

Planning and facilitating remote objective structured clinical examinations (OSCEs) for wound care students in South Africa during the COVID-19 pandemic

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The advent of the COVID-19 pandemic precipitated challenges which most of Africa was not ready to deal with, especially within higher education institutions, and severely impacted health professionals' education (HPE) because of the extensive clinical component involved in HPE.

Problem

Before COVID-19, a group of four lecturers would travel to the various provinces to facilitate objective structured clinical examinations (OSCEs) for the wound care students of the School of Nursing, University of the Free State (UFS). The original method of facilitation proved beneficial for students, as they did not have to travel. The lecturers hired a vehicle and were booked into the most cost-effective accommodation, taking into consideration the distance from the venue where the OSCEs were held and the cost of the accommodation. The original method had cost implications for the UFS as all facilitators had to travel and be housed near the venue where the OSCEs would take place. During the COVID-19 pandemic, this proved to be problematic as financial constraints, combined with travel restrictions, limited travel opportunities.

Intervention

The problem mentioned above led to the conception and execution of a possible solution, which was to send a technical expert with a valid travel permit to set up and stream the OSCEs to the facilitators at the School of Nursing, UFS. The technical expert utilised cameras that had initially been used to stream simulation sessions at the School of Nursing. This seemed to be a viable solution as it did not impose additional equipment costs. Sending one person instead of four reduced travel and accommodation expenses as well.

For the intervention, the technical expert used Logitech C910 web cameras (Logitech, USA) and a KbPort portable streaming tool (a laptop with software aimed at streaming simulation sessions) (KbPort, USA). These were connected to a Blackboard Collaborate session (Blackboard Collaborate is an online platform used to engage with people anywhere there is an internet connection, similar to Zoom or Skype). The evaluators could ask questions and evaluate the students remotely, using the link provided.

Original process

The intervention differed widely from the original method of facilitation. The original process made use of two OSCE stations. Students were given an ankle-brachial pressure index (ABPI) value at the first station. The ABPI value is the ratio of systolic blood pressure, measured at the brachial artery of the ankle and then divided by the highest systolic pressure taken

from the arms. The ABPI helps determine whether the patient has any underlying peripheral arterial disease.^[1] The students had to interpret and apply the correct pressure bandage system for the given ABPI, e.g. a four-layer or short stretch bandage system. At the second station, they had to take patients' ABPI value and interpret it. The students had to rotate between the two stations. The students would wait their turn and move in two at a time, one per station. Each station had two facilitators to assess the students. Students were given 20 minutes to complete the procedure at each station.

New process

For the intervention, still referred to as an OSCE, there was only one station at which students were asked multiple questions. Students were instructed to arrive at their appointed times, and were kept separate in a waiting area before participating in the assessment. There was one facilitator on site with the technical expert and two evaluators who dialled in remotely. The onsite facilitator was a wound care expert who was responsible for the region in which the wound care students reside. The OSCEs were conducted at the onsite facilitator's respective wound clinics. The station was sanitised between each student's arrival, and the technical expert, the onsite facilitator and the students wore surgical masks for the entire duration.

The onsite facilitator presented the student with a set of cards from which a card was blindly selected. There were four cards. The first card prompted them to take the patient's ABPI value and interpret it. The second card gave an ABPI value of 0.7 mmHg, which prompted the student to select and apply a short stretch bandage system. The third card gave an ABPI value of 1.2 mmHg, which was meant to prompt the student to apply a four-layer compression bandage system. The last card had a value of 0.8 mmHg; this could have been interpreted either way because the value is a borderline case, so either modified or full compression was accepted, depending on the ankle circumference of the patient (an ankle circumference of less than 18 cm meant that modified compression must be used). Students were given 20 minutes to complete the task assigned to their cards. Once the student had completed her task, she was questioned and asked to interpret various aspects of different ABPI values.

The OSCEs for wound care students are conducted once at the end of the year. The assessment tools and guides remained the same as the previous years' as they were approved tools which were created and moderated to the appropriate standards of the relevant regulating authorities in South Africa.

Reliability of the mark allocation depends on the instruments used. Because the tools were not changed for the remote assessment, they were accepted as reliable. Validity, on the other hand, lies more with the evaluators than the tools.^[2] To promote validity of the final mark, the onsite

facilitator assessed the students together with the two remote evaluators. The trio compared their scores after each student procedure and deliberated on aspects such as tightness of the bandage, which was not available to the remote evaluators. Only after comparison and consultation with each other was the final mark assigned, and the student given feedback on the procedure.

Lessons learnt

During these endeavours, various lessons were learnt:

- The first and foremost was that it is not easy to adapt to such big challenges, but it is necessary to ensure the continuation of education.
- Sending one person instead of three or four is a more cost-effective alternative and is viable even during non-COVID-19 times.
- Financial constraints are a major concern; therefore one must use what is available and improvise to avoid unnecessary costs.
- One of the major positive aspects was that of cost reduction when compared with the previous method of in-person OSCEs. There were, however, some drawbacks. In some cases, it is not always easy to ensure a stable internet connection, but a backup plan was put into place when the connection failed. This necessitated a switch to mobile devices, which did not yield the same effect as the multiple camera approach. The mobile device also incurred additional costs as mobile data is more expensive than fibre counterparts. For the remote facilitation sessions, the stream rate was set not to exceed 750 megabytes per hour (MBph).
- The sites chosen for the sessions had dedicated fibre connections, the first of 20 megabits per second (Mbps) and the second 10 Mbps, which was adequate to maintain the level of streaming. (To obtain the number of MB per second the Mbps should be divided by eight, i.e. 20 Mbps / 8 = 2.5 MBps). During some of the remote sessions, technical issues were experienced, such as a drop in internet connection, which sometimes occurred on both sides. This required immediate intervention from the technical expert. An amount of 2 gigabytes (GB) was available in total for mobile streaming, of which a total of just over 1 GB was used during interventions required to continue the streaming service. If additional data were required, the finance officer at the institution would assist in purchasing it beforehand.
- The technical issues encountered put significant stress on the facilitators, the technical expert and the students, as the OSCE had to pause while the issue was being attended to. The technical expert tried to address problems as fast as possible, while facilitators might get impatient and students might stress even more; these situations were, however, kept to a minimum and students were provided with additional time if a technical glitch occurred.

- The experience overall was good according to students and facilitators; however, a face-to-face approach was still preferred by some, as in-person feedback was something that some students wanted. The ideal would have been to have had more than one station and to have students perform procedures at both stations. This, however, was not possible in the COVID-19 climate because of restrictions in place. The endeavour did, however, provide very useful insight into what could be used in future.
- Some aspects can be retained for the future. Sending a technical expert to facilitate a virtual OSCE is much more cost-effective than sending a team of assessors. This did, however, raise the question of whether students are comfortable with this approach or prefer an in-person facilitator. This requires future research to determine the effectiveness of student engagement.

Conclusion

The COVID-19 pandemic demonstrated that there are always innovations and methods of teaching and learning waiting to be discovered that we may not previously have thought of, but will assist in future teaching and learning activities.

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Evidence of innovation



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