



# Assessment of medical students in the final obstetrics and gynaecology clinical examination (MBBS): Comparing the Objective Structured Clinical Examination (OSCE) using (MAM) and the Traditional Long Obstetric Case (TOC)

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## ABSTRACT

### Background

For many years, the traditional long obstetric case (LOC) remains the standard clinical examination in obstetrics and gynaecology in the majority of medical schools in the world. Because it has so many shortcomings, a move towards the (OSCE) took place. The objective of this study was to assess the performance of the students in the final clinical examination in obstetrics and gynaecology (MBBS) comparing OSCE using (MAM) as standard setting method to determine the cut off score, and the (LOC).

### Methods

The current comparative study was conducted in the National Ribat University, Khartoum. One hundred and three students were examined by the (OSCE) in 10 stations. The cut score was determined by the (MAM). We took also the (50%) as a fixed cut off score for the (OSCE) examination. On the other hand, we took the performance of 103 students who were examined by the (LOC) in the previous batch. A comparison then was made about the performance of the students.

### Results

The performance of the students in the (LOC) and the (OSCE) when the cut score was decided by (MAM) was: 91(88.4%) passed in the (LOC) and 85(82.5%) passed in the (OSCE). The performance of the students in the (LOC) and the (OSCE) when the cut score for the (OSCE) was taken as (50%) was: 91(88.4%) passed in the (LOC) and 94(91.3%) in the (OSCE).

### Conclusion

There was no significant difference in the number of the students who passed/failed the clinical examination between the (OSCE) using (MAM) to determine the cut off score and the (LOC), the (LOC) and the (OSCE) when the cut off score was taken as (50%). The (MAM) can be used in clinical examination as an item referenced standard setting method to determine the cut off score.

**Keywords:** Objective Structured Clinical Examination (OSCE), standard setting, Modified Angoff Method (MAM), traditional long obstetric case (LOC).

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## INTRODUCTION

For many years, the traditional long obstetric case (LOC) remains the standard clinical examination in obstetrics and gynaecology in the majority of medical schools in the world. In the past few decades a move towards the (OSCE) had happened after its introduction by Hardeen in 1975.<sup>1</sup> The criticism to the (LOC) is genuine and should not be overlooked. Not all examinees are examined in the same patient. Some students may get easy cases while others may get difficult ones. The examiners in a panel may vary in the number and experience. The examinee is not observed while taking the history because this is usually done in a separate room, so an important skill of how to communicate with the patient is not assessed by the examiners. The time of the examination, though already decided and fixed for the panel by the examination committee but some examiners exceed the time allotted. The skills tested are usually few in number compared the (OSCE), only history, demonstration the obstetric grips or even some of them and then lastly a discussion on the management. The questions vary according to the case problem and the mood or the wishes of the examiners and not according to a standardized format. The answers of the student may be accepted or refused according to the judgement of the examiners and not according to a predetermined decision (check list) that is already agreed upon by the experts. However, Ponnampereuma GG et al added a further criticism to the (LOC) in that it has a low reliability because it does not sample the curriculum widely.<sup>2</sup> It is also criticized for lacking objectivity, validity and reliability.<sup>3</sup>

However, the (LOC) is not without some advantages in that it assesses the candidate's overall (holistic) approach to the patient<sup>2</sup> and believed that the (LOC) will persist for years to come. So, to overcome its shortcomings but not to replace it utterly, others proposed some modifications to improve its objectivity, validity and reliability. These modifications to the traditional clinical examination attempt to structure the format and the marking scheme; increase the number of examiners; observe the candidate's attitude, and increase the number of cases. The objective structured long examination record (OSLER) and the watched Structure Clinical

Examination (WASCE) are examples of these modifications.<sup>3-6</sup>

In the OSCE, the students rotate round a series of stations. At one station they are asked to carry out a procedure, such as take a history, undertake one aspect of physical examination or interpret laboratory investigations in the light of a patient's problem. At the next station they have to answer questions on the findings at the previous station and their interpretation. The students may be observed and scored at some stations by examiners using a check list. In the structured clinical examination the variables and complexity of the examination are more easily controlled, its aims can be more clearly defined and more of the student's knowledge can be tested. The examination is more objective and a marking strategy can be decided in advance. The examination results can be useful in the feedback to students and staff. At each station, trainees interact with a patient or a standardized patient to demonstrate specified skills.

Standardized patients are lay people trained to present patients' problems realistically. The validity of interactions with real patients, however, may be higher than that with standardized patients, but standardized patients are particularly valuable when communication skills are to be tested.<sup>1,3</sup>

The (OSCE) is reported to be reliable, valid, objective, preferred method for assessment than the traditional clinical examination (TCE), fair and appropriate in assessing the clinical ability than the individual patient assessment (IPA) good for revision, effective and with good internal consistency<sup>7-11</sup>, however, it is resource intensive.<sup>8</sup>

The objective of this study was to determine the performance of the students in the final (MBBS) clinical examination in obstetrics and gynaecology comparing (OSCE) using (MAM) as standard setting method to determine the cut off score, and the Traditional Long Obstetric Case (LOC).

## METHODS

This was a comparative study assessing the performance of the students in the clinical



examination comparing the LOC and the OSCE using a standard setting method of (MAM) to determine the cut-off score of the examination; beside the comparison with the fixed (50%) cut score of the (OSCE). One hundred and three students were examined in the final (MBBS) clinical examination of obstetrics and gynaecology by the (OSCE) in 10 interactive stations representing 10 different skills in both obstetrics and gynaecology. Each station was given seven minutes. Thirty examiners with at least 10 years experience participated in the assessment. The cut score (pass mark) of the examination was determined by the modified Angoff method (MAM), sixteen examiners participated in this process and acted as judges. They were obstetricians and gynecologists of long standing experience professionally and academically. The original Angoff procedure requires experts to determine the probability of a minimally competent student answering a particular test question correctly, assuming the judges are well qualified, with training or background in the domain being tested. In the modified Angoff method, each judge was asked to define the criteria of the border line (minimally competent) student and then determined the

probability that this student could answer the questions in each station correctly. The judge's estimates were averaged in each station and the sums of the averages of all stations were the cut off score of the examination. We also took the fixed (50%) as a cut off score-for this (OSCE) examination. On the other hand, we took the performance of 103 students who were examined by the traditional (LOC) in the previous batch (Cut score of (LOC) is taken as (50%) in our department). A comparison was then made between the performance of the students in the (OSCE) and the (LOC). The SPSS for Windows software, version 20 (SPSS, Chicago, Illinois, USA) was employed to analyze the data. Frequency as a descriptive statistics was used. Comparisons were made using the Chi-square to test significance and a  $P < 0.05$  was considered significant.

## RESULTS

Table (1) shows the experience of the judges (examiners) who participated in the (MAM). It ranged from 25-50 years (mean 35 years); 7(43.7%) and 9(56.3%) had an experience of 25-35 and >35 years respectively.

**Table 1 Judges Experience: (MAM)**

Experience (years)	No. (%)
25-35	7(43.7)
>35	9(56.3)
Total	16(100)

*Experience Range: 25-50 years, Mean experience = 35 years*

Table (2) shows the performance of the students in the (LOC) and the (OSCE) when the cut score was

decided by (MAM); 91(88.4%) passed in the (LOC) and 85(82.5%) passed in the (OSCE). The difference was not significant.

**Table 2 Performance in the Clinical Examination: Comparison between the LOC and OSCE**

Exam tool	Passed	Failed	Total	p
LOC	91(88.4%)	12(11.6%)	103(50%)	0.237
MAM	85(82.5%)	18(17.5 %)	103(50%)	
Total	176(85.4%)	30(14.6%)	206(100%)	

Tab. (3) shows the performance of the students in the (LOC) and the (OSCE) when the cut score for the (OSCE) was taken as (50%); 91(88.4%) passed in the

(LOC) and 94(91.3%) in the (OSCE). There was no significant difference.



Table 3 Comparison between LOC and OSCE cut off score of 50%, CS 50%

Parameter	Results		Total	p
	Passed	Failed		
LOC	91(88.4%)	12(11.6%)	103(50%)	0.483
OSCE (CS=50%)	94(91.3%)	9(8.7%)	103(50%)	
Total	185(89.8%)	21(10.2%)	206(100%)	

## DISCUSSION

This is a comparative study between the traditional long obstetric case (LOC) and the objective structured clinical examination (OSCE) to assess the performance of the students in the graduation examination of obstetrics and gynecology. Assessment of clinical competence is an essential requirement of health professional education.<sup>12</sup> It has always been continuously a subject of discussion by the professionals and medical education experts. Traditionally the clinical examination in obstetrics and gynecology consists of long cases and the viva. In other disciplines of medicine, short cases are also included. Because this traditional practice faced a lot of criticism, evolvement of assessment of clinical competencies resulted in the invention of the (OSCE).

Since its introduction, there has been increasing interest in it by medical educators and many medical schools started to adopt it as a fair mean to assess the clinical competencies of the students. The (OSCE) can be used as an evaluation tool to measure skill competencies beside it can provide a useful feedback for improvement. Short MW et al reported a statistically significant improvement in core competencies of patient care, medical knowledge; practice-based learning, interpersonal and communication skills, professionalism and systems-based practices.<sup>13</sup> Table (1) showed the experience of the judges of the (MAM) who participated in this study. The Angoff method is an item referenced standard setting method. The number of judges in this method is usually between 5 and 10. Being expert in their field, familiar with the examination and knowledgeable about the level of the candidates are fundamental criteria of the raters. In this study, 16 examiners participated. They were from different academic institutes and the ministry of health. Their mean experience was 35 years (range 25-50 years).

This long experience in the profession, teaching and examination conduction qualified them to act as judges or subject matters expert raters. We involved such a high number because we think this will keep the variance among the ratings low, and hence the cut off score will be more accurate.

Today there is a host of standard setting methods to determine the cut off score of the examination and each has its pros and cons.<sup>14-17</sup> The method chosen in this study was the (MAM). The performance of the students in the (LOC) and (OSCE) using (MAM) as standard setting method was shown. Ninety one students (88.4%) passed the examination in the (LOC) and 85 (82.5%) in the (OSCE) when using (MAM). Though there was a difference favoring the (LOC), but this difference was not statistically significant.

The performance in the (LOC) and the (OSCE) when a cut off score in the (OSCE) was taken as (50%) was presented. Ninety one students (88.4%) passed in the (LOC) and 94 (91.3%) passed the (OSCE). Though, unlike the results shown in table (2) the performance here in the (OSCE) was better than in the (LOC), but the difference was also not statistically significant. Our results are in agreement with Ahmed T Uet al.<sup>18</sup> In their study Silva C C B M et al reported that the students' mean score was higher in the (OSCE) than the traditional but there was no correlation between them.<sup>11</sup> Bakhsh TM et al found a positive correlation between the (OSCE) and the traditional oral clinical examination (TOCE).<sup>19</sup> Contrary to our findings, others reported results of a better performance in the (OSCE) than the traditional. Idris SA et al when comparing the performance of the students in the (OSCE) and the traditional clinical examinations in the four major departments including obstetrics and gynecology (surgery, medicine, pediatrics) found that the students did far better in the (OSCE) than in the



traditional. In this study, (67.7%) of the students examined by the (OSCE) were rewarded grade B and above, while (60.5%) examined by the traditional were rewarded grade C<sup>+</sup> and below and the difference was statistically significant.<sup>20</sup> Eldarir and Abd el Hamid found that the students did well in the (OSCE) than in the traditional with statistically significant difference in a maternity course.<sup>21</sup> Jaywant and Pai reported the performance of the students in the (OSCE) was better than in the traditional in the orthopedics examination with statistically weak significant difference.<sup>10</sup> As perceived by the students, the vast majority felt it was easier to pass the (OSCE) than traditional clinical examination (TCE) (91%) vs (5.1%).<sup>7</sup>

### CONCLUSION

This study has shown that the modified Angoff method (MAM) can be used in clinical examination as an item referenced standard setting method to determine the cut off score.

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