ABSTRACT

Background: Despite several studies on implementation, reliability and validity of the Objective Structured Clinical Examination (OSCE), the perceptions of examinees toward this evaluation tool remain unclear. The aim of the current study was to assess students' perceptions of the OSCE.

Methods: All students in their final year of studies, who participated in the pre-internship OSCE in September 2010, were included in the study. A 16-item questionnaire was designed to assess: Characteristics of respondents; organization, content and structure of the OSCE; and perceptions of validity, reliability and rating of the OSCE with respect to other assessment methods. Questionnaires were administered immediately after all students had finished the OSCE and before leaving the examination venue. Results: Response rate was 86.2%, with 77% of the students indicating the OSCE as a useful learning experience. A majority of the students (62%) agreed that a wide range of clinical skills was covered in this exam. However, 66% had concerns about the wide coverage of knowledge assessed. A total of 81% of students did not prefer the OSCE to multiple choice question exams and 88% found the OSCE intimidating and more stressful than other forms of assessment.

Discussion: Our study demonstrates that although the majority of students believe in the reliability and validity of the OSCE, they have concerns about it and report poor acceptance of the OSCE. Further studies are necessary to assess the important concerns of the students and the effectiveness of interventions in improving the acceptability of the OSCE.

Keywords: Anxiety, OSCE, student acceptability

Background

The Objective Structured Clinical Examination (OSCE) is regarded as the gold standard for evaluating students' skills and competencies, among different examination methods.[1] Previous studies have shown that the OSCE has considerable divergent validity and evaluates capacities, which other forms of assessment fail to adequately address; therefore, it is suggested that the OSCE can serve as an appropriate complement to traditional evaluations which mainly focus on cognitive abilities of the trainees. After description of the OSCE by Harden et al. in 1974,[2] implementation of the OSCE in countries with traditional education systems has resulted in different opinions among students and faculty members. Acceptability of the OSCE by students is often overlooked in the present era of complex statistical analysis and contributions of experts' opinions in validating examinations. Nevertheless, this concept is vitally important in implementing the OSCE as a key tool for measuring students' clinical capabilities in educational systems, since any discrepancies between students' perceptions and experts' expectations may lead to invalid results.

Tehran University of Medical Sciences (TUMS) was one of the leading universities in Iran in implementing the OSCE to...
ensure that interns are capable of exercising their duties in patient care. Medical education in Iranian medical schools is divided into four stages of basic sciences, physiopathology of internal medicine diseases, clinical clerkships and internships. Students are evaluated via traditional methods of multiple choice questions (MCQs) in the first two stages of their education; however, in clerkships, students are assessed via written examinations, faculty observations, or mini-OSCEs comprising their first exposures to the clinical skills evaluation modes. In 2009, TUMS established administering a pre-internship OSCE in order to assess students’ clinical capabilities. The students were informed that the national comprehensive pre-internship examination, which mainly covers students’ knowledge of diseases, their etiologies, and management, would comprise 90% of their total ranking scores for choosing their internship rotations and hospitals, while the OSCE would encompass the remaining 10% of ranking scores. Furthermore, students were informed that in contrast to the national comprehensive examination, there was no pass/fail cut-off for the OSCE. To prepare for the OSCE, the students were allowed to practice with their peers on examination models and simulators one week prior to the OSCE.

While several studies have focused on implementation of the OSCE and its reliability and validity, examinees’ perception toward this evaluation tool remains unclear. In order to enhance the development of a more rigorous, practical, reliable and valid examination, in this study, we assessed acceptance of the recently introduced tool by the students.

Methods

Participants

All students in their final year of studies who participated in the pre-internship OSCE in September 2010 were included in the study.

OSCE description

The OSCE consisted of twelve stations and allowed five min for each one, except for the history-taking station, which allowed up to ten min. Stations were categorized into five components of knowledge: History-taking; patient management; para-clinic data interpretation; physical examination; and skills in medical procedures. Expert observers were selected from second-year residents by contacting relevant departments. The selected expert observers were trained in a one-hour session and subsequently equipped with written instructions. These observers scored nine process-centered stations via a pre-established structured checklist, while the other three stations were designed without checklists and were scored after the examination using a structured answer sheet.

OSCE procedure

One hundred and thirty students were divided into four tracks (A, B, C and D) within the same stations. Students drew closed and secured envelopes that contained their track label and the station where they were to begin, which ensured random assignment.

Within 5 min, students were required to perform a medical procedure, provide differential diagnosis and appropriate management for a medical imaging, perform a physical examination and manage the patient. Five standardized patients (SPs) who had been trained for their roles participated in this study. SPs were trained in three 45-min sessions and received written instructions one week prior to the examination. Nine expert-observers were instructed to score examinees performance using the checklists. At the end of the examination, students were asked to respond to a questionnaire about their perceptions regarding the OSCE.

Study instrument and procedure

A 16-item questionnaire with various domains was designed to assess characteristics of participants, organization, content and structure of the examination, perceptions of OSCE validity, reliability and rating of the OSCE with respect to other assessment methods. A 5-point Likert scale representing the degrees of agreement was used to assess most of the dimensions included in the questionnaire. Six faculty members assessed the content validity of the questionnaire. Twenty-five volunteers who had previously passed the pre-internship OSCE completed the questionnaire twice, within 2-week intervals to assess its reliability. The range of interclass correlation coefficients of the questions was 0.82–1.0, with a median of 0.91. Questionnaires were administered immediately after all students finished the OSCE and before they left the examination venue. Students were asked to complete the questionnaire anonymously on a voluntary basis. The study was approved by the ethics committee of the Tehran University of Medical Sciences.

Statistical analysis

Descriptive statistics were used to examine the data. All statistical analysis of the data was performed using Statistical Package for Social Science (SPSS) for Windows, version 11 (SPSS Inc., Chicago, IL, USA).

Results

Of a total 130 students who participated in the OSCE, 112 returned the questionnaire, resulting in a response rate of 86.2%. The remaining 28 students declined to participate in the study due to personal preferences. No significant difference was observed in terms of age or gender between students who refused to participate and students who were enrolled.
in the study (P = 0.67 and 0.46, respectively). Of the total 112 participants, 54 (41.5%) were male; 33 (29.5%) were enrolled in track A, 29 (25.9%) were in track B, while equal numbers of 25 (22.3%) were placed in tracks C and D.

Quality of the OSCE

Data regarding students’ perceptions about the quality of the OSCE are summarized in Table 1. About 60% of the students agreed that the sequence of stations was logical and appropriate. In addition, more than 65% of the students believed that the instructions were clear, and they felt appropriately informed about the exam. Over three-quarters of the students considered the OSCE a useful learning experience; and about one-half were satisfied with the organization and administration of the OSCE. However, more than 64% were not satisfied with the time allocation for each station.

Perceptions of validity and reliability

A significant proportion of students (61.6%) viewed the OSCE as an accurate measure of clinical skills. Further, 48.3% of the students felt that the required tasks were consistent with the actual curriculum they had been taught [Table 2]. A total of 61.6% agreed that a wide range of clinical skills were covered in this exam; however, approximately 67% of the students were concerned about the wide coverage of knowledge area. Approximately, 60% of the students were satisfied with the SPs’ role-playing. In contrast, more than one-half (55.4%) were concerned about fair judgment by the observers, and 58% of the students raised concerns that personality, ethnicity or gender may have affected their scores.

Pre-Internship OSCE versus multiple choice exams

A total of 81.4% of the students did not prefer the OSCE to the MCQ exams and 88.4% found the OSCE to be intimidating and more stressful than other assessment formats.

Discussion

It is crucial for a competent clinician to have both medical knowledge and clinical skills. For many years, medical schools have relied on evaluating students solely on the basis of clinical knowledge. As a result, clinical skills were rather neglected. Numerous studies attest to the lack of a correspondence between the performance of high achievers in the classroom and in the clinical setting. These findings point to the incorporation of examinations that also evaluate clinical skills in contemporary educational systems. The OSCE, in the form of performance-based assessment, has become a promising instrument for evaluating the clinical capabilities of undergraduate medical students as well as residents. Moreover, OSCE has been verified as the most reliable and valid tool for assessing clinical competency in different settings.

In this study, we thoroughly assessed students’ attitudes regarding the OSCE. Our results suggest that students believe the OSCE provides a positive learning experience, helpful faculty feedback, and that they learned much in the process. Surprisingly, although the majority of students found the OSCE to be an accurate measure of clinical skills, they did not prefer the OSCE to the MCQ exams. This may be due to greater anxiety elicited by the OSCE, as documented in previous studies. Although the students’ clinical capabilities have been assessed via mini-OSCE settings in some of their clinical clerkships, this OSCE was their first exposure in their clinical education experience to a comprehensive standardized practical assessment. Interestingly, previous studies have shown that the level of anxiety lessens slightly as the student progresses through the examination, further emphasizing the role of experience and exposure to the exam. Adding clinical skills courses to the medical school curricula and exposing students to this type of assessment throughout their education may serve to decrease anxiety about the OSCE and increase its acceptance among students.

<table>
<thead>
<tr>
<th>Table 1: Students’ perceptions of quality of the objective structured clinical examination (n=112)</th>
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<tbody>
<tr>
<td><strong>Question (n (%))</strong></td>
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<tr>
<td>Time of stations was adequate</td>
</tr>
<tr>
<td>Sequence of stations was logical and appropriate</td>
</tr>
<tr>
<td>Instructions were clear and instantly recognizable</td>
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<tr>
<td>Tasks asked to perform were fair</td>
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<tr>
<td>OSCE provided opportunity to learn</td>
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<tr>
<td>OSCE was organized</td>
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<td>OSCE was more stressful than MCQ exams</td>
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OSCE = Objective structured clinical examination; MCQ = Multiple choice question

<table>
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<tr>
<th>Table 2: Students’ perceptions of objective structured clinical examination validity and reliability (n=112)</th>
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<tbody>
<tr>
<td><strong>Question (n (%))</strong></td>
</tr>
<tr>
<td>Tasks reflected skills/ knowledgelearned</td>
</tr>
<tr>
<td>Wide range of clinical skills covered</td>
</tr>
<tr>
<td>Wide knowledge area covered</td>
</tr>
<tr>
<td>Standardized patient plays his/her role realistically</td>
</tr>
<tr>
<td>Observer acts fair, ly</td>
</tr>
<tr>
<td>Personality, ethnicity and gender will not affect the scores</td>
</tr>
<tr>
<td>The OSCE score is a true measure of clinical skills</td>
</tr>
<tr>
<td>I prefer to participate in the OSCE rather than MCQ exams</td>
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</tbody>
</table>

OSCE = Objective structured clinical examination; MCQ = Multiple choice question
Further, serious concerns about observers’ fairness,[18,19] as reflected by the concerns and reservations regarding whether the OSCE scores are influenced by the observer’s point of view, may also play an important role in student assessments. Notably, a significant proportion of students felt that personality, ethnicity and gender affected their scores for this examination. In line with students concerns, inter-rater and inter-SP variability could be major sources of bias, as documented by previous studies.[17,19‑21] Addressing these issues could potentially increase students’ acceptance of this exam. Conceivably, resistance toward these changes may have triggered the students’ judgment to not prefer the OSCE.

A majority of the students asserted that the expected tasks were fair and reasonable. Finding that an overwhelming proportion of the students agreed that the OSCE provided a useful and practical learning experience was consistent with previous studies reported in various biomedical education settings.[17,18,22‑25] Notably, it is suggested that students will gain the most valuable learning experience through the OSCE as it provides them with the opportunity to feel like being a doctor rather than a student, receive constructive feedback from faculty members and control their anxiety.26 The content of the assessment can strongly influence students’ learning strategies and their profile of strengths and weaknesses.27 Communication and interpersonal skills, ethical problem identification and resolution skills may be assessed more effectively through a well-planned OSCE than through other testing methods.28 Therefore, it is suggested that the OSCE could be adapted and used as a diagnostic tool to guide student learning.

Although, Pierre et al. suggested that the ambiguity of the questions or tasks may contribute to lower acceptance of the OSCE, it seems that it was not the case in this study since most students stated that the instructions had been clearly presented and the orientation was sufficient. Attending review classes and orientation sessions prior to the actual exam appeared to benefit the students, making them well acquainted with the regulations of the anticipated actions and performances by the examiners and examination staff.

Students did not believe that the sequence of stations and different tracks might have affected their scores. This finding is in contrast to previous studies.26 This key point acknowledges that the randomized allocation to the tracks of the stations resulted in students feeling more secure about the exam structure.

Students indicated that the allocated time for completing each task was insufficient. The large number of examinees and time limitations for taking an exam required the assignment of 5 min for each station. Concerns about time allocation could have arisen from the students’ anxiety, since previous studies have demonstrated that the OSCE can be a strong anxiety-producing experience.[14,15] In contrast, concerns about time allocation per station and the degree of stress expressed by the students were in part due to inadequate preparation for the examination, particularly in competencies not previously assessed in more traditional examinations.[17,24,25]

Just over two-fifths of the students (40.2%) found the SPs not realistic.28‑30 To improve this aspect of the exam, faculty can conduct more supporting classes for the SPs, and the entire OSCE should be taped and reviewed to discern pitfalls in the role-playings, which may need to be corrected in future exams.[31] In this regard, use of peer-based examiners or SPs may also be a helpful option since previous studies indicate that involvement of peer examiners or SPs engages students in a useful activity and inspires them to have more self-confidence in their clinical skills.[32,33]

Comparing the results of the OSCE with the MCQ national comprehensive pre-internship examination and students’ grade point average showed a moderate to high correlation between students’ knowledge as judged by written examinations and their clinical competencies.34 This suggests that the expected tasks in OSCE are in line with the curriculum. Considering the students’ perceptions of the discrepancies between expected tasks and the curriculum, it seems beneficial to improve informing the students’ about the skills they are supposed to learn during clerkships. Additionally, providing the faculty members with the feedback about the subject and encouraging them to place more emphasis on the necessary competencies that students are supposed to gain during their clinical education seems paramount.

Our study has several limitations. First, it was conducted at a single center. Second, students’ perceptions of the OSCE may have been influenced by the lack of confidence associated with the imposition of a new assessment and responses may have also been affected by the timing of the inquiry (immediately after the examination); hence, students’ stress and fatigue should be taken into consideration. However, the high response rate ensured that the views were a reasonable representation of the students’ perceptions.

Our study demonstrates that although the majority of students viewed the OSCE as a valuable tool in measuring clinical competencies, there were still concerns leading to its poor acceptance. The findings of this study encourage policy-makers to enhance students’ early exposure to the clinical evaluation settings to increase familiarity of students to these examinations. Furthermore, interventions including improving examiners’ scoring training, analyzing and reporting the internal consistency and validity of scoring checklists might be beneficial in increasing the reliability of the OSCE and decreasing students’ concerns about inter-rater...
variability. Further studies are necessary to assess the effectiveness of the interventions in improving the accessibility of the OSCE.

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References