ORIGINAL ARTICLE

Impact of Coronavirus Disease 2019 Pandemic on Providing the Objective Structured Clinical Examination: A Faculty of Pharmacy Guidance

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Abstract

The outbreak of the Coronavirus 2019 pandemic presented a challenge for every Faculty of pharmacy that conducts objective structured clinical examinations throughout the academic year. It is necessary to ensure that pharmacy students are well-trained and prepared to enter the clinical workforce during the crisis caused by this pandemic. Due to the pandemic, the Faculty of Pharmacy at King Abdulaziz University embraces the challenge of ensuring that the upcoming pharmacy students will complete their academic year requirements, including the objective structured clinical examination. This paper provides details of how the objective structured clinical examination was designed and managed during the coexisting Coronavirus 2019 pandemic. It also assists other faculties of pharmacy that need to plan objective structured clinical examinations to ensure the validity and reliability of performance assessments while protecting the safety of all participants.

Keywords

Saudi Arabia; Objective structured clinical examination; Pharmacy education; Clinical examination; Pandemic; COVID-19; Simulation; Clinical skills assessment; Performance assessment

Introduction

In early March 2020, the Saudi Ministry of Health confirmed the first Coronavirus disease 2019 (COVID-19) case in Saudi Arabia followed by a partial and then a complete lockdown. By late June 2020, Saudi Arabia announced the end of the lockdown and coexistence with the COVID-19 pandemic by emphasizing several safety precautions, including wearing face mask, continuous hand washing, and maintaining social distance.

Based on that, King Abdulaziz University-Faculty of Pharmacy (KAU-FOP) started to plan for the upcoming academic year and overcoming the challenges that can affect the education and training processes during the COVID-19 pandemic. One of these challenges is conducting the objective structured clinical examination (OSCE), which is a requirement for the fourth- and fifth-year pharmacy students that occurs once in each semester. Objective structured clinical examinations are hard to organize, require long times, and demand many materials and personnel[1].

Regarding the arrangement of the OSCE exam, many modifications should be put into consideration to accommodate the coexisting COVID-19 environment.

The objective of this paper is to provide an overview on ways to implement OSCE as an assessment method for pharmacy undergraduate students and to ensure the validity and reliability of performance assessments after considering the safety precautions for the coexisting COVID-19 pandemic.

OSCE Orientation

Orientation about OSCE is essential to everyone involved in the exam for the first time, including students, station writers, organizing teams, standardized participants (SP), and evaluators[1]. It is useful for providing a detailed explanation about the OSCE process through a presentation and video to illustrate what students and examiners should do with continuous emphasizing safety precautions for the COVID-19 pandemic. Also, it is useful to provide students with OSCE guides, which could include the definition of OSCE, a map of the venue in which the exam will take place, and the objective learning outcomes of the courses included in the OSCE. In addition, the guide should contain written instructions and regulations for the OSCE exam and a rubric (Tables 1 and 2, respectively) that indicate a description for each skill and the marks for each component.

Since the venue has a critical role for conducting the OSCE, the Vice Dean for Training and Pharmaceutical Services at KAU-FOP collaborates with the Clinical Skills and Simulation Center (CSSC) at King Abdulaziz University Hospital for conducting pharmacy OSCEs.

With the global outbreak of the COVID-19 pandemic, protection and cautionary procedure have become mandatory in all education and training settings. All participants should maintain protection procedures, including a face mask, hand sterilization, and social distancing.

The Exam Materials

A group of station writers will be assigned to prepare the exam materials. OSCE stations will be planned to measure soft skills such as communication, attitudes, and professionalism, together with the clinical tasks pertinent to that station. It takes time and effort to prepare the exam materials for OSCE stations; where creating an examination blueprint would be the first step.

Table 1. Objective structure clinical examination student rules

Student Instruction Rules During OSCE Exams
General Rules - Students must be punctual. If you arrive late, you may deny entry to the examination. - Students should have their university identification card only and identification stickers, which will be provided by the OSCE organizer team on the day of the exam inside the examination area. - Students are not allowed to bring any item, including a bag, paper, and calculator into the exam room. - Students must read and sign a confidentiality and non-disclosure agreement provided on the morning of the examination. - Beverages and food are not allowed in the examination room; refreshments will be available in the pre-exam rooms. If a student requires medicine during the exam, you must inform the OSCE coordinator before entering the examination area. - The OSCE organizing team will guide you in the examination area; you must follow their instructions. - If a student does not show up for the OSCE, no retake exam will be given.
Before entering the examination room - A security check is required to proceed to the examination area. - Students will be required to empty all pockets before entering the examination area. - Mobile phones and other electronic devices, such as smartwatches, will not be permitted.
During the examination - Students must not attempt to communicate with other examinees, exam organizers, or evaluators. - Remain in your station until you hear "proceed to the next station". - Students must exit the room when the five-minute exam period is over.
At the end of the examination - Students are not allowed to leave the examination room until instructed by the OSCE organizing team.
Special Precautions - Maintain the protective procedures, including face mask all the time, and hand sterilization. - Always keep social distances of at least two meters and in the quarantine area. - Avoid large group gatherings and socializing before and after the exam.

OSCE: Objective Structured Clinical Examination

Table 2. Objective structure clinical examination rubric scale

Skills	Done (1 pts)	Inadequate/ not performed (0 pts)
Communication and Ethical Skills		
Introduction	Student introduce him/herself and their title	Not performed
Verbal	Communicate using appropriate language, volume, rate, and vocabulary	Inadequate
Nonverbal	Used nonverbal communication effectively (good eye contact, professional dress)	Inadequate
Manners	Effectively responds to SP needs and concerns, and ask if SP has Questions	Inadequate
Taking Medication History		
Medications	Medication: All Rx, OTC, and herbs. How much, for what, how long, and adherence	Not performed
Allergies	Allergies: When, to what, what happens if exposed to allergen	Not performed
Lab. Interpretation		
Labs/Diagnostic Tests	All appropriate labs, culture, and radiologic tests noted	Inadequate
Physical Assessment Skills		
Interaction	Able to get detail information needed for assessment	Failed to get information for assessment
Patient Assessment	Able to perform accurate blood pressure and heart rate measurements	Failed to perform the assessment
Overall Assessment	Able to give an excellent analysis and understanding of the patients' problems	Unable to give an explanation
Therapeutic intervention and problem solving		
Problem-solving skills	Able to identify and suggest appropriate solutions to a problem	Failed to identify the problem
Plan/ Intervention	Able to determine the appropriate treatment medication, dose, frequency and duration	unable to provide the appropriate treatment
Patient Education		
Pharmacological Counseling	Educate patient about their treatment with full details and show how to use medical devices to administer the medications if applicable	Inadequate/ Not performed
Non-pharmacological counseling	Educate patient about lifestyle, smoking, diet	Inadequate/ Not performed
Monitoring Drug Therapy		
Parameters	Lists monitoring parameters	Not performed
Appointment	Informs patient that they need to make an appointment for follow-up with appropriate time	Not performed
Providing Drug Information		
Give information	Communicate clearly any explanations about any concerns	Unable to provide an explanation
Calculation skills		
Calculation	Able to do it correctly and use the right unit/conversion to present the answer.	Inadequate/ Not performed.

SP: Standardized Participant, Rx: Prescription medication, OTC: Over-The-Counter-medication

Table 3. Objective structure clinical examination template

Skills \ Course Block		Course Block Doctor Name	Course Block Doctor Name
Topic Title			
Station #		*1*	*2*
A	Communication & ethical skills		
B	Taking medication histories		
C	Physical assessment skills		
D	Lab. interpretation		
E	Therapeutic intervention		
F	Patient education		
G	Monitoring drug therapy		
H	Providing drug information		
I	Calculation skills		

Exam Blueprint

The examination blueprint guided by the faculty program learning objective would be a suitable starting point to identify the curricula for writing OSCE stations[2]. The competencies in OSCE exams should align with the teaching and learning outcomes[2]. The blueprint will ensure that all essential skills are assessed and distributed across the stations properly[3].

The exam blueprint is made by creating a table with one axis demonstrating skills needed to accomplish; such as history taking, communication skills, physical examination and management planning, while the other axis illustrates the conditions covered in the course curriculum (Table 3)[2].

Exam Documents

Once the exam blueprint is complete, stations can be developed and assigned. Faculty members teaching the courses can distribute the stations among themselves to participate in the preparation process.

All station writers need to prepare several documents related to their stations[3] and then decide a time to allow for a review of all stations by the OSCE coordinator[3]. Station writers must be aware of the fundamental principles of the OSCE to produce appropriate work[2]. A concise orientation meeting would be scheduled for people new to this field.

Upon determination of the topics of the station, the station writer will be provided with a pre-designed template to fill[2]. The template consists of multiple pages as shown in Table 4.

a. Station profile

This page holds the identification of the characteristics of the station in the item bank[3]. It includes the conditions (such as a case of hypertension) presented in the station in addition to the tested domain and competence tested (therapeutic intervention)[3]. The documentation should also specify the overall course learning and specific learning outcomes from the selected topic. Moreover, it sheds light on the most appropriate item for skill demonstration, whether it is an SP or a model/mannequin[3].

Information detailing the resources needed for the station should include the room furniture, such as a desk, two chairs, and a mannequin[3]. All equipment must be addressed preferably at least two weeks before the scheduled date of the examination[3].

Table 4. Objective structure clinical examination student rules

Page Title	Content
Station Profile	Academic Year-Student Level-Course Name Competences/skills: *(from OSCE blueprint)* Topic: *(from the course syllabus)* Course Learning Outcome: *(from course specification; course overall learning outcome)* Student Learning Outcome: *(from the lecture)* Station #: *(will be filled by OSCE course coordinator)* Station duration: 5 minutes Station Requirements: *(Resources and Equipment needed)* Setting up the station: *(specify if a specific arrangement of objects is needed)* SP Type*: (example healthcare provider or patient) **Please specify if specific gender is required* OSCE Case Writer: *(faculty member who designed the case)*
Direction to Student	Who and where they are Scenario Information: *(The information for the students about the station.)* Patient Information: *Example: Name, Age, Gender, Social History, Family History, Radiology-Lab (provide reference value sheet), Medication(s).* Task: *(These are the skills to be demonstrated by the students)*
Directions to SP	Who they are SP Name: specify if specific gender is required. Scenario Information: (summary of the case) *(This section is similar to 'Scenario Information?' written in Direction to Student.)* Opening Statement: (*Should be concise and focused on the purposes of the station)* Dialogue expected: (optional) *Specific standardization issues (specific answers to specific questions. This information could be vital if the students expected to ask some questions)* Prompts Questions *(Specific questions the SP must ask in each encounter if not covered by the student)*
Topic Checklist	Station Number-Student Name-University identification card *(Use student's identification sticker)* Instructions: *Mark the score for each row then add up all the total points for the final score. Refer to the rubric provided in the folder for more details.* Required checklist information*: Based on Rubric* Scores Evaluator Comment Evaluator Name and Signature

SP: Standardized Participant, OSCE: Objective Structured Clinical Examination.

b. Direction to Students

This form provides the students with pertinent information regarding the case that they are required to solve with a concise task. Each student will have this form attached to the table in front of him. The students are not allowed to write or scratch on this form at all. This form will contain the case scenario in a standardized format with concise information that helps the student understand the required task, considering that the student will have five minutes until the end of the station time, so the form should not be too detailed or too short.

c. Directions to Standardized Participant

This form provides the SP with the pertinent information regarding the case that he/she is required to simulate. It shows the demographic data of the case and case scenario for the narrative dialogue with students. The SP should be able to deliver a clear and concise simulated condition.

d. Station Checklist

This form provides the evaluators with the pertinent assessment points required by the station writers to facilitate exam scoring. We intend to focus on the students' use of a patient's lay language versus medical terminology rather than the fluency of the English language.

Stations Refinement and Calibration

The OSCE coordinator should make sure that the task is objective, feasible, and that the suggested time is applicable. The OSCE coordinator may ask station writers to explain the components of the station to decide whether to accept or modify them if needed, which means asking the writer to make revisions[3]. The completed forms will be archived later to generate station banks.

Organizational Structure

The Educational Pharmacy Practice Unit in KAU-FOP is responsible for coordinating and organizing the OSCE. A successful OSCE depends on precise planning that leads to a well-structured administration management process. The key to a successful OSCE is to distribute the roles and assign responsibilities.

OSCE Coordinator

The OSCE coordinator should have various characteristics: (1) Strong motivation, (2) Well connected to resources including the Faculty Administration and Clinical Skills and Simulation Center (CSSC), and (3) Be able to communicate well and create a team spirit[3]. The coordinator is responsible for many tasks; one of which is organizing the implementation of the exam. Furthermore, he/she is responsible for overseeing the development, organization, administration, and coordination of the whole examination process from planning to, eventually, writing a final report [3].

An exam to-do-list detailing all tasks with deadlines would help keep track of every issue or matter and not overlooked (Table 5)[3]. Some of the administrative responsibilities for the OSCE include, but are not limited to, several steps:

1. Provide an orientation to all taking the OSCE for the first time.
2. Set up a schedule and book the venue using the CSSC utilization form.
3. Approve the test blueprint for each course involved in the OSCE.
4. Arrange a first meeting at the beginning of each term to assign tasks with deadlines to each individual involved in the exam.
5. Send frequent follow-up reminders to oversee the progress of assigned tasks and troubleshoot issues without delay.
6. Review the station construction with the blueprint for each course.
7. Offer suggestions for station revisions.
8. Complete the CSSC checklist forms two weeks in advance.
9. Arrange a visit of the venue before the exam date for a final check-up.
10. Develop the OSCE plan and timeline; session start times, breaks and session finish times.
11. Inform the students about the instructions with the exact time and location of the exam.
12. Prepare paperwork, including station signs and direction labels in addition to station information.
13. Photocopy exam document.

Table 5. Example of objective structured clinical examination "Logistics" To-Do List

Task	Due	Comments	Result
Schedule a time to explain and introduce the OSCE concept to first-time OSCE students		Present a PowerPoint and video lecture. Provide OSCE student's guide	
Develop an OSCE plan and timeline			
Assign SP leader to gather names and contact number of intern's volunteers for OSCE			
Complete and send the checklist required by CSSC		Two weeks in advance from the exam date	
Visit CSSC to check about station requirements'			
Prepare first draft tables for evaluators distribution and send it to the Vice-Dean.		The faculty member who wrote a case will be evaluator on the same exam day of this station.	
Prepare the final version of evaluators and SP distribution.			
Contact Vice-Dean to arrange for hospital housekeeping to help CSSC before the day of the OSCE exam.		Contact housekeeping	
Send a letter to the hospital security service.			
Prepare and print students' identification stickers			
Provide fourth and fifth student's leader with exam timeline (Day-Date-Time)			
Prepare and share tables for grading through Excel shared drive			
Prepare and organize OSCE Rooms labels.			
Print and photocopy scientific materials			
Contact CSSC before one day of the exam for the last check-up.			
Purchase refreshments, water, juice, coffee			
Prepare certificates for the volunteer who participate in OSCE.			
Book the CSSC using the center utilization form for the next academic year		Check the academic calendar for possible conflicts	

SP: Standardized participant; OSCE: Objective structured clinical examination; CSSC: Clinical skills and simulation center

14. Provide the required material and equipment for each station.
15. Select and create a table to distribute SP and evaluators on the stations.
16. Assign a leader for the organizing team and divide tasks and responsibilities among them.
17. Supervise the OSCE process.
18. Develop score spreadsheet.
19. Maintain a central administrative office for necessary material, equipment, and their replacements

Station Writers

The course coordinator and the appointed station developers are Faculty Members who teach courses involved in OSCE and fill out the OSCE blueprint. All developed stations must be written in a unified format and presented to the OSCE coordinator for review and to determine the compliance of the station construction with the blueprint [3]. The OSCE coordinator will set deadlines for the station writers to send the exam materials based on the course syllabus and the number of stations for each course.

The station writers should be available on the day of the exam to explain the station to evaluators and train the SP in the 45 minutes before the start of the exam. If the station writer is not available on the day of the exam, they should inform the OSCE coordinator and assign a replacement. It is the station writer's responsibility to make sure that the substitute obtains a detailed understanding of the station and discusses the roles of the SP and evaluators and whether any specific case requirements exist.

Evaluators

The evaluator must be aware of the objectives and standards. An evaluator must be fair and free of any personal style and biases and provide constructive feedback if required to ensure standardization in SP performance[3]. His/her role is to observe and rate students' performance. When new or external evaluators are involved for evaluator variation, several outcomes should be clarified:

1. Know the concept and the flow of OSCE exams.
2. Check students' university identification at the beginning of the station.
3. Treat all students equally.
4. Understand and use the scoring rubric to maintain standardization.
5. Rate students' performance; no facial expressions about student performance.

6. Provide written/verbal exam feedback to the OSCE coordinator/co-coordinator.
7. Report concerns about students' behaviour to the OSCE coordinator/co-coordinator only.
8. Ensure the confidentiality of the students' marking sheets and station information.
9. Enter scores to a spreadsheet within 48 hours of the exam.
10. Contact the OSCE coordinator if not able to show up and provide a name and phone number/ email of a substitute.
11. Sterilize the exam stations with alcohol sprays for a next round.

Team Organizer

Recruitment of supporting staff is significant for a successful OSCE to ensure the smooth running of the exam[3]. A single member of this team will gather the contact information from all interns who volunteered and are willing to participate in the OSCE and help the team with several responsibilities:

(a) Ensure and emphasize on applying safety precautions of COVID-19 pandemic.
(b) Place the labeling signs in appropriate places.
(c) Distribute exam materials and sterilizing tools in all stations.
(d) Provide checklist folder to evaluators (Electronic form).
(e) Quarantine arrangements for students waiting for their exam with social distance spots.
(f) Direct rotation flow and solve issues of shortages of necessary materials in stations during the exam.
(g) Arrange the refreshments for all personnel involved during the day of the exam.
(h) Collect exam materials from every station at the end of the exam.
(i) Maintain the command announcement using speakers at precise intervals. The timekeeper should remain focused and not be distracted[3]. However, this task can be offered from the CSSC as it has an overhead speaker from which the staff from the center can perform this task.
(j) Sterilize doors handles frequently.

Standardized Participants (SP)

The SP must present and repeat the clinical case with standardization in a confident and comfortable manner, so it is desirable and crucial to train the SP[3]. The CSSC has an SP program in which a paid trained person can be hired and to act as an SP. However, we found that some of our interns were willing to participate, so we decided to open the door for volunteers. A representative of the intern will collaborate with the OSCE coordinator to gather contact details from interns who are willing to participate in OSCE.

Back-up Staff

Since OSCE exam dates are scheduled in the academic calendar, the KAU-FOP should be careful not to set any events or other exams in the days assigned for the OSCE exam. In case of personnel absence or suspected cases of COVID-19 in the organizer team or SPs, support from different KAU-FOP departments is deemed necessary.

Clinical Skills and Simulation Center (CSSC)

Communication with the CSSC is essential to set up stations with selected items. The CSSC team will help Faculty Members establish stations as the CSSC includes equipment and materials that could make the station more realistic. An arrangement can be made to assist in organizing and applying the safety precautions of COVID-19 through the center.

Hospital Security Services

Two security service members will be involved in checking the personal stuff and measuring temperature before the entrance to the CSSC. It is a paid service, so the OSCE coordinator and the Security Member should sign receipts and then provide their receipts to the Vice Dean for Training and the Head of Pharmaceutical Services to receive reimbursement.

Examination Logistics

Setting the Examination Schedule

In each academic year, there is a need for scheduling a couple of OSCE settings depending on the course curriculum requirements[2]. The exact timing of each examination is determined by the availability of a venue in addition to an academic calendar set by KAU-

FOP; as there might be possible conflicts resulting from holidays and other events which were previously scheduled during the academic year.

Booking the Venue

The OSCE coordinator should contact the CSSC Secretary Office at King Abdulaziz University Hospital to check the center availability and make the reservation. Once the dates are confirmed, the Vice Dean Office for Pharmaceutical Training and Services will be informed to add them to the academic calendar of KAU-FOP. The center has multiple rooms; some can be set up as three identical lines for OSCE stations, and others assigned for quarantines before and after the exam and as break rooms for SPs and evaluators, refreshment areas and administrative offices. A control room inside the center manages overhead speakers throughout the examination area, which is a suitable way to announce specific commands to start the exam and change stations. Videotapes can be used to enhance the quality of the teaching process and provide feedback when needed[3].

Timeline Plan

Three lines with identical stations will accommodate a large number of KAU-FOP students. Two OSCE sessions will be held daily; a morning session for either female or male students, while an afternoon session will be for the other category. A break between the two sessions of approximately 20 minutes will be given to allow participants in the exam to have a refreshment or a snack which is provided in the assigned break room. If it is feasible, a one-minute rest period after each circuit allows time to use the washroom and if necessary; or evaluators can provide the SPs with some feedback to ensure standardization.

Administrative tasks

The OSCE coordinator communicates with the Vice Dean for Training and the Head of the Pharmaceutical Services to send letters to some hospital services asking for supports of the OSCE processes. The hospital security service is essential on the day of the exam, so a letter to them should state, clearly, the date, the time and number/gender of personnel that would be needed. The hospital housekeeping services provide members to assist in arranging the furniture inside the examination area. An internal arrangement can be made through Vice Dean for Training and with the Head of Pharmaceutical Services to send the college housekeeping personnel to help the center.

Invoices of all purchased items and payments for security will be recorded and sent to the Vice Dean for Training and to the Head of Pharmaceutical Services, immediately after the exam for reimbursements. Recycling items, such as signs, pens and folders used in preparing the exam are usable after sterilization.

Preparing the Exam Area

The final preparation should be made one day before the exam. The OSCE coordinator arranges with the CSSC staff to check the examination area. It also involves setting up and sterilizing tools, labeling the stations, and posting different colored signs and arrows for each line and its pre- and post-exam room in addition to ensuring that the speaker system is working.

Since there will be two sessions daily, it is necessary to provide catering arrangements for evaluators, the SPs, and organizing teams. Refreshments should be provided for students who join the later session and for those who have just finished their OSCE in the morning session.

Hand Sanitization and Station Sterilization

Objective structured clinical examination organizers ensure the availability of hand sanitizers next to the registration area and in front of each station. Each student must use the sanitizer at the beginning and end of the exam before moving to the next station to mimic the real situation in which healthcare providers use the hand sanitizers that hang on the walls before and after they enter a patient room. A small table should be placed next to the door on which the student should read the case, while the SP or the evaluator should make sure that the station is re-sterilized together with the chair, table, and pencil.

Setting up the Exam Circuit

The exam circuit refers to the flow of the students through the exam stations. In each exam circuit, the number of students should be equal to the number of stations at which each student will be assigned to start. Students will then move to the next station in the direction of the exam circuit until each student have completed all stations. The organizing team orients the student to the exam circuit direction before it starts and

guides them during their transition from one station to another.

To set up the stations, the OSCE coordinator should consider the space to have different mannequins, SPs, equipment (if needed), and evaluators inside the rooms. The requirements needed for each station, registered in the documentation, should have been prepared by the station writer (OSCE profile page). All items and materials should be sterilized, in good condition, and available on the exam day[2]. A spare medication box or ampules should be available on the exam day in case of breakages or breakdowns[2]. If more advanced equipment, such as high-fidelity simulators, is required, personnel who can program and run these simulators must be available[2].

Running the OSCE

The OSCE coordinator and organizing team should reach the CSSC early[3]. Evaluators and SPs should arrive at least 45 minutes before the exam start time; so as to pass through the security checkpoint for temperature measurements and to meet the station writer who explains the case and trains the SP during this time[3]. All participants should be wearing their face masks during CSSC all-time. The evaluators receives a checklist folder that should be kept with them all times. Students should arrive at the venue at least 30 minutes before the exam starts, and the organizer team provides them with identification stickers that include the student's name, the University identification number, and the randomly assigned serial number[3]. The organizing team should be present to guide everyone inside the exam area. Also, the OSCE coordinator provides a brief introduction for students, evaluators, and SPs on the day of the OSCE exam (Table 6). Written instructions should be provided earlier, so as to minimize briefing[2].

Security

Mobile phones and other electronic devices, such as smartwatches, are not allowed in the examination area, and it is the students' responsibility to keep these devices outside the exam area. Security personnel use metal detectors to search all students and interns who participate in OSCE before they proceed to the pre-exam room. Organizers and SPs are not allowed to use or access their mobile phones until the exam is complete with the aim of eliminating distractions that could happen during the exam.

Quarantine

The quarantine room is an area assigned for students who finish their exams while waiting to reassign the stations with new students for the next round. Students in the quarantine room are required to uphold protection procedures, including wearing of masks and social distancing, avoiding handshaking, and using hand sanitization.

Running the circuit

One of the major goals for achieving a smooth and organized circuit is controlling the time throughout the station. The OSCE coordinator should ensure that everyone is in his/her place and then gives a signal to the timekeeper to start the exam. A timekeeper in the control room ensures the flow of students

Table 6. Example of briefing information

Students Briefing	Directions for keeping face mask, hand sterilizing, and social distance. A description of the circuit including their start stations and quarantine procedures Reminders of rules and regulations Signing confidentiality forms
Evaluators Briefing	Directions for keeping face mask, hand sterilizing, and social distance Sterilize the station for any coming student Check students' stickers and university identification at the start of the station. Overview the scoring rubric and how to complete the mark sheets The importance of keeping students' scores confidential Do not provide any indications about student's performances or talk to them. Treat all students equally. Report concerns about students to OSCE coordinator Complete feedback after the exam Rest-breaks and refreshment facilities
SP Briefing	Directions for keeping face mask, hand sterilizing, and social distance The importance of standardization between students Rest-breaks and refreshment facilities

OSCE: Objective structured clinical examination; SP: Standardized participant

through all of the stations is achieved by the overhead speakers coordinated with a timekeeper who makes an announcement of directions clearly instructing the students and the evaluators about exam-related events[2]. The first announcement is "exam starts in one-minute" to ensure everyone in the station is ready. The exam begins by announcing "start exam". Students will have five minutes at each station, so four minutes after the start of the OSCE exam, another announcement stating, "one-minute remaining" should be declared, and the station would end a minute later with the direction "move to the next station". This repeated cycle continues during the exam.

A back-up method is crucial in case of technical failure of the automated system, which could be a simple stopwatch and a portable speaker[2]. Once the examination commences, the organizing team should be available to ensure that all students move in the right direction[2]. The team provides each student with a pencil that will be used throughout the exam stations and are collected at the end of the exam after the last station.

Variable performances by SPs affect the station standardization. SPs may change their behavior among candidates or provide unwanted information occasionally[2]. Station writers should have time before OSCE starts to train the SPs. Missing papers or pencils in the station during the exam could also be an issue, so one of the organizing team can help to provide the missing item without affecting their role of directing students in the circuit.

Penalties or consequences

The OSCE coordinator should be informed about tardy students and those who show non-compliance with face mask wearing and who arrive at the examination area after the exam starts; so as to make sure they were not be slowed down to enter the area. No retake exam policy should be given; however, in case of absence or call-in sick with suspected symptoms of COVID-19 (fever, cough, shortness of breath), no OSCE scores will be earned, and the student should be referred to the KAU-FOP Academic Affairs. The confidentiality and non-disclosure agreement form incorporates this information (Table 7).

Post-OSCE Considerations

Marking and approval

Evaluators record the scores in data spreadsheets within 48 hours of the exam day and the OSCE coordinator cross-checks the spreadsheet for missing scores or discrepancies. The evaluators can be contacted in case of any doubts or if any markings need their verification. Examination mark analyses are carried out by the OSCE coordinator and cross-checked to verify their accuracy before they are sent to the course coordinator.

Quality process

The quality process of each examination is a continuous activity process and is repeated for each exam round[2]. However, some measures in the quality assurance procedures, such as training SPs and evaluators,

Table 7. Confidentiality and Non-disclosure Agreement (proposed)

The content, including examination questions, of the written examination and the OSCE are highly confidential. Students participating in the OSCE exam are not allowed to disclose the content of the examination(s), and under any circumstances, should not share or discuss any of the information the exam contains with any person except as authorized by the Faculty of Pharmacy at King Abdulaziz University. Unauthorized production, reproduction, or publication of the examination material is prohibited. Unauthorized disclosure of the contents of the examinations or any other form of cheating is an unethical behavior and will be reported and addressed by the Faculty Academic Affairs.

I acknowledge that I have read and understood the above provisions regarding examination confidentiality and cheating and agree to accept them.

	Name	Signature			Name	Signature
1				11		
2				12		
3				13		
4				14		
5				15		
6				16		
7				17		
8				18		
9				19		
10				20		

*Date:*_____ *Time:*_____

reviewing stations, and ensuring standardization, usually, take place before the OCSE[2].

Feedback and Report

The fundamental aspect for making an improvement plan is feedback. A 5-Likert Scale and open question feedback form filled after the exam has more impact and analyzes the process itself. Encouraging everyone involved in the OSCE to provide written feedback is the first step to overcome obstacles that might occur during the exam.

After each session of the OSCE, the evaluators provide written comments on the individual stations under their supervision and deliver the comments to the OSCE coordinator[2]. The OSCE coordinator also arranges meetings with the organizing team, SPs, and a student representative from each line to review all aspects of content and organization. This feedback and meetings provide useful information about the performance of each station which assist reaching decisions to modify and improve the stations before being saved for future use[3]. A written summary about OSCE with the feedback that is received will be reported to the Vice Dean Office for Pharmaceutical Training and the Head of the Pharmaceutical Services to improve the quality of exam stations and organize the future examinations[2].

OSCE database

The banking of OSCE stations is encouraged after modifying the station with feedback from students and evaluators. Examination materials, including checklist folders, should be returned to the unit for archiving.

Appreciation Certificate

Volunteers who participated in the OSCE process should receive an appreciation certificate from the Vice Dean for Training and Pharmaceutical Services.

Future Considerations

We have undertaken steps to improve the different aspects of the OSCE after each round. Some issues are challenging to resolve, such as the probability of leaking information about the station when residents and interns such as SPs serve as examiners, which increase the chances of confidentiality breach. However, an area for improvement would involve converting the checklist forms to electronic forms, which would be ideal for obtaining a better analysis of student performance and providing general feedback on individual tested skills. Also, recording the scores should be done automatically using the Excel sheet (Microsoft Inc, Redmond WA USA) generated after examiners submit all students' checklist forms. Moreover, the station writers should have a thorough review of their station by checking the analysis of scores for each point and read examiners' notes on students' performances. Furthermore, this process should help with the financial budget, exam distribution, and storing the checklist papers in a secure space.

Objective structured clinical examination exams always promote anxiety in students. In a Majumder *et al.*[4] study, it was observed that students' tension will decline as they become familiar with the format[1,4]. Thus, implementing simulation sessions during the courses as part of the teaching process in which students will get used to communicating with SP and receive thorough feedback on what they did right, what they need to improve, and how to improve their skills is encouraged. During the semester, these simulation sessions would help the students who express more tension in the OSCE exams compared with other examinations to increase the familiarity with the OSCE exam format. A workshop on how to write simulation scenarios are among the promising workshops that would benefit Faculty Members to resolve the variation between different stations when a new Faculty Member is assigned to establish a station.

Telemedicine OSCE (TeleOSCE) is a different approach for executing OSCE during the COVID-19 pandemic, which could be a promising plan when the safety precaution measures are difficult to enforce. Lara *et al.*[5] implemented a virtual OSCE for their pediatric clerkship via teleconferencing software, but more data are necessary for guidance on ways to execute TeleOSCE for a large number of undergraduate students. On the other hand, a medical university in Singapore documented their experience of planning and conducting OSCE exams safely, taking sufficient safety measures in the pandemic environment, and they limited the use of teleconferencing software to the occasions where the examiner conducted the briefing and calibration[6].

Conclusion

Coexisting with the COVID-19 pandemic is a challenge for the contineous making the OSCE exam as valid and productive as possible. This guidance supports implementing encouragement and conducting the OSCE with the addition of the safety requirements to ensure a safe and risk-free OSCE exam for all participants.

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Conflict of Interest

The authors declared that there is no conflict of interest that is related to this study and this article.

Disclosure

The authors did not receive any type of commercial support either in the form of compensation or financial support for this case report. The authors have no financial interest in any of the products, devices, or drugs mentioned in this article.

Ethical Approval

The study was approved by the Ethics Committee of the KAUH in Jeddah, Kingdom of Saudi Arabia, also known as the Institutional Review Board of Hospitals.

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أثر جائحة-فايرس كورونا ١٩ على الاختبار الإكلينيكي الموضوعي المنظم: دليل إرشادي لكلية صيدلة

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المستخلص. شكل تفشي وباء فيروس كورونا ٢٠١٩ تحديًا لكليات الصيدلة التي تجري فحوصات إكلينيكية منظمة وموضوعية على مدار العام الدراسي. من الضروري التأكد أن طلاب كلية الصيدلة مدربين تدريباً جيداً ومستعدين للقيام بواجبهم خلال الأزمة التي يسببها هذا الوباء. بسبب الوباء، تواجه كلية الصيدلة بجامعة الملك عبد العزيز التحدي المتمثل في ضمان إكمال طلاب الصيدلة متطلبات العام الدراسي، بما في ذلك الفحص السريري الموضوعي المنظم. تقدم هذه الورقة تفاصيل حول كيفية تصميم الفحص السريري المنظم الموضوعي وإدارته خلال التعايش مع جائحة - فيروس كورونا ١٩. كما أنه يساعد كليات الصيدلة الأخرى التي تحتاج إلى التخطيط لفحوصات سريرية منظمة وموضوعية لضمان صحة وموثوقية تقييمات الأداء مع حماية سلامة جميع المشاركين.

الكلمات المفتاحية: المملكة العربية السعودية؛ فحوصات إكلينيكية منظمة وموضوعية؛ التعليم الصيدلي؛ الفحص السريري؛ الجائحة؛ فيروس كورونا ١٩؛ المحكاة؛ تقييم المهارات السريرية؛ تقييم الأداء.