Undergraduate performance assessment: Attitudes towards and acceptance of OSCEs among 4th year medical students

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Abstract

Introduction: Objective Structured Clinical Examination (OSCE) is considered a useful method of assessing clinical skills besides Multiple Choice Questions (MCQs) and clinical evaluations.
Aim: To explore the acceptance of medical students to this assessment tool in medical education and to determine whether the assessment results of MCQs and faculty clinical evaluations agree with the respective OSCE scores of 4th year medical students (Med IV).
Methods: performance of a total of 223 Med IV students distributed on academic years 2006-2007, 2007-2008, and 2008-2009 in OSCE, MCQs and faculty evaluations were compared. Out of the total 93 students were asked randomly to fill a questionnaire about their attitudes and acceptance of this tool. The OSCE was conducted every two months for two different groups of medical students who had completed their family medicine rotation, while faculty evaluation based on observation by assessors was submitted on a monthly basis upon the completion of the rotation. The final exam for the family medicine clerkship was performed at the end of the 4th academic year, and it consisted of MCQs
Results: Students highly commended the OSCE as a tool of evaluation by faculty members as it provides a true measure of required clinical skills and communication skills compared to MCQs and faculty evaluation. The study showed a significant positive correlation between the OSCE scores and the clinical evaluation scores while there was no association between the OSCE score and the final exam scores.
Conclusion: Student showed high appreciation and acceptance of this type of clinical skills testing. Despite the fact that OSCEs make them more stressed than other modalities of assessment, it remained the preferred one.

Introduction

The Objective Structured Clinical Examination (OSCE) is an evaluation tool to assess clinical skills[1]. In a study conducted on medical students, OSCE was not considered an adequate measure of either clinical or technical skills, besides being too "artificial," and suffers inadequate provision of feedback given with the examination[2,13].

While Multiple Choice Questions (MCQs) focus on the students' knowledge base, they ignore important skills like physical examination skills[3,4,5,6,7]and they do not typically determine clinical behavioral success. On the other hand, faculty evaluations such as directly observed cases, objective structured clinical examinations, and the use of standardized patients are grossly subjective assessment methods that tend to expand student performance and provide inaccurate evaluation of clinical competence including behavioral and cognitive functions[8]. The purpose of this study was to evaluate Med IV students' perception of the OSCE, and determine their acceptance of this tool, by comparing scores of OSCE, MCQs and the faculty clinical evaluation.

Methods

We retrieved OSCE scores, final exam scores, and faculty clinical evaluations of the MED IV students in the three academic years 2006-2007, 2007-2008, and 2008-2009 in our institution(Figure1). Students rotating in family medicine over a 2- years' period, extending from 2008 to 2009, were asked to fill a questionnaire about their attitudes of this evaluation tool after completing the OSCE.

Figure 1: Distribution of exams and evaluations during one academic year
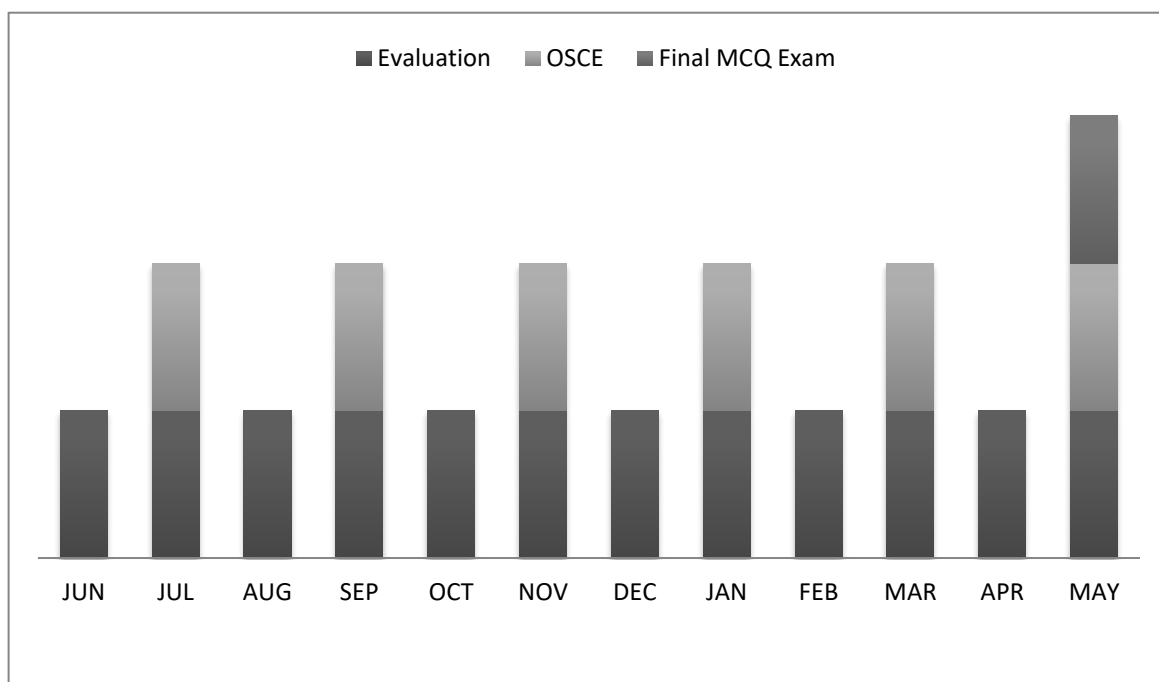
The OSCE

Students completed OSCEs consisting of 9 stations where they perform a practical task related either to history taking or physical examination, in the presence of a different faculty assessors completing a prepared checklist on student's performance. The OSCE was done every 2 months including 2 groups of medical students who have just completed their rotation. Stations included tasks that have been emphasized during the clerkship. OSCE instructions were given by clinical instructor in some stations and by by a videotaped structured clinical exam in others.

Family Medicine(FM) students had to sit for a final exam at the end of their 4th academic year.

Faculty assessment

The students were evaluated during their FM rotation by three teachers(clinicians) on the basis of their presentations and clinical performance including all the questions that the students were expected to tackle in relation to history taking, counseling, physical examination or differential diagnosis. A score of maximum of 5 was awarded on a Likert scale. A mean mark was calculated and multiplied by 20to allow comparison with the data from the OSCE and MCQs.

Students' attitudes and perception

Successive groups of students completed a self-administered questionnaire after the OSCE. The questionnaire included 16 items related to acceptance of the test, fairness and usefulness, quality of instructions and organization, quality of performance, scope of evaluation, and level of induced stress compared with other modes of assessment such as MCQs. The Institutional Review Board at the American University of Beirut approved the study.

Statistical analysis

We computed descriptive statistics using means and standard deviation as well as range for the three scores. Correlations were assessed between the three scores using Pearson's correlation coefficient. A paired t-test was used to compare mean scores between the three tests, and then stratified the analyses by academic year. Questions about attitudes towards OSCE were summarized using frequency distributions. Results were analyzed using SPSS, considering a p-value of .01 to be significant. This level of significance was chosen to adjust for possible inflation in type one error caused by multiple testing.

Results

We retrieved data for a total of 223 students distributed on the three consecutive academic years (2006 to 2009). Score were represented in Table1. The mean OSCE score was 66.0 ± 7.1. The mean score for final examination and clinical evaluation were 63.5 ± 7.6 and 77.5 ± 17.1 respectively. The mean OSCE scores was significantly higher (p <0.001) than the mean of the final examination and significantly lower (p<0.001) than that of the clinical evaluation in AY 2007-2008 and 2008-2009. But for AY 2006-2007 there was no significant difference between the means of OSCE and clinical evaluation score. Overall, there was a significant positive correlation (r=0.21, p=0.002) between the OSCE scores and the clinical evaluation scores but not between the OSCE score and the final exam scores (r=0.06, p=0.372), and only in AY 2007-2008 OSCE significantly correlated with both clinical evaluation scores and final exam scores.

Table 1: Comparing OSCE, Final Exam and Clinical Evaluation scores

Variable	AY 2006-2007	AY 2007-2008	AY 2008-2009	All three academic years
	mean (sd)	mean (sd)	mean (sd)	mean (sd) [Range]
OSCE	62.9 (7.9)[a]	67.1 (7.2)[a]	67.8 (4.9)[a]	66.0 (7.1)[a] [40-87]
Final Exam	67.0 (7.1)[b]	59.9 (6.9)[b]	63.9 (7.0)[b]	63.5 (7.6)[b] [40-84]
Clinical Evaluation	67.3 (24.9)[a,b]	81.6 (7.6)[c]	82.9 (9.3)[c]	77.5 (17.1)[c] [30-100]
	r (p-value)	r (p-value)	r (p-value)	r (p-value)
Correlation between OSCE and Final Exam scores	0.03 (0.814)	0.37 (0.001)*	0.10 (0.401)	0.06 (0.372)
Correlation between OSCE and Clinical Evaluation scores	0.07 (0.568)	0.37 (0.001)*	-0.02 (0.845)	0.21 (0.002)*

*significant at the 1% level a,b,c different letters indicate significant differences in the means (within a column)

A total of 93 students randomly picked from the academic years took the attitudes towards OSCE questionnaire. Almost all of the students at least agreed that OSCE tests different skills than formal assessment methods (91.4%). Results showing percentages of agreement or disagreement to each part of the questionnaire are shown in table2.

Table 2: Students Attitudes towards OSCE

Questions	SD	D	N	A	SA	NA
Tests different skills than formal assessment methods	0 (0.0%)	1 (1.1%)	5 (5.4%)	47 (50.5%)	38 (40.9%)	2 (2.2%)
		1.1%	5.4%	91.1%		2.2%
Scores provide true measure of essential clinical skills	0 (0.0%)	5 (5.4%)	17 (18.3%)	49 (52.7%)	21 (22.6%)	1 (1.1%)
		5.4%	18.3%	75.3%		1.1%
Scores provide true measure of communication skills	0 (0.0%)	7 (7.5%)	13 (14.0%)	49 (52.7%)	21 (22.6%)	3 (3.2%)
		7.5%	14.0%	75.3%		302%
Scores are standardized	1 (1.1%)	4 (4.3%)	18 (19.4%)	52 (55.9%)	16 (17.2%)	2 (2.2%)
		5.4%	19.4%	73.1%		2.2%
Medical students should continue taking OSCE	0 (0.0%)	0 (0.0%)	3 (3.2%)	43 (46.2%)	47 (50.5%)	0 (0.0%)
		0.0%	3.2%	96.7%		0.0%
Should be included in other	0	1	4 (4.3%)	39	49	0 (0.0%)

	SD	D	N	A	SA	NA
clerkships	(0.0%)	(1.1%)		(41.9%)	(52.7%)	
	1.1%		4.3%	94.6%		0.0%
Received enough information about the exam prior to taking it	5 (5.4%)	19 (20.4%)	14 (15.1%)	43 (46.2%)	12 (12.9%)	0 (0.0%)
	25.8%		15.1%	59.1%		0.0%
Relevant to the course	1 (1.1%)	7 (7.5%)	12 (12.9%)	53 (57.0%)	20 (21.5%)	0 (0.0%)
	8.6%		12.9%	78.5%		0.0%
Cases simulate real life scenarios	0 (0.0%)	1 (1.1%)	6 (6.5%)	54 (58.1%)	32 (34.4%)	0 (0.0%)
	1.1%		6.5%	92.5%		0.0%
Number of stations is suitable	0 (0.0%)	3 (3.2%)	6 (6.5%)	57 (61.3%)	27 (29.0%)	0 (0.0%)
	3.2%		6.5%	90.3%		0.0%
Time available for each station is enough	2 (2.2%)	9 (9.7%)	16 (17.2%)	47 (50.5%)	19 (20.4%)	0 (0.0%)
	11.9%		17.2%	70.9%		0.0%
All tasks/questions are clear	2 (2.2%)	6 (6.5%)	18 (19.4%)	47 (50.5%)	20 (21.5%)	0 (0.0%)
	8.7%		19.4%	72%		0.0%
Interference by staff members during the exam has a negative impact	12 (12.9%)	48 (51.6%)	18 (19.4%)	13 (14.0%)	2 (2.2%)	0 (0.0%)
	64.5%		19.4%	16.2%		0.0%
Videotaped structured clinical exam would be less stressful than the presence of a faculty member	7 (7.5%)	25 (26.9%)	27(29.0%)	23 (24.7%)	11 (11.8%)	0 (0.0%)
	34.4%		29.0%	36.5%		0.0%
More stressful than MCQs	2 (2.2%)	12 (12.9%)	17 (18.3%)	47 (50.5%)	15 (16.1%)	0 (0.0%)
	15.1%		18.3%	66.6%		0.0%
Simulated patients are equally adequate as true patients	6 (6.5%)	19 (20.4%)	25 (26.9%)	34 (36.6%)	9 (9.7%)	0 (0.0%)
	26.9%		26.9%	46.3%		0.0%

SD=Strongly Disagree, D=Disagree, N=Neutral, A=Agree, SA=Strongly Agree, and NA=No Answer

Discussion

The results revealed no clear association between performance on MCQs examinations and performance

on the OSCEs (r=0.06, p=0.372), but an correlation between the scores was present for the faculty evaluation (OSCE and Clinical evaluation r=0.21, p=0.002).

Students displayed a positive attitude towards the OSCE and appreciated this type of clinical appraisal compared to MCQs and clinical Evaluation. This is similar to a German study showing the positive effect of OSCE on the medical and dental students learning behaviour.[2,9]

Our study showed that 66.6% of students found the OSCE to be more stressful than MCQs, while it was 50% in another study.[10]Despite the stressful experience, 75.3% agreed that OSCE provides true measure for essential clinical skills such as performing a practical task including history taking or physical examination from directly observed cases. In the current study 25% of students felt they were not prepared and this may have accounted for the high stress encountered as reported in other studies[11].

Even though students were split about whether videotaped structured clinical exam would be less stressful than the presence of a faculty member, Sturpe et al showed that these observation methods were not interchangeable, and important differences in OSCE pass/fail determinations were found between real-time and video observations depending on the score they get from the completed checklist by the assessor [12].

Students evaluated by faculty had higher averages as compared to their OSCEs. Besides being inherently subjective[13], having 3 faculty assessors for each student would definitely better measure students' performances[14]. Both OSCE and faculty evaluations assess some common dimensions of clinical and social skills and this explains the agreement.

Similar to our study, a study from Saudi Arabia revealed a significant correlation between scores and results in OSCE and in all other forms of psychiatry examinations, except for the MCQ marks.[15]

The positive associations in the Year 2007-2008 may be attributed to differences in the questions administered in the MCQs, calibrations of the evaluators, and the degree where the examination focuses on clinical skills versus critical thinking skills.   Further studies are needed to validate this aspect.

The OSCE and final exam were not done at the same time. The effect of this difference might have been diluted by the nature of OSCE which tests cognitive behavioral skills[16], and the fact that students were familiar with this type of assessment. The final exam assessed another dimension in the time framework needed for it.

Conclusion

The findings highlighted the attitudes of student's towards OSCE that were in favor of this tool. It was perceived to be transparent, authentic and valid. Despite the fact that OSCEs make them more stressed than other modalities of assessment, it remained the preferred one. Traditional medical curricula must be responsive to global paradigm shifts in undergraduate medical education.

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