

Original Paper

Perception of OSCE Examination in Iraqi Undergraduate Medical Students

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Abstract

Background: The objective structured clinical examination (OSCE) is an approach to student assessment in which aspects of clinical competence are evaluated in a comprehensive, consistent and structured manner, with close attention to the objectivity of the process.

Aims: This study aims to evaluate students' perception about the fairness, objectivity, comprehensiveness and overall organization and administration of OSCE in the 4th year medical students.

Methods: 24-item questionnaire was used to gather data regarding perception of students about the quality of OSCE, its fairness and its organization. A 5-point Likert scale, with responses ranging from "strongly agree" to "strongly disagree" was used. Students were asked post exam questions related to positive and negative aspects of the OSCE and to do suggestions for improvement.

Results: Out of 71 eligible medical students, 66 (92.9%) completed the survey questionnaire. A sizable proportion of 59.1% of the respondents agreed that OSCE was well administered. 51.5% of the students agreed that the objectives of clinical courses were covered. Significant percent of students 61.8% agreed to the facilitators' behavior. 36, 4% of the respondents stated that the time allocated for each station was not adequate. 79.4% of the respondents felt that OSCE allowed them to compensate in some areas of their weakness. Great majority of students 81.9% regarded OSCE as a practical and useful assessment tool in early years of medical education.

Discussion: It is assumed that overloading the students by trying to assess too many skill subsets of performance at a single station, and inadequate practice at being examined in the OSCE format might have contributed to the dissatisfaction with the time allocation.

Conclusion and recommendations: OSCE exam covers most of the objectives of the students' clinical rotation. However, at some stations the students felt that instructions were ambiguous and time allocation was inadequate for the assigned tasks. The overall feedback was very useful and facilitated a critical review of the process. Our recommendations are; increasing the duration of stations especially for history taking and cardiac auscultation, modifying the administration of the OSCE aiming at reducing the waiting time especially for the students in the last batch, ensuring clear instructions, having real patients for the expected tasks, and finally more training with the OSCE.

Keywords: OSCE, perception, medical students.

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Introduction

The assessment of students' clinical competence is of paramount importance, there being several means of evaluating student performance in medical examinations. The objective structured clinical examination (OSCE) is an approach to student assessment in which aspects of clinical competence are evaluated in a comprehensive, consistent and structured manner, with close attention to the objectivity of the process⁽¹⁾. The OSCE has been increasingly used to provide formative and summative assessment in various medical disciplines worldwide including non-clinical disciplines⁽¹⁾. It is the method of choice for evaluation of learner's clinical competence⁽²⁾. OSCE is used for teaching as well as for making high-stake decision regarding licensing of physicians. However, a review of reliability and validity research does not clearly demonstrate the superiority of OSCE testing⁽²⁾. Many studies have reported less-than-ideal reliability scores for OSCEs because of reasons that include content specificity, student fatigue, personal bias, relatively high anxiety about the testing method, and memory lapse⁽²⁾. The OSCE was introduced by Harden in 1975⁽³⁾, and first described as an assessment format in pediatrics by Waterston and colleagues⁽⁴⁾. Bias in any examination is a threat to its validity, marks awarded being dependent not only upon a candidate's performance, but also upon other factors which generally are called construct-irrelevant. In clinical examinations, where a candidate's performance is observed by an examiner, there is a potential risk that an examiners' judgments depend in part upon their personality, attitudes or predispositions in general (resulting most obviously in being a hawk or a dove)⁽⁵⁾. A further possibility is that the personal characteristics of the candidate, most obviously their sex or

ethnicity, may modify an examiner's response to the candidate's performance⁽⁶⁾. The OSCE format comprises a student rotating through a series of time limited clinical "stations". At each station the student is faced with a simulated scenario, usually involving a simulated patient. The student has to perform the required clinical task under the direct observation of a clinical assessor (examiner), who scores student performance against a checklist and/or global rating scale. There is a body of research on the use of checklists, which describe precisely the occurrence of particular behaviors and global rating scales which describe the quality of a performance, allowing for more interpretation by the examiner⁽⁷⁾. Checklists are designed and incorporated into OSCE to increase the objectivity and reliability of marking by different examiners. However some researchers have criticized the validity of checklists due to their tendency to become objectified and trivial in the evaluation of clinical competence⁽⁷⁾. All assessments that depend on human raters are vulnerable to mischief due to raters. Because medical education depends so heavily on assessments using human raters, serious consideration might be given to finding useful, defensible, and legitimate statistical means to detect and reduce or minimize such mischief⁽⁸⁾. Some studies found null or negative effects of examiner training. Even when training effects are positive there is evidence that training benefits dissipate over time. Another strategy is to use rater pairs. Regardless, doubling the number of raters creates logistical and financial demands that may not be feasible for large-scale examinations⁽⁹⁾. Since its inception, OSCE has been increasingly used to provide formative and summative assessment in various medical disciplines worldwide. In addition to assessing the competence and performance of the examinee, OSCE has many advantages over traditional methods of evaluation such as conventional bedside

long and short case examinations⁽¹⁰⁾. The advantages of the examination are greatly apparent when one reviews the wide spectrum of clinical tasks that can be incorporated into the OSCE. Such tasks include clinical data interpretation, reviews of radiographs, use of models, and examination of simulated or real patients. The breadth of data that can be included in this type of examination is limited only by the imagination of the examiners. Evaluation of OSCE experience by students and faculty helps to enhance its acceptance as a relatively new assessment tool and refine some of the deficiencies observed in the preparation and conduct of the process⁽¹⁰⁾. As an evaluation tool, OSCE eliminates subjectivity, reduces variations in marking standards from examiner to examiner and can accurately reflect the real-life tasks of the doctor⁽¹¹⁾. Many studies have been conducted on feedback from students on OSCE⁽¹⁰⁾.

Aims

This descriptive cross-sectional study was conducted on medical students with the aims of evaluating students' perception about the fairness, objectivity, comprehensiveness and overall organization and administration of OSCE in the 4th year medical students.

Subjects and Methods

The survey was conducted at Karbala University, College of Medicine, Karbala holy, Iraq, in December 2013 on medical students in the 4th year of their clinical training. A 24-item questionnaire was used to gather data regarding perception of students about the quality of OSCE, its fairness and its organization, see table 1 in appendix. A 5-point Likert scale¹², with responses ranging from "strongly agree" to "strongly disagree" was used. Students were asked follow-up questions related to positive and negative aspects of the OSCE and to do suggestions for improvement. The questionnaire was developed comprising items to explore both positive

and negative aspects of the OSCE experience. The questionnaire was kept simple and short to maximize the response rate. The questionnaire was piloted before actual administration to address any ambiguities. The questionnaire is to be distributed 2 days after the OSCE exam at the end of the medicine clerkship course in Al-Husain Medical City Teaching Hospital, Karbala holy. OSCE was designed by using 10 observed performing stations and the one resting station. The movement of the candidates from one station to another was managed by using a voice commands that clearly instructing the candidates and the examiners. The OSCE starts with the command start, during which time the candidates read or listen to question from the observer, followed two minutes later with instructions to answer the questions, and the station would end three minutes later with the command 'move on', and so the examination time at each station lasts five minutes. The cycle is repeated for the duration of the examination. Those candidates who have completed the examination were separated from those who have yet to take it on the same day. Performing stations were equipped with real patients, one manikin for cardiac auscultation, one simulated patient, and the observers (examiners). The aspects of competence (history taking, physical examination and communication skills) were assessed in a structured manner. Performance of the required tasks was calibrated according to specifically designed checklists, containing seven items, each with an assigned score corresponding to the key skills. The feedback was obtained from the 4th year medical students and was utilized to incorporate the improvements in the process, wherever possible. Basic descriptive statistical analysis of the Likert items was conducted by calculating frequencies using IBM –SPSS version 22⁽¹³⁾, and regrouping the responses was made into similar categories. The survey

was anonymous and inclusion into it was entirely voluntary.

Results

Out of 71 eligible medical students, 66 (92.9%) completed the survey questionnaire. A total of 84.9% (57.6% agreed, 27.3% strongly agreed) respondents felt that a wide range of clinical skills and competencies were covered, figure 1-A. Most of the respondents agreed (48.5) or strongly agreed (5.9%) that the sequence of the stations in OSCE were comfortable, see figure 1-B. Half of the students felt that OSCE covers the objectives of clinical rotation, figure 1-C. Two thirds of the respondents (67.6%) know the process of OSCE prior to the examination date, figure 1-D.

36.4% of the respondents stated that the time allocated for each station was not adequate, the procedure was stressful and tiring for students who were kept waiting before starting the exam, see figure 2-A. One half of the respondents reported that the tasks asked in the exam reflected those actually taught in the course, see figure 2-B. and an average of 63.3% of the respondents agreed/strongly agreed that OSCE was fair, and Further, see figure 2-C. Figure 2-D; shows that half of the respondents (33.8% disagreed, 19.1% strongly disagreed) that OSCE scores truly reflect clinical competence.

44.1% either strongly disagreed or disagreed while 35.9% either agreed or strongly agreed that OSCE scores are not affected by student's gender, ethnicity and personality. The remaining 17.6 were not sure of the answer and 2.9 were not responding, see figure 3-A. Significant proportion 59.1% mentioned interference in at least one of the station by the

facilitators, see figure 3-B. Students felt that given tasks were clear and understandable in 61.8%, see figure 3-C. Three quarters of patients felt that OSCE was not affected by simulator response, see figure 3-D.

Most of the students 61.6% agreed/strongly agreed that the facilitators (observers/ examiner) were cooperative, see figure 4-A. 77.3% stated that standardized patients were cooperative, figure 4-B. Half of the responding students felt that OSCE was less stressful than other types of tests they have been through before, see figure 4-C. 58.8 believe that OSCE give a constructive feedback for them see figure 4-D.

Three quarters of the respondents (78%) felt that they need as undergraduates to have more frequently examined by OSCE way, figure 5-A. Two thirds of students prefer OSCE to other formats of clinical examination, see figure 5-B. About 63.3% felt that OSCE minimized their chance of failure in the exam, figure 5-C. Most respondents 79.4% felt that OSCE allow them to compensate in some areas of their weakness. figure 5-D.

64.7% of respondent accept that they prepare differently for OSCE than for other types of practical examinations, see figure 6-A. Thirty six of the respondents agreed and twenty three strongly agreed that the examination provided opportunities for learning by claiming that OSCE highlighted areas of their weaknesses in their training course. see figure 6-B. More than three quarters of students (81.9%) regarded OSCE as a practical and useful assessment tool in early years of medical education, see figure 6-C. 63.3% thought that their performance on the OSCE would improve their overall final grade for the course see figure 6-D.

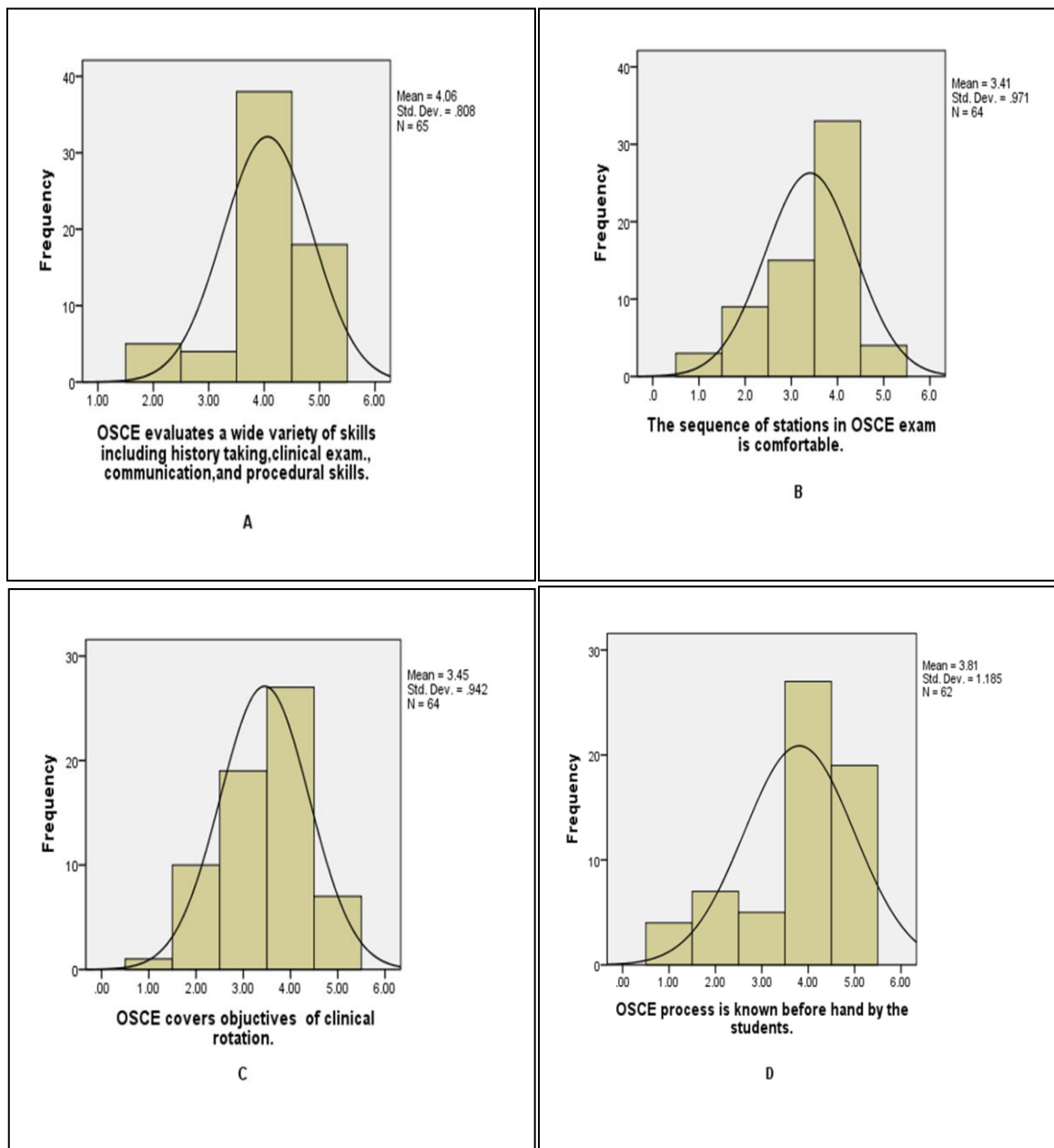


Figure 1. The frequency distribution of the students' perception of OSCE. 1=strongly disagree, 2=disagree, 3=not agree/not disagree, 4=agree, 5=strongly agree.

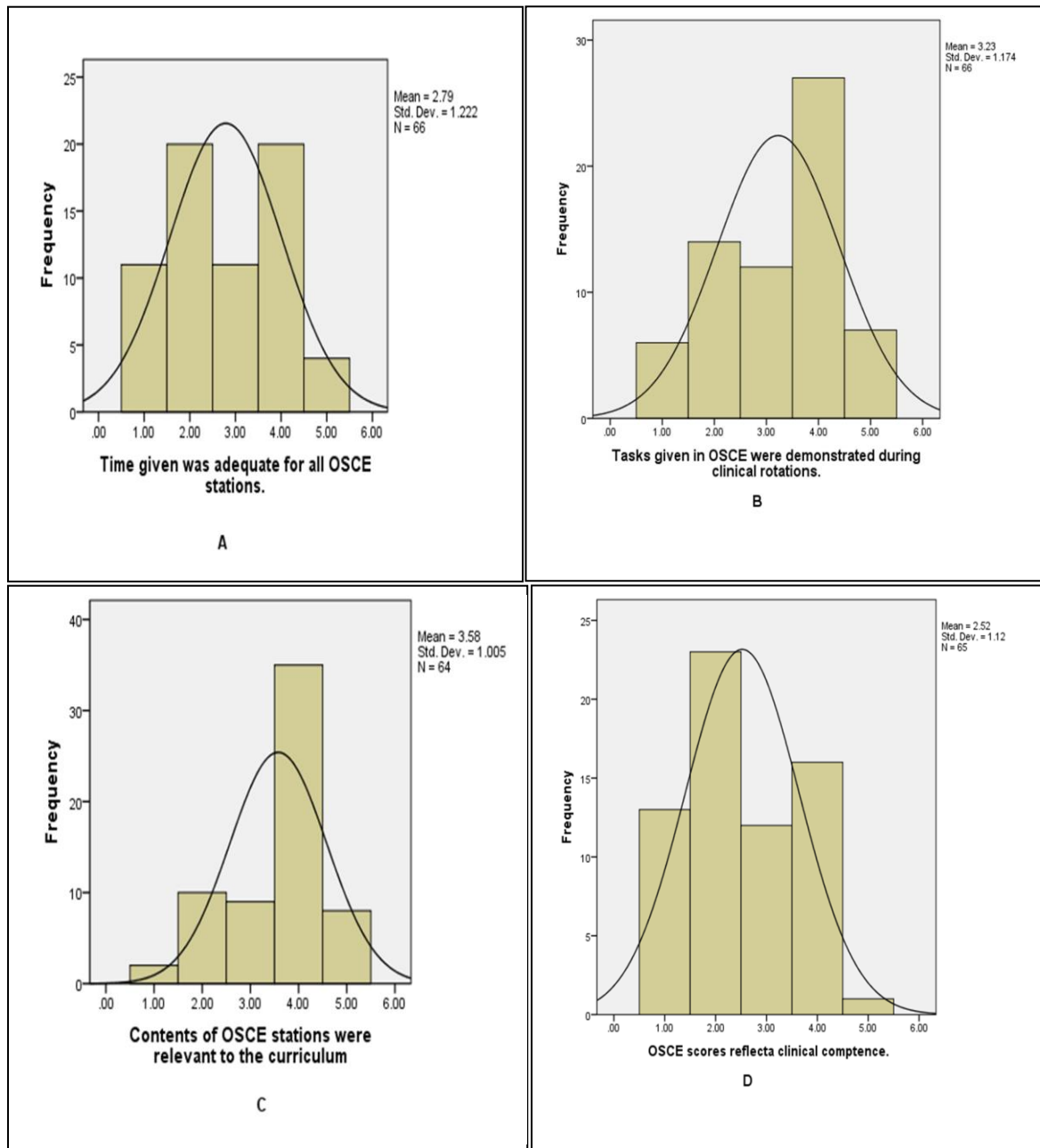


Figure 2. The frequency distribution of the students' perception of OSCE. 1=strongly disagree, 2=disagree, 3=not agree/not disagree, 4=agree, 5=strongly agree.

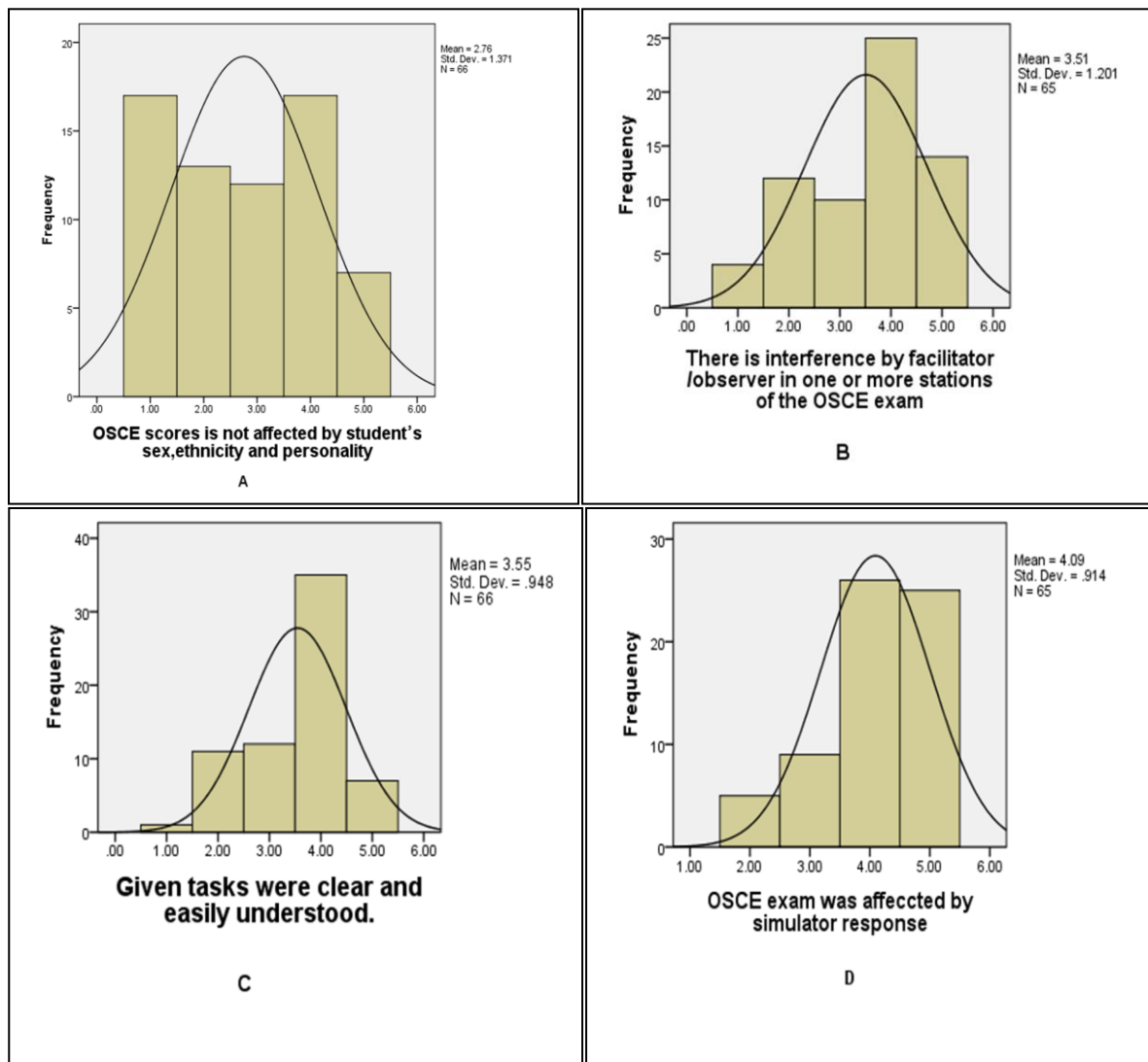


Figure 3. The frequency distribution of the students' perception of OSCE. 1=strongly disagree, 2=disagree, 3=not agree/not disagree, 4=agree, 5=strongly agree.

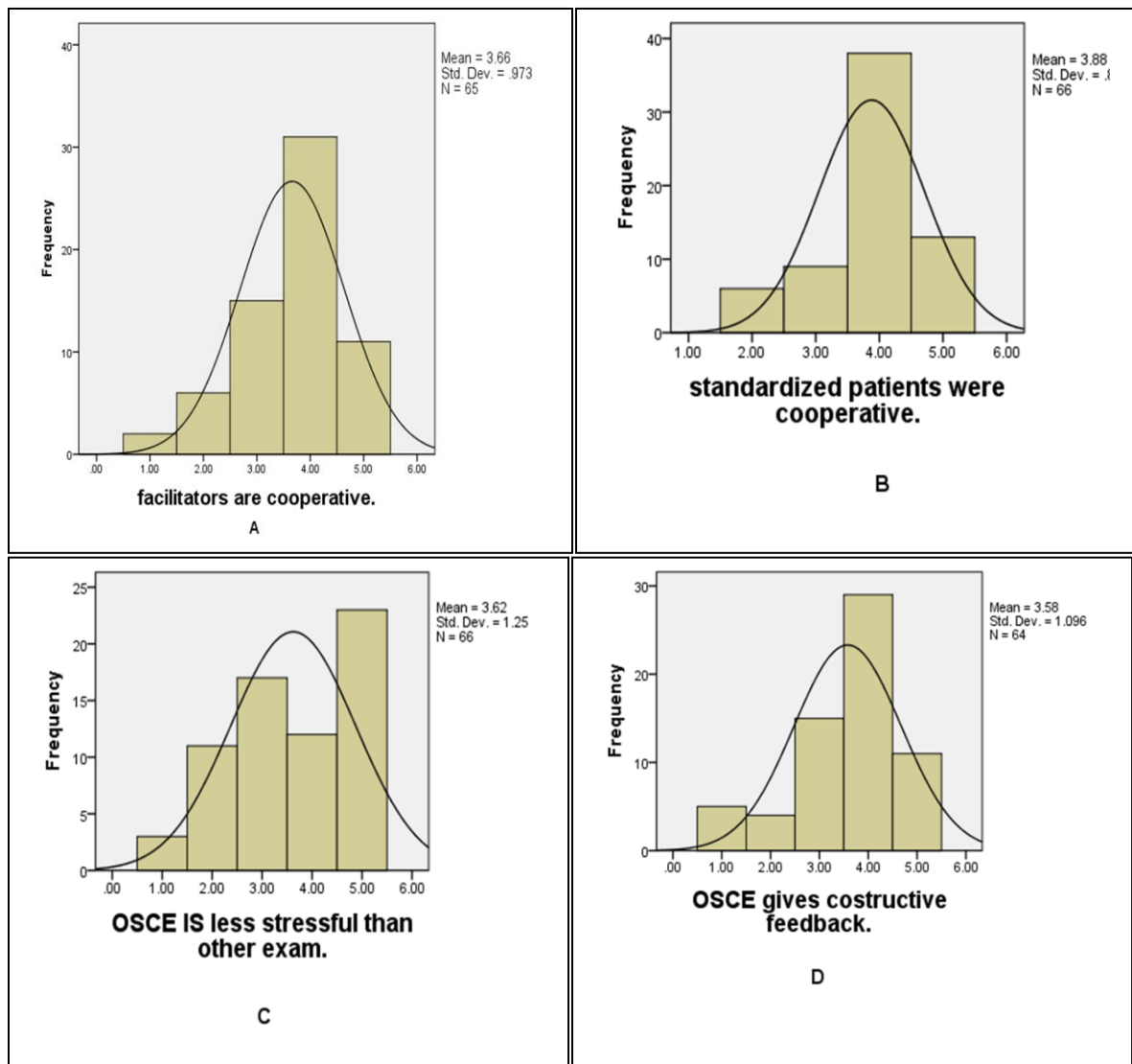


Figure 4. The frequency distribution of the students' perception of OSCE. 1=strongly disagree, 2=disagree, 3=not agree/not disagree, 4=agree, 5=strongly agree.

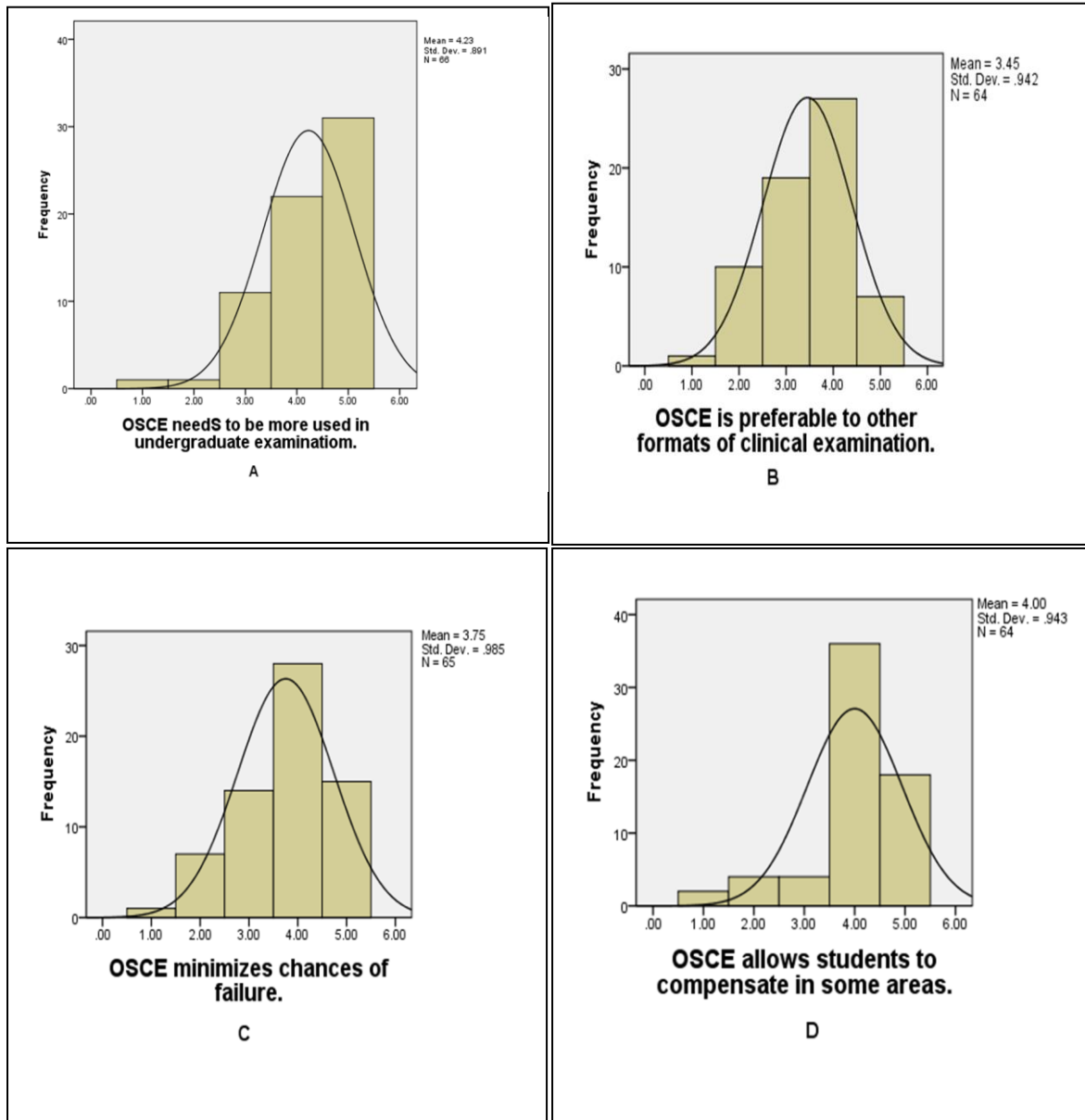


Figure 5. The frequency distribution of the students' perception of OSCE. 1=strongly disagree, 2=disagree, 3=not agree/not disagree, 4=agree, 5=strongly agree.

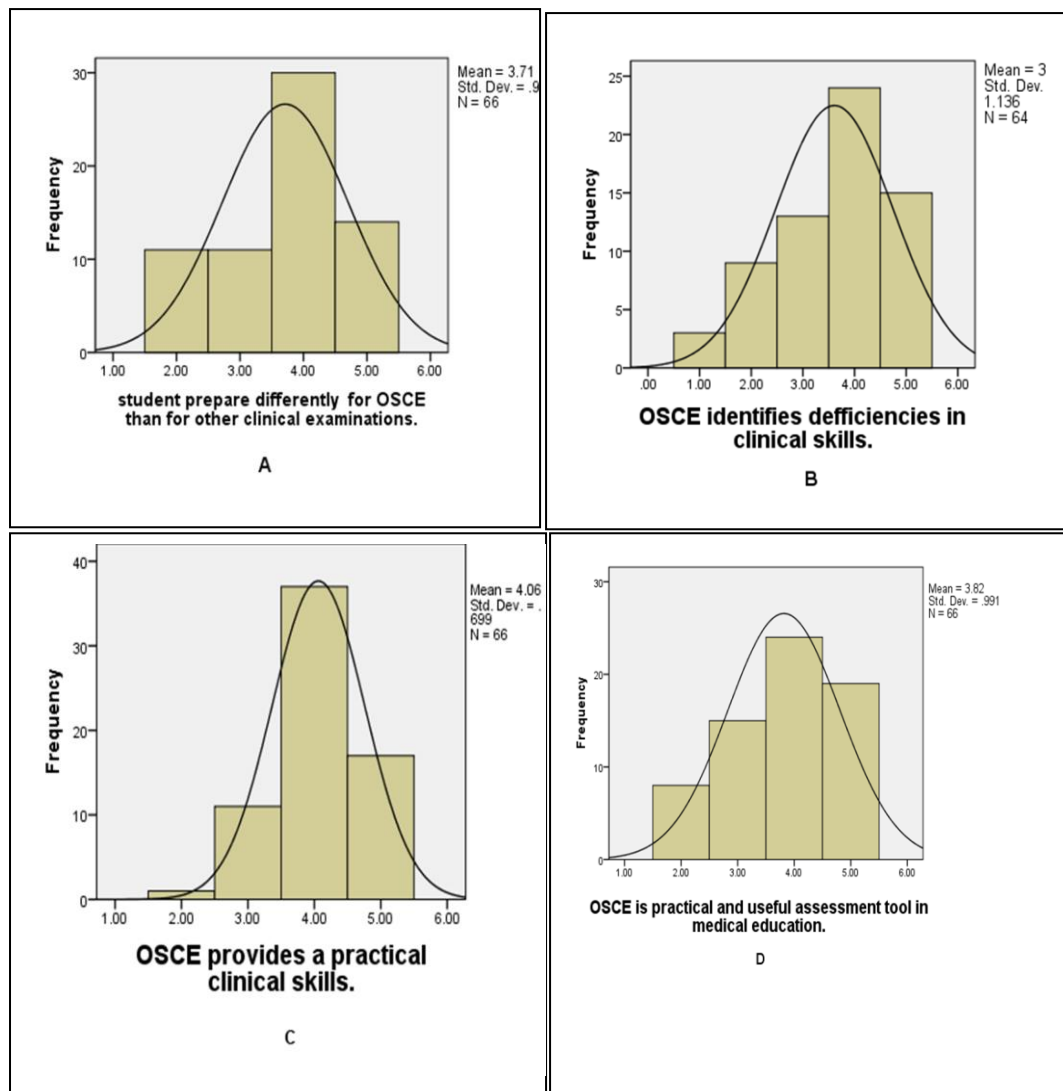


Figure 6. The frequency distribution of the students' perception of OSCE. 1=strongly disagree, 2=disagree, 3=not agree/not disagree, 4=agree, 5=strongly agree.

The open-ended responses of the students included some positive and negative comments and few suggestions for improvement. Among the positive comments is that students re-affirmed that the assessment was fair and that there was nothing unusual about the tasks required (3 comments), time allocated was not enough in some stations (9 comments), although others thought that some of the tasks required were rare (4 comments).

Discussion

This study used a total population sampling technique as the population size was relatively small and non-inclusion of subjects might have resulted in significant

loss of information. Since total population sampling involves all members within the population of interest, it was possible to get deep insights into the students under study. Majority of respondents felt that OSCE assessed a wide variety of skills and the sequence of stations were comfortable to them (2). Most of the students agreed that OSCE exam covers most of the objectives of their clinical rotation and the process of OSCE was known prior to the exam. Once the areas for assessment have been identified, it is important to ensure that the clinical skills which are expected to be performed by the candidates can be realistically assessed using an OSCE format and in the limited time allocated for

each station ⁽¹⁴⁾. The assessment of competencies should always be aligned to the teaching and learning that has taken place as specified by the course curriculum ⁽¹⁵⁾.

At some stations they felt that time allocation was inadequate for the expected tasks. That was especially true for the cardiac auscultation and X-ray interpretation stations. This is explained by overloading the students by trying to assess too many skill subsets of performance at a single station is another reason. The example of such a scenario was by asking the candidates to take a history and examine a patient complaining of chest pain, interpret their electrocardiographic findings, and explain the likely diagnosis to the patient. Although this station may reflect 'real life' by placing skills within context, it is unlikely that assessing all of these skills adequately within the one station is achievable within time constraints ⁽¹⁶⁾. Our respondents felt that there was a bias in OSCE and they might feel that gender and personality affect the score given. Bias in any examination is a threat to its validity, marks awarded being dependent not only upon a candidate's performance, but also upon other factors which generally are called construct-irrelevant. A further possibility is that the personal characteristics of the candidate, most obviously their sex or ethnicity, may modify an examiner's response to the candidate's performance, a situation which can be conceptualized as being, say, Hawkish to one sex and dovish to the other ⁽⁵⁾.

Around two thirds of our participants mentioned interference in at least one or more of OSCE stations by the facilitators. This is because of the possible potential risk that an examiner's judgments depend in part upon the examiner's personality, attitudes or predispositions in general. On the other hand, external examiners may be invited from different institutions or colleges of medicine to inform and

comment on whether academic standards are being maintained and also to ensure the assessment process measures student achievement rigorously and fairly. However; some of the junior examiners who lack enough experiences in OSCE exam interfere with the candidates performance. We recommend that the choice of external examiners should not be conducted randomly, but in clear policies and regulations ⁽¹⁵⁾.

It is common for doctors to assess doctors and nurses to assess nurses; however, skill-matching can add a degree of flexibility and has resource and financial implications. This explains why most of the respondents in this study felt that the facilitators generally were cooperative in most of the stations. We used a simulated patient in one station and depend on his scoring of students, so as to lessen the burden of finding adequate numbers of doctors to act as examiners; this was consistent with Mann et al ⁽¹⁷⁾ who suggested that simulated patient scores have a good correlation with physician scores.

Once equipped with the station information it is necessary to identify appropriate standardized patients from the trained pool for all stations. We found in this study that only one real patients for each station is identified, and although most of these patients were cooperative but some got fatigue since the station is to be run three times in the same day. It is advisable to invite a number of reserves of standardized patients and to start with two patients for each station. The low pool of the standardized patients can be solved by referring them from the private clinics and support them by giving fees to the standardized patients. It's important that all standardized patients should be trained for a complex scenarios and this require a dedicated training in advance of the examination ^(15,18). Furthermore the selection of patient required for each OSCE station depended upon the desired outcomes of the station and the role

expected to be played by them. If the station requires the candidate to elicit a specific clinical sign, e.g. a heart murmur, a real patient with the murmur in question was used. However, if the focus of the station is to determine if the candidate can competently examine the cardiovascular system a 'healthy' volunteer was used instead⁽¹⁵⁾. A number of students felt that OSCE was not less stressful than other methods of examination. Some of them considered it even more stressful, especially those who waited for long time before they entered the exam. In some Studies, it was documented that OSCE can be a strong anxiety-producing experience, and that the level of anxiety changes little as students' progress through the examination⁽¹⁹⁾. Three quarters of participants accept the statement that OSCE exam provide a constructive feedback for driving medical learning. This positive educational impact is dependent on realistic recreation of assessment scenarios at the OSCE stations^(20,21).

There is wide acceptance of OSCE by students as has been described in the literature^(11, 20). Although the students overall perceived the exam as well administered, they offered constructive criticism of the organization of the process. Testing candidates across a large sample of clinical cases maximizes reliability and an appropriate test length has been shown to have the greatest influence in ensuring that candidates' overall performance is reliably assessed⁽¹⁶⁾. The students expressed much concern about their lack of adequate information about what would be covered in OSCE before the exam. But, they admitted that they were aware of the nature of OSCE and the level of information needed²¹. Most respondents agreed that OSCE provide them with practical and useful experiences. We believe that if candidates find it difficult to differentiate between the assessment tasks and real life practice then

the OSCEs can drive lifelong learning. If the tasks given at OSCE stations are compartmentalized and driven by checklist scoring then the candidates learn to pass exams, decreasing the educational impact of the OSCE⁽²²⁾. Although the student response was acceptable, it was not up to our expectations. Administration of the questionnaire immediately after the examination (2 days interval) might have negatively affected the response rate. This is a time when students may still suffer from stress and fatigue as a result of the exam.

Implementation of OSCE in the college of medicine, Karbala University for 4th year medical students has been challenging, however student participation in the evaluation and their overall acceptance of the instrument have been encouraging. In addition, the university and the college are undergoing significant reform. A well-designed OSCE can drive learning, and therefore, can have a positive educational impact⁽¹⁶⁾.

Acknowledgements

We wish to thank all member staff of the department of internal medicine for all their efforts in preparing and executing the OSCE. We also express our gratitude to the participating students.

Conclusion and Recommendations

In this study, students appreciated OSCE and offered constructive feedback on structure and organization of the process. OSCE exam covers most of the objectives of their clinical rotation. However, at some stations the students felt that instructions were ambiguous and time allocation was inadequate for the assigned tasks. It is assumed that overloading the students by trying to assess too many skill subsets of performance at a single station .

Appendix: A 5- point's likert scale with 24 items of structured questionnaires.

Please Rate The Following Statements Regarding OSCE: 1 2 3 4 5							
N	Feedback perceptions items.	Themes	Strongly Disagree	Disagree	Not agree, not disagree	Agree	Strongly Agree
<u>1</u>	OSCE evaluates a wide variety of skills including history taking, clinical exam, communication, and procedural skills.	comprehensive					
<u>2</u>	Sequence of stations was comfortable.	standardized					
<u>3</u>	Objectives of clinical rotations were covered by OSCE.	standardized					
<u>4</u>	OSCE process was known beforehand.	standardized					
<u>5</u>	Time given was adequate for all stations.	standardized					
<u>6</u>	Tasks given in OSCE were demonstrated during clinical rotations.	fair					
<u>7</u>	Contents of OSCE stations were relevant to the curriculum.	fair					
<u>8</u>	OSCE scores truly reflect competence in clinical skills.	Reflective of clinical competence					
<u>9</u>	OSCE scores are not affected by personality, ethnicity and gender.	bias					
<u>10</u>	Any interference by the facilitators/observers.	bias					
<u>11</u>	Given tasks were clear and easily understood.	difficult					
<u>12</u>	OSCE performance was affected by simulator's response/ behavior.	difficult					
<u>13</u>	Facilitators were co-operative.	difficult					
<u>14</u>	Standardized patients were co-operative.	difficult					
<u>15</u>	OSCE is less stressful than other clinical exams.	stressful					
<u>16</u>	OSCE provides opportunity for constructive feedback.	feedback					
<u>17</u>	OSCE should be used more often in the clinical years of undergraduate program.	Preferred tool for clinical examination					
<u>18</u>	OSCE is preferable to other formats of clinical examination.	Preferred tool for clinical examination					
<u>19</u>	OSCE minimizes chances of failing.	More opportunity to pass the exam					
<u>20</u>	OSCE allows student to compensate in some areas.	More opportunity to pass the exam					
<u>21</u>	Students prepare differently for OSCE than for other clinical examinations.	Different kind of preparation					
<u>22</u>	OSCE identified deficiencies in clinical skills.	Positive impact on learning					
<u>23</u>	OSCE provides practical and useful experience.	Practical useful experience OSCE					
<u>24</u>	OSCE is a practical and useful assessment tool in medical education.	Practical useful experience OSCE					

The overall feedback was very useful and facilitated a critical review of the process. Suggestions for improvement included increasing the duration of stations especially for history taking and cardiac

auscultation, modifying the administration of the OSCE aiming at reducing the waiting time specially for the students in the last batch, ensuring clear instructions ,having real patients for the expected tasks,

and finally more training with the OSCE and emphasized.

This survey is intended to assist the faculty in improving the OSCE Examination. Please note that any information you provide will be kept confidential and will only be reported in grouped form.

I agree to participate in this study.

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