackled by conducting OSCE simulations repeatedly by the lecturers and provided references for the students to practise among each other. Revision sessions were done in person or online via applications such as Microsoft Teams, Google Meet or Zoom. Students were mentally prepared for the examination to avoid delay in graduation.

Mock OSCEs and Peer-assisted Learning (PAL)

Mock OSCEs have been conducted by the USIM lecturers and also as part of peer-assisted learning (PAL). PAL is defined as teaching occurring between fellow students of a similar age and educational background. PAL has been shown to improve tutees' medical knowledge, confidence and self-esteem, alongside the provision of significant social and psychological support. This allows the students to gain OSCE experience whilst receiving structured feedback. Besides that, the peer-assisted mock OSCE also allows tutors (peer) to gain valuable teaching skills (Young et al., 2014; Emery & Rose-Innes, 2017).

While learning remotely at home, students' family members also took the role of simulated patient. This enables the students to practise their physical examinations and history taking techniques. The

training and practice for OSCEs hone students' communication and interpersonal skills, hence leading to improvement of healthcare delivery by building trust with the patients (Hojat et al., 2010).

Online learning

Previously online revision classes were regarded as impossible, as medicine was deemed to be more beneficial to learn via face to face. However, due to the unprecedented event, students and lecturers were able to adapt to the online revision classes. This allows greater flexibility for both lecturer and students to have the class virtually at any time. The COVID-19 pandemic has necessitated adoption and implementation of already available technologies in medical education. In many institutions, Zoom and similar video conferencing platforms like Microsoft Teams have now replaced the in-person lecture-style and small group meetings (Almarzooq et al., 2020). These applications have been previously underutilized as there had been no such dire necessity to it. However, the pandemic has significantly expanded users of these software (Warren, 2020). At our institution, a combination of Microsoft Teams, Zoom and Google meets has facilitated continuous educational activities.

Prior to COVID-19 pandemic, many online applications had been used informally among the students for medical education. Among the USIM's candidates, the group chat application namely Telegram was used for both sharing of medical knowledge and collaboration. Globally, the social media platform such as Twitter continues to be an important outlet for many physicians to both learn and disseminate information. While these tools provide a useful virtual and social outlet for medical education, they often lack the depth and organization to reliably implement an educational curriculum (Jalali et al., 2015).

Regardless of the seniority among the faculty members, everyone has adapted to online learning. There has been a strong sense of appreciation towards these clinicians who are both working during the COVID-19 Pandemic yet still finding time to teach. Undeniably, the candidates agree that learning from the predecessors is a valuable and essential way to learn and progress (Ralhan et al., 2012).

4. Reflection

The final undergraduate examination was able to be carried out during the recovery movement control order (RMCO) as Malaysia was finally able to flatten the curve and where the number of COVID-19 cases was reduced (Ministry of Health Malaysia, 2020). After the examination, there was no reported case of COVID-19 infection from those who were involved in the OSCE examination. This shows that strict adherence to implemented guidelines and adherence to protocol makes it possible to conduct a high-stake examination without causing any outbreak of COVID-19 infection.

Nonetheless, the rising cases of COVID-19 globally since October 2020 which can be seen in Malaysia as we are facing the third wave of the pandemic have resulted into a huge difference within the medical education delivery system and examination. We have to further embrace the normality of online learning and familiarize ourselves with online assessment. However, the advantages and disadvantages of an online learning and assessment needed to be weighed thoroughly. Possibly

needing to conduct the examination fully online is a huge paradigm shift (Khalaf et al., 2020; Alshammari, 2020). Such a method of fully online examination might need to be considered for the future, as the current COVID-19 situation remains unpredictable and fluctuating.

The COVID-19 pandemic acted as an impetus for USIM to change the method of clinical assessment from traditional long and short cases to OSCEs. The development of the OSCE with its emphasis on patient participation, standardization of examination materials, patient scenarios and scoring represent multiple advantages over traditional unstructured ratings of clinical performance. Students were able to fully showcase their knowledge during OSCE. On the other hand, online assessment, as well as online learning is a new norm that the faculty has been gracefully adopting. These have caused a huge catalyst of medical education delivery for the next generation of medical students in USIM. Allah says in Surah al-Baqarah: “You may dislike something although it is good for you, or like something although it is bad for you: God knows and you do not.” (Al-Quran 2: 216).

5. Acknowledgement

The students applaud the effort and hard work of the examiners and staff on successfully conducting the undergraduate final examination to ensure that students can graduate on time.

6. Declaration

Nour Hanan Daniah Mohd Bakhit & Ahmad Anwaar MS are the final year undergraduate students who sat for the exam. Both participated in collecting information, formal analysis and writing. Ruhi Fadzlyana Jailani is the lecturer involved in coordinating the examination, contributing in conceptualization and editing the manuscript. All authors read and approved the final manuscript.

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