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## The Objective Structured Clinical Examination (OSCE) from the perspective of 3rd year's medical students — a pilot study

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**Abstract:** **B a c k g r o u n d:** In 2015 Department of Medical Education in Medical College of Jagiellonian University in Cracow performed a new format of integrated multidisciplinary skills assessment of third year students of medicine after completing initial courses in internal medicine, surgery, pediatrics and gynecology.

**A i m:** OSCE assessed from the perspective of 3rd year medical students.

**M e t h o d s:** Students of 3rd year's study of Faculty of medicine were evaluated by OSCE, which assessed their internal medicine, surgery, gynecology, pediatric skills. OSCE consisted of 12 stations. In order to assess student's opinions on OSCE, we used method of diagnostic survey; *Statistica 12.0*.

**R e s u l t s:** OSCE passed 255 (98.83%) of the students in the first term. We analyzed 221 questionnaires, in which students expressed their opinion. 93.7% of the students considered OSCE as a well organized exam. 87.8% of students claimed that OSCE is fair and 95.5% that the exam is clear. 86.4% students are pleased with the introduction information about OSCE that was given before the examination. 78.6% students believe, that OSCE allows to properly identify skills that require improvement. Students, who didn't pass all stations with positive result, more often ( $\chi^2$  Pearsona,  $p = 0.01990$ ) indicated improper balance between quantity of stations that check communication skills and these checking other clinical skills.

**C o n c l u s i o n s:** This study confirms that OSCE in the students' opinions was well organized and fair. It proves that OSCE correctly selects students who need to improve their knowledge and skills. Students' preparing to the exams, their knowledge and skills, influences on the students' perception of OSCE.

**Key words:** OSCE, assessment of clinical skills, student's reviews about OSCE.

## Background

The Objective Structured Clinical Examination (OSCE) is a useful method for assessing clinical skills and knowledge in simulated conditions [1] and for over 40 years has been considered as a gold standard in this area of evaluation [2]. OSCE is widely used in assessing skills not only in medical education, but also in dentistry [3], nursing and midwifery [4], physiotherapy [5], dietetics [6] and pharmacy [7]. Department of Medical Education in Medical College of Jagiellonian University in Cracow, Poland has been conducting OSCE since 2000 to assess skills of 2<sup>nd</sup> year students after completing Laboratory Training of Clinical Skills course. In 2015 we implemented a new format of integrated multidisciplinary skills assessment of third year students of medicine after completing initial courses in internal medicine, surgery, pediatrics and gynecology. This study is a form of assessment of the expanded exam from students' perspective.

## Aim of the study

OSCE assessed from the perspective of 3<sup>rd</sup> year medical students.

## Methods

Students of 3<sup>rd</sup> year's study of Faculty of medicine at Medical College were evaluated by OSCE, which assessed their internal medicine, surgery, gynecology, pediatric skills. OSCE consisted of 12 stations: 3 medical interview (including communication skills assessment and simulated patients) and 9 practical skills. 3 stations of interview included: standard adult patient interview, pediatric interview (with a simulated patient as a child parent), and an interview with a difficult patient (aggressive and demanding). At 2 stations students performed a part of physical examination on simulated patients; at one station they performed an examination on phantoms (palpation of breast or prostate or per rectum), at a next one students analyzed pediatric laboratory tests, at 2 stations students identified cardiac and respiratory sounds, one station was dedicated to assess surgical skills (surgical sew), and the last 2 stations evaluated students' gynecology and obstetrics skills.

In order to assess student's opinions on OSCE, we used method of diagnostic survey using the survey technique. After taking OSCE exam, students were asked to fill in a questionnaire about the exam. We used *Statistica 12.0* for the statistical analysis.

## Results

Knowledge and skills of 258 students of 3rd year's study were evaluated by OSCE in 2016. OSCE passed 255 (98.83%) of the students in the first term. We analyzed 221 questionnaires, in which students expressed their opinion about this exam, particularly about its organization and students' emotions related to the process. We asked also about students' suggestions of changes of the OSCE. OSCE passed 96.9% (219) of the students in the first term, who gave back us questionnaires. 56.5% (121) of them passed all stations with positive results.

93.7% of the students considered OSCE as a well organized exam.

87.8% of students, who filled in questionnaire, claimed that OSCE is fair and 95.5% that the exam is clear. 86.4% students are pleased with the introduction information about OSCE that was given before the examination.

78.6% students believe, that OSCE allows to properly identify skills that require improvement. At the same time 18% students claimed that there was not enough time for some stations, especially for the interviews.

There is no statistically significant relationship between quantity of passed stations and evaluation of the OSCE organization and the opinion on fairness of the exam.

Students, who didn't pass all stations with positive result, significantly more often ( $\chi^2$  Pearsona,  $p = 0.01990$ ) indicated improper balance between quantity of stations that check communication skills (3 interviews) and these checking other clinical skills (9 stations).

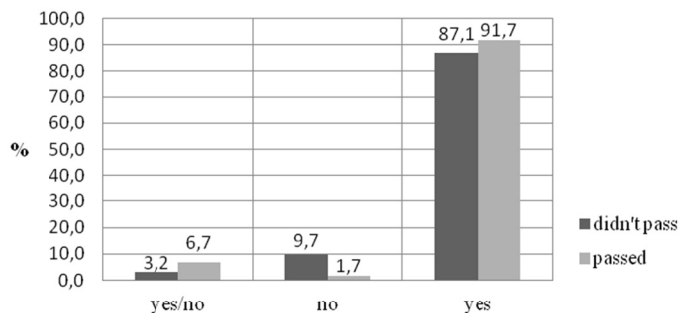


Fig. 1. The perception by students balance between stations depending on the result of which they have passed the exam.

Students claimed that the interviews were the most difficult stations. 85% of students, who passed all stations with positive results claimed, that had enough information about the role of assessing examiners present on each stations (e.g. that he didn't give feedback). But according to the opinion of 10.8% of students the information about the assistant wasn't complete ( $\chi^2$  Pearsona,  $p = 0.04909$ ).

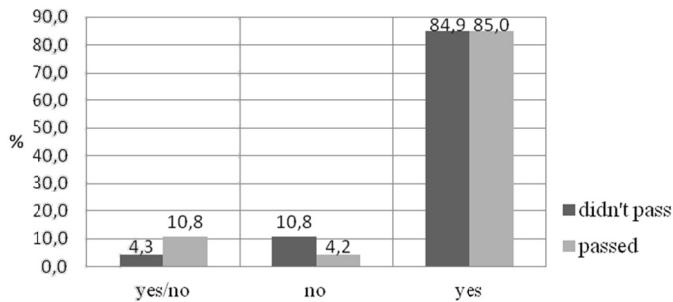


Fig. 2. The perception by students information about the role of assistants assessing each station depending on the result of which they have passed the exam.

We can conclude that students who were properly and well prepared to OSCE were satisfied with the information before the exam.

82.4% of students, who passed all stations with positive results claimed, that evaluation on OSCE properly represents range of checking skills. 10.8% of students who didn't pass positively all stations of OSCE considered that evaluation on it exams didn't correspond with the range of checking skills (Chi<sup>2</sup> Pearsona,  $p = 0.04534$ ). On the students' perception of OSCE and the evaluation on this exams influences students' preparing to OSCE.

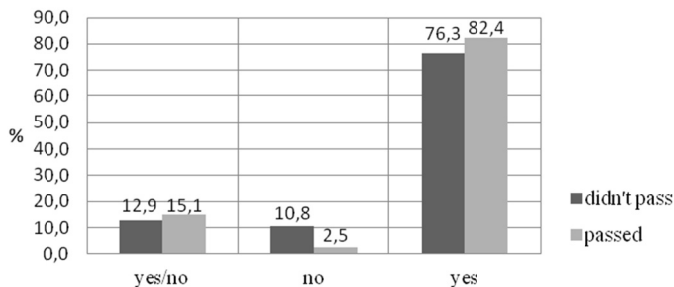


Fig. 3. The perception by students if OSCE proper represents range of checking skills depending on the result of which they have passed the exam.

59.2% claimed that OSCE properly selects well prepared students and these who need to improve knowledge and skills. Unfortunately, some clinical subjects and clinical training didn't prepare the students correctly for OSCE. According to the questionnaire, 7.6% of the students did not feel well prepared for the exam in the field of surgery, 15.3% of pediatry, 17.2% of internal medicine and up to 50.7% of gynecology.

Only 44.7% of students who passed all stations with positive results claimed that clinical training in gynecology prepared them for OSCE well. 43% of students, who passed all stations consider that the course didn't prepare them well for this exams (Chi<sup>2</sup> Pearsona,  $p = 0.00148$ ).

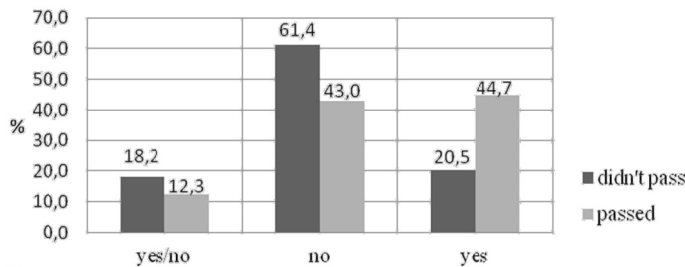


Fig. 4. The perception by students if training course of gynecology prepared well to OSCE depending on the result of which they have passed the exam.

For 18.8% of the students, some stations were difficult. For 26.4% of students who didn't pass all station positively and for 14.2% students who passed all stations well, there were surprisingly difficult stations on OSCE (Chi<sup>2</sup> Pearsona,  $p = 0.01297$ ). They usually indicated heart auscultations with simulator and interviews as extremely difficult.

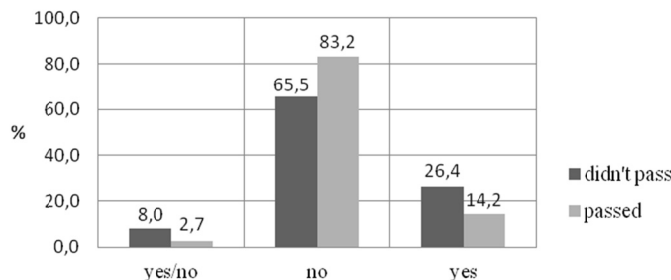


Fig. 5. The perception by students if there were surprisingly difficult stations on OSCE depending on the result of which they have passed the exam.

## Discussion

Understanding perspective of the students especially in the case of implementation of new methods or new environment of evaluating is particularly important and valuable [3]. Similarly to other studies of student's perception of OSCE [8–12], we tried to acknowledge different aspects of students' perception of this method of examination.

Questions in the survey concerned both the general perception of the exam (and if the exam is considered tough, fair, clear, etc.) and the organization factors (including the amount of time at stations, quality of instruction, etc.).

Difficulties in organization, particularly intensive use of resources is considered a main disadvantage of OSCE [13]. It is encouraging that even though the exam was a difficult organizational task (it was carried out for over 250 students, 12 hours a day for 5 days, over 600 hours of work of examiners from different Departments and over 300 hours of work of simulated patients) the vast majority of students (94%) rated the exam as well-organized. Similarly positive results regarding students perception of organization of the exam were presented in the study assessing surgical OSCE in Pakistan [10].

More detailed questions about organization issues were also asked in the questionnaire. Initial instruction presented before exam, explaining the rules in details, were recognized by students in 86% as a valuable. With regards to the information given to students about the evaluators' role, there were significant differences between students who passed all station and those who did not passed at least one station. Students who did not pass at least one exam station more often believed that they have not acquired sufficient information about examiners' roles. Students who did not pass at least one station were also significantly more frequently stating, that relation between communication and technical stations was not correct. It may be related to the fact, that interview stations were considered as the most difficult. The second most difficult station according to student was recognition of auscultation sounds, thus this can be related to the technical aspects of the station.

In our study 88% students believed that the exam was fair and honest. Compared to other studies, our exam were relatively highly scored in this area, only Gnanathan *et al.* [9] reported more students claiming honesty of the exam (90%), other studies report 52% (Raheel and Naeem) [14], 66% (Awaisu *et al.*) [8], 69% (Dadgar *et al.*) [15], 70% (Pierre *et al.*) [16], 76% (Jawaid *et al.*) [10] students who state that exam was fair and honest.

Students in our study appreciate the fact that the exam tests their skills. 78% of them think that OSCE identified those skills that need improvement. Similar results were obtained in the study assessing pharmacy students opinions about OSCE, where more than 80% of students believed that the OSCE was helpful in highlighting areas of weaknesses in their clinical competencies [8]. Also in the survey carried out among students of dentistry [3], the vast majority of students strongly agreed that OSCE assessed clinically relevant skills. However, perceiving OSCE as adequate way to evaluate skills is not always a case. In the study of Zyromski *et al.* carried out among medical residents, in their opinion OSCE did not an adequately measured either clinical (15 of 17 residents) or technical (15 of 18 residents) skills; 14 of 16 residents felt that the OSCE should not be used when considering promotion [17].

Our study indicates significant differences in students' opinions, whether they were enough trained in the set of skills required for OSCE in particular areas. While only 7.8% students stated that they had not been trained enough to pass the surgery station, at the same time as much as 50% of students believed that during the gynecology course they had not acquired the skills that were tested at gynecological and obstetrical stations.

The fact that students did not feel prepared is for OSCE during the related courses was signaled e.g. in the study by Awaisu *et al.* [18]. Authors of the cited study assume that this can reflect differences in students' learning abilities, but the course curriculum, or the OSCE station design needs to be reviewed in this case.

Our hypothesis is that this situation was influenced by the fact that the gynecology stations was performed for the first time, and in contrast to internal medicine or surgery stations there was no previous experience (from the 2<sup>nd</sup> year OSCE). This stations was not included to the formal OSCE score due to this implication.

### **Conclusions**

This study confirms that OSCE in the students' opinions was well organized and fair. It proves that OSCE correctly selects students who need to improve their knowledge and skills. Students' preparing to the exams, their knowledge and skills, influences on the students' perception of OSCE and the evaluation on this exam. Finally, the findings prove that students valued this exam as a worthwhile assessment, as concluded Susan Fidment in her study [1]. This study confirms that OSCE is reliable, honest and valid method of medical examination, as proved Maryam Rasoulia [19].

### **Take-home message**

Further assessment of OSCE should be continued to maximize benefits for students.

### **Conflict of interest**

None declared.

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No external funding was received for this project, and the authors report no declarations of interest.

## Ethics approval and consent to participate

We have Ethics approval: no. 122.6120.202.2016.

All of the participants received the explanatory statement along with the questionnaire.

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