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Consequences and Adaptations in Medical Education during the COVID-19 Pandemic: Medical Students' Perspective in a Malaysian Public Institution

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Abstract

The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has become one of the most disastrous health crises of the present world. The COVID-19 pandemic imposes unprecedented challenges for medical education globally. We describe how the pandemic has disrupted the medical education landscape from the students' perspectives and how medical students from a public higher institution adapted to the changes made to comply with the various government agencies' guidelines to contain the spread of COVID-19 while fulfilling the course requirements. The utilisation of numerous innovative online applications enabled the students to participate in numerous teaching

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and learning activities (TLA) with more flexible scheduling of the classes, participated in a series of online case-based discussions, clinical practice guideline (CPG) discussions, case presentations and objective structured clinical examination (OSCE) simulations. Students also joined TLAs conducted by other institutions both locally and abroad. In addition, students had collaborated among themselves and students from other institutions to conduct online peer-teaching activities. Perhaps, the main challenges for online classes were being unable to perform medical procedures and technical issues, commonly the poor internet connectivity. In regard to physical examinations, students performed it on members of their household instead of real patients. Learning medicine from a distance also gave us an opportunity to taste telemedicine which may be the future of medical practice. Students and academics should be adaptive, resourceful and resilient in facing these changes together. The institution needs to look at all stakeholders' perspectives to respond to the changes in the medical education landscape.

***Keywords**: COVID-19, Medical education, Teaching and Learning Activities*

1. Introduction

The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) was first detected in Wuhan, China, but it may not be where it originated. The World Health Organization (WHO) reported that the first infection of SARS-CoV-2 was diagnosed in China in December 2019. However, antibodies to the virus have been found in blood samples taken as early as September 2019 in Italy, which shows an unexpected very early circulation of SARS-CoV-2 among asymptomatic individuals in Italy several months before the first patient was identified (Apolone et al., 2020). The infection spread to other countries, and WHO declared the outbreak as a Global Public Health Emergency on January 30, 2020, as it became a global threat. Countries worldwide have used different strategies, such as epidemiological studies, isolation of diagnosed cases, and school closure, to prevent and contain the disease's spread (The World Health Organization, 2020). This paper will share our experiences on how COVID-19 affected our training as final year medical students and how we navigate the uncertainties with guidance from our lecturers. All the measures taken by the faculty are to ensure the continuity of medical education amidst the COVID-19 pandemic while preserving the quality of its medical graduates.

2. Our Experience

As final year medical students from Universiti Sains Islam Malaysia (USIM) whose final professional examination was just around the corner, we were entering our medical school's last rotation when the second wave hit in March 2020. All learning institutions were instructed to close. Teaching and learning activities were put to a halt, and students were permitted to return to their respective homes. As clinical year students, the usual learning activities consisted of long case discussions, short cases or bedside teachings, seminar presentations and CPG discussions. Besides, we also had logbooks to fill in for standard procedures skills, which we would observe, assist or perform to meet the competency level. The pandemic has impeded us from conducting these activities, and improvisations were made. The extent of academic activities was determined mainly by the government's guidelines, which depends on Malaysia's current COVID-19 pandemic situation. We continued learning via online classes and eventually returned to our clinical placements.

3. Improvisations and adaptations

Case-based Discussions

Since we could not see real patients, as usual, the case presentations and discussions were replaced by online case-based discussions. Students were divided into groups of 10, where they would be given triggers for every session. They were then asked to list the relevant questions, expected clinical findings, investigations and management, all of which are the usual components of long case discussions. Each session was conducted for 2 hours which was done on weekdays with different lecturers covering common cases in various specialities. The 'screen sharing' feature is an essential part of all online classes, and it allows all participants to share questions, related diagrams or excerpts. We also did virtual consultations with simulated patients. As for all online sessions, students benefit from time and money as they do not need to commute to their campus or clinical attachment centres.

Physical Examinations

Since students were unable to practice on real patients, we took the initiative to perform physical examinations on our household members. We practised and recorded the sessions before submitting them to the online platforms or performing physical examinations in front of the camera while being observed by the lecturer and classmates. This allows the lecturers to correct our techniques and give feedback. Video footage of physical signs would also be played for students to interpret. The seemingly greatest challenge is the suboptimal replication of patient encounters experienced during the undergraduate medical education years. Although case simulations and virtual standardised patients can provide training for physical examination and clinical reasoning skills, these activities are generally supplementary rather than a replacement of in-person teaching.

Clinical Procedures

Previously, we were given logbooks to fill, where we would observe, assist or perform standard procedures in the hospital. When clinical attachments were suspended, clinical training was replaced by videos, articles and other relevant materials and sources provided by the lecturers. Students were instructed to read the articles and watch the video and complete the tasks provided. The tasks consisted of answering the indications, contraindications, steps of the procedure, complications, and pre-and post-procedural care. These assignments replaced our logbooks as part of our continuous assessment marks. We find that this learning method ensures that students cover the standard procedures' essential points by answering and having them reviewed by the lecturers. It is more in-depth than the learning points that we fill in our logbooks. Secondly, watching videos enables students to get a clear view of the procedure. Unfortunately, the downside for this is that students could not perform even simple procedures such as inserting a branula or urinary catheter, all of which requires practice. This might take a toll on us when we start working in the future.

Seminar presentations

Seminar presentations have been part of the curriculum, and it is always done face-to-face. Because of the pandemic, lecture hall-based seminars were conducted online, with the same division of students into groups and assignment of various topics. Presentations were done via Microsoft Teams, and as for most online classes, the sessions were recorded. Since the presentations are displayed on each of our devices, it is easier for us to see every point and detail shown. As compared to in person seminars, those who are sitting at the back row may have problems hearing or viewing the presentation.

Clinical Practice Guidelines (CPG) Discussions

Over the past years, the Ministry of Health (MOH), Malaysia, has published many clinical practice guidelines (CPGs) for common diseases from various specialities. These serve as a guideline not only for practising clinicians but also students. CPG discussion is an initiative where students were given one or two cases each week, each with its related CPG, and were asked to discuss the case. Discussions include the differential diagnoses for the chief complaint with points for and against, relevant investigations, and management. According to the CPG, students were instructed to compare the management given and ascertain whether it is appropriate or not and tally with the recent evidence in the CPGs. This method of active learning helps us to remember better as we compare different management plans.

Academic Supplements

Lecturers and students shared and participated in various online initiatives. For example, Universiti Malaya (UM), through its Universiti Malaya Medical Society (UM MedSoc), made an initiative called ''Case-by-case basics'' where specialists would discuss common cases in their respective specialities with students via Microsoft Teams. Examples of cases discussed are 'Breast Tumours' by a breast surgeon and 'Rheumatological Diseases' by a rheumatologist. This gives us the opportunity to learn from other institutions, and to practice and add up to what has been taught in our own institution.

Teaching and Learning Activities (TLA) Among Students

Students also participated in peer teaching and learning activities (TLA). One example includes 'Consultoid', an initiative by students of International Medical University (IMU), where students may sign up and teach any clinical topic of their choice. The common or 'must know' cases have been discussed. USIM's Medical Student Club (MSC) has launched a similar initiative named 'Brainify', where clinical topics are discussed and preclinical ones. This acts as a trigger for students to revise before, during, or after the TLA sessions. It is also a platform for students to exhibit themselves as a tutor or peer coach to teach and lead discussions with various individuals, contributing to their leadership skills and teamwork.

Internet Connectivity

Despite various ways to optimise virtual medical education, including muting the participant when necessary to minimise background noise, adjusting the camera to the eye level and finding a quiet

area, one of the most critical factors that allow a smooth and pleasant online experience is the internet connectivity. Some students have excellent internet connectivity, while others have poor connectivity. This depends on various factors, including the students' geographical location, the service provider, and socio-economic and financial background (Nicola et al., 2020). The students had to depend on on-at-home wifi or purchasing a new sim card to subscribe to another telecommunication company with the best coverage in their area. Even so, this did not guarantee a satisfactory experience with online classes. Globally, Malaysia ranks 94th in terms of internet speed with 23.74 Mbps, half of the global average of 46.74 Mbps (Speedtest, 2021). Malaysia falls behind its neighbours, including Singapore, Thailand, Brunei, the Philippines and Vietnam.

Clinical Electives

As part of its curriculum, USIM medical students have attachments to general practice (GP) clinics for two weeks and a hospital of their choice for one month. The general practice clinic was replaced with a fully online session for two weeks, where USIM worked together with some private clinics to conduct virtual clinic visits and relevant discussion. As for the hospital's elective posting, foreign elective placements were cancelled, and they were left with only limited choices even among local hospitals. Some students only had the option of doing an attachment with USIM lecturers instead. This is unfortunate as they could not gain the new experience from other healthcare centres with a different setting, including international ones.

Returning to Clinical Placement

After flattening the second wave, Malaysia shifted into the recovery phase of the MCO on June 10. Social distancing measures were carefully eased, and we were reassigned to clinical placements. This marked the start of our blended learning, with part of the face-to-face interaction remaining online. A certain degree of social distancing was still in place to reduce student numbers in the ward and COVID-19 transmission, where students were divided into smaller groups and even took turns to go to the hospital. The skills we have developed during the COVID-19 pandemic through online teaching ensured a fluent return to placement.

Assessments and Evaluations

We had no prior experience with online assessment, and fortunately, Malaysia was then in the recovery phase of the MCO, which allowed us to sit for face-to-face examinations. Significant and unprecedented adjustments to the examination format were made, particularly to the clinical part. Previous student cohorts sat for one long case and three short cases in the exit examination's clinical component. For the short cases, students had to perform it consecutively without any rest in between cases.

In contrast, the long case and short cases were replaced with 16 OSCE stations for two days. Each day consisted of 8 OSCE stations and two rest stations. It encompassed all the postings which had gone through throughout our clinical years. The stations included history taking, clinical examination and explanation/advice skills being tested, clinical decision-making, diagnostic acumen and management planning. Administration for the examination adhered strictly to the government's guidelines, including taking and recording individual temperature on arrival, the

physical distancing of 1 meter, and wearing masks and using hand sanitisers. The examination was conducted successfully with no reported case of COVID-19 infection.

As the first cohort of USIM medical students who had OSCEs instead of the usual long case and short cases examination for the high-stake examination, there were several things that we could appreciate. Firstly, we view 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 standardised and minimise any biases which may arise from the questions, patients or even examiners themselves (Taşdelen Teker & Odabaşı, 2018) besides, clerking station in the OSCE's trains us to be economical with our time spent with the patient. Also, unlike long cases, the history-taking process is observed, and the examiners can assess the student's communication skills.

OSCEs stations for clinical examinations are similar to the short cases that were previously done. One difference is that in OSCEs, we were allocated 2-minute breaks in between to read the questions and 8 minutes to carry out the tasks given. The 2-minute was a valuable period for us to organise our thoughts and mentally recover from the previous station if needed.

4. Conclusion

Students and academics need to be adaptive, resourceful and patient in facing these changes together. The institution needs to look at all stakeholders' perspectives to respond to the changes in the medical education landscape and rise to the occasion. When used optimally and despite their inherent limitations, virtual tools can be used by both learners and educators even to make online teaching better than face-to-face teaching. The flexible and asynchronous nature of online education will continue to play an essential role in changing the landscape of medical education. In the face of the COVID-19 disruption and high stake examinations, it is crucial to support their educational, physical and mental well-being. Free, readily accessible virtual services such as medical counselling can be provided to them by medical staff representatives and professional health experts such as psychologists and guidance counsellors. The future with COVID-19 remains unpredictable, and it would be prudent for us to prepare for a fully online assessment. Internet connection is a major enabling factor that needs to be scrutinized to optimise the online experience. The government and other relevant organisations should make investments to ensure the quality of these services.

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