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Adapting the OSCE to the times of the COVID-19 pandemic. A look at the e-OSCE from the students' perspective

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Abstract: Background: At the Department of Medical Education, Centre for Innovative Medical Education at Jagiellonian University Medical College, a completely remote OSCE (e-OSCE) was conducted for the first time using the Microsoft Teams platform. 255 test takers were tasked with presenting their communication and clinical skills in order to assess clinical reasoning.

Aim: Analysis of the assessment of the OSCE adaptation to the requirements of the COVID-19 pandemic at the Department of Medical Educations in the form of the e-OSCE from the students' perspective.

Methods: Discussion of the OSCE modification was carried out among 6th-year medical students and graduates undergoing validation of their foreign medical degrees. In order to assess students' opinions of the e-OSCE, we used questionnaires. The Statistica 12.0 program was used to analyse the results.

Results: According to 91.57% of respondents, the e-OSCE was well-prepared. 60% of students strongly agree and 29.47% rather agree that the order of the stations was appropriate and clear. A majority of respondents rated the e-OSCE as fair. 66.32% of respondents strongly agree and rather agree that the proportions of communication and clinical skills were appropriate. The vast majority of the participants of the exam (81.05%) had enough time for individual stations. A statistically significant ($p < 0.0001$) correlation was found between the type of classes and preparation for the e-OSCE. For 61.05% of respondents, the Laboratory Training of Clinical Skills course was the best preparation for students taking the e-OSCE. Taking into account the stressfulness of the OSCE, only 15.96% of students found the online form more stressful than the traditional (in-person) exam.

Conclusions: The e-OSCE in students' opinions was well-organized. Informing test-takers prior to the e-OSCE about the role of invigilators assessing individual stations should be improved. The e-OSCE has been proven to be suitable for assessing a wide range of material and validating communication and clinical skills in appropriate proportions. The e-OSCE is fair according to examinees' opinion. The study proves that even in a pandemic, it is possible to prepare an online exam without exposing examiners and examinees to the dangers posed by COVID-19.



Keywords: medical didactics, OSCE, medical education, OSCE during the COVID-19 pandemic, Department of Medical Education Jagiellonian University Medical College.

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Introduction

During medical school, future doctors acquire competences necessary to practice their profession. In line with this mission, medical students will treat their future patients based on what they have learned, from clinical knowledge, communication skills, manual skills and other important competences. An important element in the medical program is the teaching of clinical skills, but the method of assessing the mastery of the aforementioned skills is equally important, as we need to identify those who have not sufficiently mastered selected clinical skills, to ensure the safe treatment of patients [1, 2].

The Objective Structured Clinical Examination (OSCE) is an examination that assesses a wide range of students' skills in a reliable and objective manner [3]. High positive correlations between the results of the OSCE and the subsequent competence of doctors in hospital practice in tested domains during the start of their careers have been proven [4].

At the Faculty of Medicine of Jagiellonian University Medical College (JUMC), the OSCE examination was conducted for the first time by Prof. dr hab. med. Jadwiga Mirecka at the Department of Medical Education (DME) several years ago [1]. Since then, it has been successively developed and introduced to assess the clinical skills of graduating students, and also applies to graduates from foreign universities validating their medical degrees at JUMC. The COVID-19 pandemic proved to be a challenge in medical education, as well as in the organization of the OSCE-type examination, due to the need to strictly comply with the applicable sanitary regulations set forth by the Ministry of Health. Adapting education to the pandemic requirements turned out to be a success [5], and an e-OSCE examination was also organized for students completing the 6th year of studies, taking into account the sanitary requirements related to the pandemic in 2020 and 2021. The study was approved by the Bioethics Committee of Jagiellonian University Medical College.

Aim

The aim of the study was to conduct an analysis of the assessment of the OSCE adaptation to the requirements of the COVID-19 pandemic at the Department of Medical Educations of Jagiellonian University Medical College in the form of the e-OSCE from the perspective of a student.

Methods

At the end of the academic year, towards the end of May/beginning of June 2020, at the Department of Medical Education, Centre for Innovative Medical Education at Jagiellonian University Medical College, a completely remote OSCE exam (e-OSCE) was conducted for the first time. 247 6th-year students of the Faculty of Medicine and 8 graduates undergoing validation of their foreign medical degrees joined the e-OSCE. The task of the candidates was to present their skills related to various aspects of communication with a patient or their family as well as skills related to clinical reasoning. The e-OSCE was conducted using the Microsoft Teams platform. 49 rounds were organized during the exam session, with 5 students taking part in each round and remotely changing their virtual rooms, each representing a station, in a predetermined order at specific times (every 15 minutes). Each examinee was asked to present their knowledge and skills at the following 5 stations: clinical handover, pediatric interview, medical documentation, clinical reasoning and challenging communication. In each designated virtual room on the Teams platform, there was simultaneously one student, one standardized patient (trained to standardize the role of a patient or a patient's family member) and one invigilator equipped with student assessment tools (i.e. checklists). The students were given 15 minutes for a given task, after which they changed stations, virtually moving on to the next "room".

The basis for the assessment from the examinees was a questionnaire, which was sent to all candidates by e-mail after receiving information about passing the exam.

Results

A questionnaire consisting of 18 questions was completed by 95 students, 60% of whom were female (57 students). Two participants were students who undergoing validation of their foreign medical degrees, the other students studied full-time. The mean age was 25 years (standard deviation SD = 1.18). Most of the respondents, i.e. 67%, lived in an apartment. It can be concluded on this basis that these students had good learning conditions, and therefore the opportunity to prepare for the exam.

According to 91.57% of respondents, the e-OSCE exam was well-prepared, and only 2.11% found it to be not well-prepared. Detailed results are presented in Fig. 1.

There was a clear relationship (correlation $r_{sp} = 0.34$) between the fact that the exam was well-prepared and that sufficient information about the content of the e-OSCE was provided before the exam. Among the respondents, 7.37% did not agree that students had been sufficiently informed about the role of the invigilator, and only 3 persons definitely stated that they had been given sufficient information on the content of the e-OSCE before the exam. This results in the need to best determine how to inform students about what to expect on the e-OSCE.

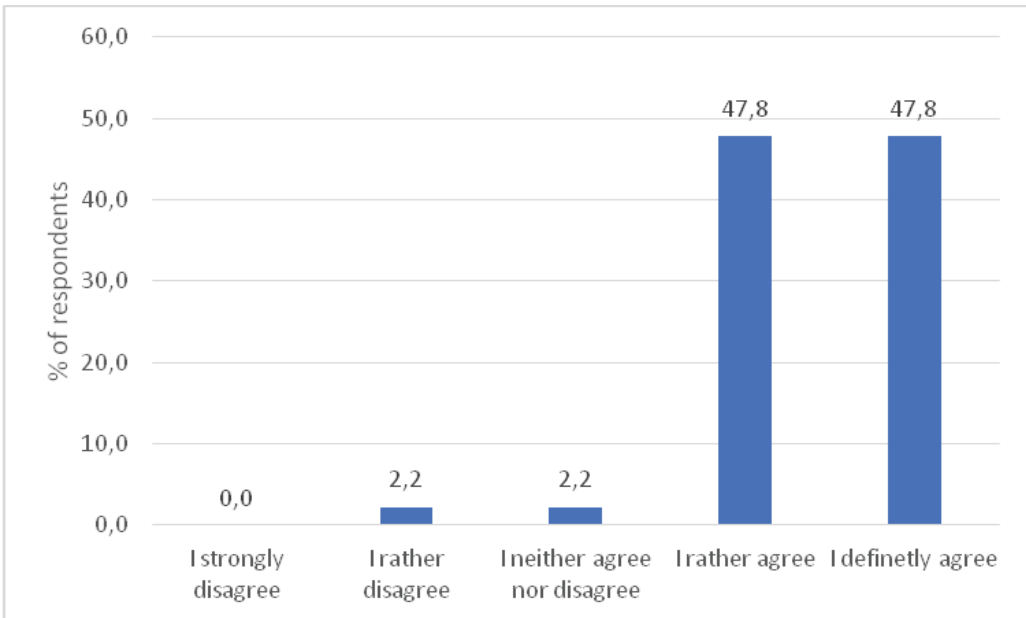


Fig. 1. Answers to the question: “Is the e-OSCE well organized?”.

60% of students strongly agree and 29.47% rather agree that the order of the stations was appropriate and clear. One person did not agree that the e-OSCE was fair. According to the Pearson Chi-square test, there is no significant relationship between gender or place of residence of students in this regard.

To the question: “Do the scores obtained on the e-OSCE reflect the scope of the tested skills?” the overwhelming majority of respondents were undecided. The respondents were not able to clearly answer the question of “Does the score obtained at a given station accurately reflect the skills assessed at this station?”, as they preferred to write their opinion in which they emphasized that they did not know what the scoring criteria was for given stations. 46.32% of respondents strongly agree and rather agree that the exam allows to correctly identify skills that need improvement.

15.79% replied that they rather disagreed and strongly disagreed with the statement that the exam is suitable for assessing a wide range of material. However, 66.32% of respondents strongly agree and rather agree that the proportions for communication and clinical skills were appropriate.

The vast majority of the participants of the exam (81.05%) had enough time for individual stations.

A statistically significant relationship ($p < 0.0001$) was found between the type of course and preparation for the e-OSCE. Laboratory Training of Clinical Skills was the best preparation of students for the e-OSCE, where as many as 61.05% of the respon-

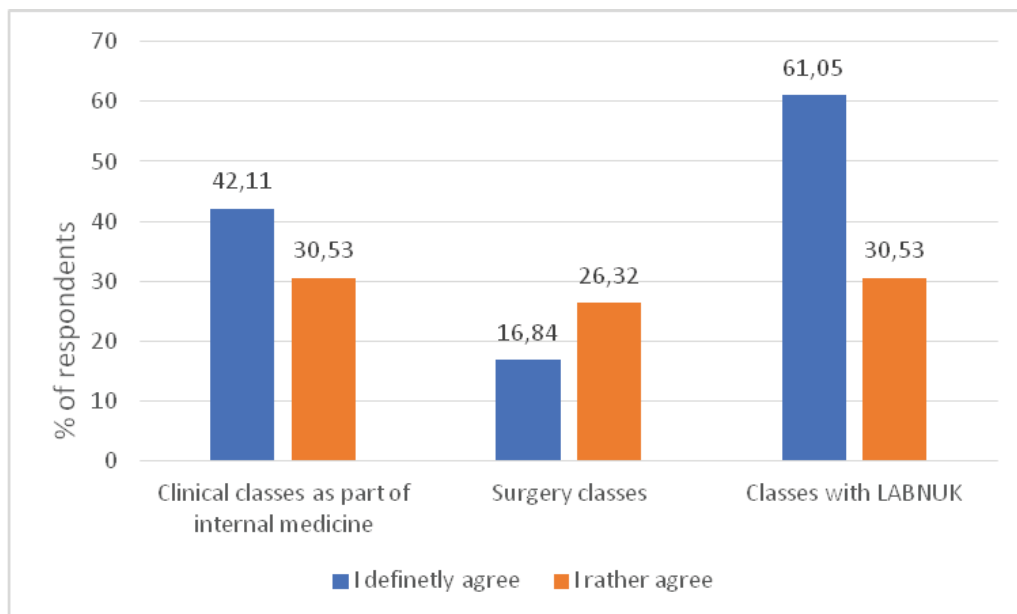


Fig. 2. The relationship between the type of course and the students' assessment of their preparation for the e-OSCE by individual subjects.

dents agreed with it, and 30.53% rather agreed. With regards to surgery-related courses, only 16.84% of the students strongly agreed that these classes prepared them well for e-OSCE. It is worth noting that surgical skills are difficult to assess online (Fig. 2).

In the first session, 99% of students passed the e-OSCE. The mean of the respondents' scores from the previous year was 4.30 (standard deviation SD = 0.58).

Taking into account the stressfulness of the OSCE based on the responses from the questionnaires, the most stressful form of the exam is the traditional in-person exam according to 69.15% of students. For only 15.96% of students, the online form, i.e. the e-OSCE, turned out to be more stressful than the traditional exam. The problem of stressfulness of the OSCE will be discussed in an article which will be published soon.

Discussion

Worldwide, the spread of the COVID-19 pandemic has disrupted education at all levels. In medical teaching, it is important not only to impart and acquire knowledge, but also verify the various skills of students as per university guidelines before they are granted the right to practice medicine, so that future patients are guaranteed competent and safe care. The progress of technology makes it possible to create conditions for the verification of students' knowledge and skills by using various forms of modern technology, as reported by authors in various publications [6]. From the point of

view of the organizers of medical examinations, feedback from examinees is important to better prepare future examinations. The OSCE in the in-person form has been repeatedly assessed from the perspective of students and examiners. One of the examples is the article in which the attributes, quality, validity, reliability and organization of the Medicine and Therapeutics exit OSCE held at the University of the West Indies from the perspective of students and examiners were assessed [7]. A survey conducted among e-OSCE candidates organized during the COVID-19 pandemic by the Department of Medical Education, Centre for Innovative Medical Education, Faculty of Medicine, Jagiellonian University Medical College, proves that it was properly prepared. The respondents rated it as less stressful than the in-person OSCE. Students positively received the course of the exam. The things that need to be refined on the part of the organizers are clearly informing students about the content of the exam, and about the scope of the material that is being tested. It is equally important to inform teaching assistants what they should pay attention to when preparing students for future work as doctors and for examinations, so that the candidates are well-prepared.

In light of a study conducted in 2015, in which medical students expressed their opinion on the organization of an OSCE in the third year of the medical program, it was shown that in the opinion of 93.7% of the students the OSCE as a well-organized exam [8]. The current exam was well-prepared according to 91.57% of the examinees. This study has demonstrated that the pandemic did not significantly affect the assessment of the preparation of the OSCE by the examinees.

An unequivocal conclusion can be drawn that even in the difficult circumstances caused by the COVID-19 pandemic, it is possible to prepare an exam at a medical university using internet-based technologies as substitutes for in-person exams, which is positively received by the test-takers. There are plans to assess the perception of the e-OSCE by invigilators and simulated patients.

Conclusions

This study proves that e-OSCE was well organized according to students. Before the e-OSCE, the students were well informed about the content of the exam. However, the aspect of informing students about the role of the invigilator still needs to be improved. The study proved that the e-OSCE is suitable for assessing a wide range of material and tests communication and clinical skills in appropriate amounts. The e-OSCE is not appropriate for the assessment of surgical skills. The e-OSCE is fair according to the test-takers' opinion. The study proves that even in a pandemic, it is possible to prepare an online exam without exposing students and examiners to COVID-19 and subsequent adverse health outcomes.

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