

Research Article

Dental Students' Perception of the Objective Structured Clinical Examination (OSCE) in Tunisia: A Cross-Sectional Study

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Abstract

Background: The Objective Structured Clinical Examination (OSCE) has become a pivotal component in the assessment of clinical competencies in dental education. As a performance-based test, the OSCE is designed to evaluate students' clinical skills, decision-making, and ability to apply theoretical knowledge in practical scenarios. It provides a structured and standardized method of assessment, ensuring consistency and fairness. However, the perception of its effectiveness and the challenges faced by students during the OSCE are critical for its continuous improvement. Understanding these perceptions can help educators refine the examination process, enhance the learning experience, and better prepare students for their professional careers.

Aim: The present study was designed to explore, evaluate, and analyze 6th year dental students' perceptions of the Objective Structured Clinical Examination (OSCE).

Materials and Methods: This study was a cross-sectional analytical prospective study using a survey design. It was conducted among all the dental students in the 6th year of the faculty who took the OSCE assessment during their clinical internships from April 2023 to September 2023 at the hospital Farhat Hached of Sousse in Tunisia. The data were collected through a questionnaire written in French and were analyzed using SPSS 21.

Results: Overall, students had positive attitudes toward the OSCE, including that it was well structured, sequenced, and fair; gender had no impact on OSCE outcomes. It is recovering a wide coverage of knowledge. The OSCE provides practical and useful experience. Regarding stress during exams, only 36.33% believed that exams are less stressful than other types of exams. When comparing OSCE to other assessment formats such as Multiple-Choice Questions (MCQs), Short Answer Questions (SAQs), OSCE and Essays. MCQ seems to be the easiest and simplest. The MCQ format was preferred by the majority of students, with a significant difference between male and female preferences.

Conclusion: The study revealed that 6th-year dental students perceive the OSCE as a well-structured, fair, and valuable tool for assessing their clinical skills. Despite some stress associated with this format, it is favored for its practical and comprehensive evaluation of knowledge and abilities.

Clinical Significance: The study demonstrates that the OSCE is an effective and equitable method for assessing clinical skills in dental education. Its comprehensive approach prepares students for real-world clinical practice, enhancing the quality of dental education and patient care.

Keywords: Objective Structured Clinical Examination (OSCE), Dental Education, Student Perceptions, Examination Stress, Assessment Methods.

List of Abbreviations:

OSCE: Objective Structured Clinical Examination.

MCQs: multiple-choice questions.

SAQs: short answer questions.

1. Introduction

Assessing students' clinical abilities, specifically their ability to do something successfully and effectively, is a necessity in the educational process [1]. Therefore, multiple assessment methods are necessary to better understand the clinical competence of dental students and improve their clinical abilities. Improving their focus is a way to motivate learning of clinical skills while providing appropriate mechanisms for their assessment [2]. One such mechanism is the Objective Structured Clinical Examination (OSCE), which provides a summative assessment of trainee skills using simulated clinical situations [3]. It is designed to facilitate the analysis and evaluation of trainees' acquisition of clinical skills and to improve trainees' skill levels [4-6].

OSCE is becoming increasingly common in healthcare education programs as it is seen as a useful method of assessing skills and consolidating the knowledge required for practice [7]. The use of OSCE as an assessment strategy for dental students' clinical skills is an integral part of a holistic evaluation approach. The OSCE has been used to evaluate medical students for more than 20 years. Over the past 10 years, interest in such assessments has grown in other health professions such as physical therapy, dentistry, and nursing [8]. OSCE provides students with innovative learning experiences. It provides an effective method for comprehensively assessing students' clinical performance [9].

In addition, the OSCE exam identified strengths, weaknesses, and challenges of clinical competencies, promoted self-assessment skills, and provided guidance on training needs for the program [10, 11]. Nonetheless, few researches have been conducted on African (particularly Tunisian) dental students' perceptions of the OSCE examinations. Therefore, the aim of this study was to investigate the perceptions of sixth-year dental students regarding the OSCE examination during clinical intership from April 2023 to September 2023 in the service of dental medicine at Farhat Hached Sousse Hospital in Tunisia.

2. Materials and Methods

OSCE setting: At the end of dental clinical internships for sixth-year students, the OSCE has served as one of the four evaluation methods, alongside progressive assessment, written exams, and long case assessments. The OSCE was composed of seven stations, each lasting for a duration of seven minutes. A one-minute transition period was allotted between stations. Four examiners were present to observe and evaluate the active stations. These stations were divided into two categories: manned and unmanned. Manned stations require students to engage with an assessor who assigns grades based on their performance. Unmanned stations involve the submission of a written report, which is then assessed according to a predetermined grading scheme. The evaluation of task performance was standardized using custom checklists that consisted of 10 to 20 items, each assigned a score that represented the essential skills.

Study design: The present cross-sectional prospective study was carried out in September 2023 at the dental department of the hospital Farhat Hached of Sousse in Tunisia; to evaluate perceptions of dental students towards OSCE at the end of the examination.

Population: The participants were all the interns (sixth-year dental students) who did their internships in the fixed prosthesis unit in the dental department of the hospital Farhat Hached of Sousse in Tunisia from April 2023 to September 2023. They are 85 students. It was therefore an exhaustive sample.

Collected data: In collecting the data for the present study, participants were asked to fill-out the questionnaire at the end of the OSCE exam. It was anonymous, self-administered and delivered in the French language. The principle result measures of this questionnaire were dental students' perception of the examination aspects, which involved the Organizational and guidance quality, performance quality and effectiveness of the OSCE as an assessment tool compared to other formats. A four-point scale, which showed the degrees of agreement, was used. Furthermore, the rating for difficulty, fairness, degree of learning, and preferred frequency of the use of the OSCE in relation to other assessment formats was measured on a three-point scale. Prior to the commencement of the research, every student underwent a briefing that outlined the purpose of the study and provided a clear explanation of the survey questions. All participants were made aware that any data collected would be made public and presented. Written informed consent was obtained from each participant before the questionnaires were distributed.

Data analysis: The data was analyzed using the SPSS (Statistical Package for the Social Sciences- version 18; USA). The acquired data were coded, analyzed, and tabulated as a percentage, mean, and standard deviation. The analysis of the distribution of quantitative variables was carried out using the Kolmogorov-Smirnov test. If the distribution was normal, the results were expressed by their means \pm standard deviations. Categorical variables were expressed by their percentages. A five-point Likert scale was used to determine satisfaction. Responses were merged into 3 distinct categorical factors: "agree" (strongly concur plus agree), "neutral," and "disagree" (strongly disagree plus disagree) since the concurred narrated items highlighted the gain for a group of statements. To compare differences between male and female students, the chi-square test was used. The critical value used to reject the null hypothesis was $P \leq 0.01$.

Ethical Considerations: Participant anonymity and the security of their personal data were ensured throughout the study. Before participating, external participants provided oral consent and granted permission for the use of their images. No conflicts of interest are associated with the content of this study. Approval for the study was obtained from the Institutional Ethics and Research Committee of the University Hospital Farhat Hached in Sousse-Tunisia, with

the reference number "IORG 0007488 ERC12122024".

3. Results

Out of 85 complete participants, 60 students finished the

questionnaires entirely (males 35.1% and females 64.9%). The participants' average age was 24.34± 1.14 (23-28) years. There was no gender-specific differences in the responses to the statements (Table 1).

Table 1: Demographics of the study participants

Demographics	No of students n (%)
Number of students	60
Age(years)	24.34± 1.14 (23-28)
Gender	
Male	35.1%
Female	64.9%
Faculty of dental medicine	
Of Monastir -Tunisia	58%
Foreign faculty (romania-ukraine...)	42%

The Osce Evaluation: As shown in table 2, more than half of our study participants agreed that the exam was well structured and sequenced (65%). Around two-thirds of the students agreed that more time was needed at the stations (70%), and only 1.66% disagreed that the exam was well administered. Regarding the stress faced during the exam, only 36.33% agreed that it was less stressful than other types of exams, and when asked if it was fair, 51.66% agreed.

Almost all of the students agreed that personality, race and gender do not affect OSCE results (96.66%). Approximately 80% of students agreed that the OSCE covered a wide area of knowledge. According to 88.75% of undergraduate students, OSCE provides practical and useful experience. However, only 6.25% agreed that the possibility of failing the exam has been reduced to a minimum.

Table 2: Perceptions of 6th year dental students toward OSCE‡ (n=60)

S. N	Statement	Category	N (%)	Mean+SD	p-value
1	The exam was well structured and sequenced	Agree	39(65 %)	1.17+-0.51	0.78
		Neutral	13(21.66%)		
		Disagree	8(13.33%)		
2	More time was needed at the stations	Agree	42(70%)	1.63+-0.63	0.66
		Neutral	4(6.66%)		
		Disagree	12(20%)		
3	OSCE was less stressful than other exams	Agree	22(36.33%)	1.37+-0.53	0.59
		Neutral	10(16.66%)		
		Disagree	28(46.66%)		
4	The exam went well	Agree	58(96.66%)	1.59+-0.78	0.77
		Neutral	1(1.66%)		
		Disagree	1(1.66%)		
5	Exam was fair	Agree	31(51.66%)	1.47+-0.43	0.49
		Neutral	16(26.66%)		
		Disagree	13(21.66%)		
6	Personality, race and gender do not affect OSCE results	Agree	58(96.66%)	1.37+-0.89	0.69
		Neutral	0(0%)		
		Disagree	2(3.33%)		
7	Wide coverage of knowledge	Agree	44(80%)	1.09+-0.51	0.78
		Neutral	10(12.5%)		
		Disagree	6(7.5%)		

8	OSCE provides practical and useful experience	Agree	51(88.75%)	1.04+-0.96	0.55
		Neutral	3(3.75%)		
		Disagree	6(7.5%)		
9	The possibility of failing the exam has been reduced to a minimum	Agree	2(6.25%)	1.17+-0.73	0.69
		Neutral	3(3.75%)		
		Disagree	55(90%)		
OSCE‡: Objective Structured Clinical Examination. p-value** <0.05 significant.					

Comparing Assessment Formats: Table 3 describes student responses when asked to compare the following assessment instruments to which they had been exposed: multiple-choice questions (MCQs), short answer questions (SAQs), the OSCE and essays. A vast majority of students agreed that the Multiple-Choice Questions (MCQs) were the easiest form of examinations, while only 7.6% found the Objective Structured Clinical Examination (OSCE) to be the easiest. As for the fairest assessment format, 69% of students preferred the MCQs, followed by clerkship rating, which was favored by 20.3% of students. Notably, there was a significant difference between male and female students,

with females more likely to consider MCQs as the fairest format (96.4% compared to 43.5% of males with a P value < 0.001). Additionally, the majority of students (65.8%) believed that MCQs contributed the most to their learning, with a significant difference between male and female students (39.3% of males compared to 94.6% of females with a P value < 0.001). Finally, in the clinical years of their programs, the MCQ format was preferred by the majority of students, with a significant difference between male and female preferences (98.2% of females compared to 55% of males with a P value of <0.001).

Table 3: Perceptions of 6th year dental students toward four assessment formats (n=60)

Question	Total		Male		Female		p-value
	N	%	N	%	N	%	
1-Which of the following formats is the simplest?							
MCQs*	25	41.66	15	50	10	33.33	<0.001**
SACs†	17	28.33	7	23.33	10	33.33	
OSCE‡	15	25	8	26.66	7	23.33	
Essays	3	5	0	0.0	3	10	
2-Which of the following formats is fairest?							
MCQs*	13	21.66	7	20	6	24	<0.001**
SACs†	28	46.66	15	42.85	13	52	
OSCE‡	15	25	10	28.57	5	20	
Essays	4	6.66	3	8.57	1	4	
3-Which of the following formats did you learn the most from?							
MCQs*	6	10	4	13.33	2	6.66	<0.001**
SACs†	14	23.33	10	33.33	4	13.33	
OSCE‡	25	41.66	15	50	10	33.33	
Essays	15	25	1	3.33	14	46.66	
4-Which of the following formats should be used more frequently?							
MCQs*	25	41.66	10	33.33	15	50	<0.001**
SACs†	15	25	10	33.33	5	16.66	
OSCE‡	15	25	8	26.66	7	23.33	
Essays	5	8.33	2	6.66	3	10	
MCQs*: multiple-choice questions. SAQs†: short answer questions. OSCE‡: Objective Structured Clinical Examination. p-value** <0.05 significant.							

4. Discussion

Today, the OSCE is considered one of the most important tools for assessing clinical skills in most clinical medical specialties. The results of this study indicated those students' impressions of OSCE assessments and perceptions of OSCE quality, validity, and reliability are lower than expected, compared with other studies that have found a positive feedback from students on course features OSCE [12].

According to current research, nearly half of students agree that the OSCE review was fair, about two-thirds agree it was well managed, which was consistent with the results from other studies. Interestingly, about a quarter of students believed the OSCE covered the area of knowledge. Students generally recognized that the OSCE highlighted their strengths and weaknesses, that they learned from the assessment and supported the results of others. This is especially true when students receive feedback on their performance. OSCE can provide focus for useful and relevant learning because it sends a strong message to students about what should be valued in terms of curriculum and learning outcomes. OSCE and written examinations can have different effects on students' learning outcomes, and OSCE-stimulated learning can provide students with a higher level of realistic self-assessment and has good support for the use of simulation scenarios in medical education [13-15]. Additionally, OSCE allows for "formative assessment" when students actively participate in assessment. The OSCE can help identify areas in teaching that require change, and this has been done successfully [16].

A large proportion of students think so very stressful. Other studies have found similar results that discovered that half, two-thirds and most students studied thought OSCE was fair but stressful test [17]. Numerous studies have been conducted to explore levels of anxiety experienced by dental students during various forms of assessment, including OSCEs. Prior research by multiple authors has indicated that the OSCE is the most anxiety-inducing method of evaluation, with students taking extra measures to prepare for this particular format compared to others. There are even anecdotal accounts of some dental students experiencing trembling hands and increased blood pressure during an OSCE [18-20]. It has been suggested that this heightened anxiety may stem from the constant scrutiny and observation from examiners during the assessment.

However, it is important to note that dental assessments as a whole - not just OSCEs - have been found to generate psychological stress, which may ultimately lead to burnout and other mental health-related issues [21, 22]. Interestingly, the results of this study on ratings of assessment formats revealed that students preferred MCQs as they were perceived to be easy and most conducive to learning. They emphasized that MCQ should be used more frequently during the clinical phase of a project. This is consistent with the results of Eswi et al. who discovered that more than half of students said MCQs were the easiest and fairest form of assessment. This can be attributed to the fact that it is easier for students

to get grades through this tool compared to essay/SAQ or OSCE [23, 24].

Study Strengths and Limitations

A strength of this study is that the use of self-administered questionnaires in structured interviews minimizes interviewer bias. Participants were interviewed immediately after taking the OSCE exam, which minimized self-reported "participant memory loss, changes, or response errors." This study has a number of limitations. The results of this study are based solely on students' perceptions and not those of the facilitators. Furthermore, this study was single-center; it affected only one university hospital in Tunisia (out of three university hospitals), which may limit its generalizability. Additionally, the sample size is small. Their views may or may not be representative of the general student population or applicable to other universities; therefore, caution must be taken when generalizing the data to other settings.

5. Conclusion

The OSCE is a meaningful and fair clinical skills assessment tool. The quality, validity and reliability of the process were neutral in terms of students' perceptions, which could be due to their outcomes and assessments. It was also found that MCQs were the most popular form of assessment from the students' perspective. Additionally, students felt that the OSCE was not the fairest form of assessment. Further research, using larger cohorts of students, could be undertaken in order to support these findings which would give added support for the continuing use of OSCEs as a valid method of both dental undergraduate education and assessment.

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