

Student's perception of the implementation of the OSCE method in the Dentistry course of a private university

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ABSTRACT

The Objective Structured Clinical Examination (OSCE) is used to detect and intervene in the students' lack of confidence in a simulated clinical condition. The OSCE assesses competences, clinical skills, knowledge, attitude, communication, and professionalism, being considered an important tool in the teaching-learning process. This context raised the need to implement the OSCE clinical competence assessment. The objective of the study was to assess the dentistry student's perception of the OSCE method and its impact on their academic training. This study included thirty-four senior students. The data were collected using a multiple-choice questionnaire ("disagree", "agree", "partially agree", "indifferent") voluntarily answered. The chi-square test was used to analyze the data by comparing the answers of four OSCE methodology applications during the year, with a 95% ($p < 0.05$) significance level. The difference was also significant regarding the same question in the last assessment (93.1%, $p = 0.017$). As for the method having contributed to their future professional practice, 93.1% ($p = 0.042$) of the students agreed in the last assessment of the year. Based on the analysis of questionnaire answers in the four bimesters, we concluded that the perception of the students attending the 5th year of dentistry at Positivo University is that the implementation of the OSCE method was well accepted and positive, since most of the answers indicated that the method significantly contributed to their training and provided learning opportunities.

Descriptors: Educational Assessment. Dentistry. Education in Dentistry. OSCE.

1 INTRODUCTION

A great interest in the assessment of competences and clinical skills and practices in

the area of Health has risen in the last decades.

It is very hard to assess all learning dimensions and elements using traditional oral and written

assessment methods. The assessment of the students' clinical performance is essential, especially in dentistry courses in which they perform clinical procedures in patients since the first undergraduate year¹. Different clinical assessment methods have been proposed in the literature with the objective of improving this process, including all the relevant clinical practice points, and also to make it more objective and consistent. Formative assessment is used to improve learning. In this type of assessment, professors have to keep track of the students' progress to meet their needs and promote various teaching activities^{2,3}.

Self-assessment and conversations with professors and classmates are valid tools for improving the students' perception of their own performance. This approach can increase self-confidence and promote learning⁴. To perform satisfactory self-assessment, students have to know their objective, actual position, and what needs to be improved in order to achieve it⁵⁻⁷.

In 1975, Ronald Harden presented a promising tool to assess clinical skills in medical schools, the Objective Structured Clinical Examination (OSCE), a tool to assess cognitive learning (knowledge) and practical attitude/skills in a simulated clinical consultation. In his first experiment, Harden prepared an assessment with 16 stations, including clinical cases, patient care, and questionnaires. Two professors were present to assess the students' performance^{8,9}.

Currently, the OSCE includes delimited situations with pre-established scripts and interaction with simulated patients using assessment stations in a circuit that allow the assessment of essential competences, such as communication and interaction with patients and their families; medical interview and medical history collection; general physical examination; clinical reasoning and hypothesis

formulation; action proposition and execution; patient orientation and education. For this reason, the OSCE is considered one of the most reliable methods for assessing clinical skills of students and residents, as well as for professional certification and assessment of active medical professionals¹⁰⁻¹². Training with simulation mannequins makes the theory make sense in practice, improving the students' motor skills and confidence in clinical consultations with real patients^{13,14}.

The OSCE includes many of the criteria for good assessment, such as validity (measures the degree to which the test really assesses what it proposes), reliability (measures the reproducibility and consistency of a test), and feasibility (results and feedback that result in better educational support)^{17,18}. In addition to assessing the students' clinical skills, the OSCE allows self-assessment, as well as feedback and discussion time with the professor. This self-assessment and feedback are valid instruments to improve the students' perception of their own performance. These evaluative criteria have already been analyzed showing excellent results^{19,20}.

This context raised the need to implement the OSCE clinical competence assessment in the dentistry course at the Positivo University. Thus, the objective of the study was to assess the dentistry student's perception of the OSCE method using a structured questionnaire after each of the four bi-monthly assessments.

2 METHODS

The study was approved by the Institutional Research Ethics Committee (CAAE 69486617.5.0000.0093).

It included thirty-four students attending the 5th year of the dentistry course. A structured questionnaire containing seven questions about the students' perception of the use of the OSCE

methodology was the instrument for data collection.

Before the OSCE, the participating students were confined in one room and received orientation on how the flow, timing and assessment between stations would be. The simulated consultations with actors lasted five minutes. The students used this time to analyze the questions and develop the solution for the presented case. After these simulated consultations, they went on to the next station, with another five minutes to analyze and

solve each of the cases. These tasks included written, practical or oral questions in different areas of dentistry, such as endodontics, stomatology, periodontics, anatomy/surgery, prosthodontics, radiology and dentistry that varied throughout the year. At the end of the station circuit, the students answered the structured questionnaire on their perception of the methodology. Each of the questions included the options “disagree”, “agree”, “partially agree”, and “indifferent” (table 1).

Table 1. Questionnaire questions on the students' perception of the OSCE method

Question order	Questions on the methodology
1	Does the OSCE method contribute to your future professional practice?
2	Does the OSCE method adequately assess dental clinical skills?
3	Does this method help you analyze your limitations in dental practice?
4	Were the scenario and the simulation satisfactory?
5	Do you think this method should be implemented in the dentistry course?
6	Was the method efficient and offered you a learning opportunity?
7	Has the method contributed to your training?

Four OSCE applications were conducted throughout the school year in a by-monthly basis (first to fourth bimester). The assessing professors used a performance observation sheet with the questions they should ask in order to diagnose the case. They also assessed the students' attention and politeness toward the patient. All consultations were filmed and analyzed. The three best consultations were watched in the classroom on feedback day, with the consent of the students.

To compare the responses of the four OSCE applications during the year, the data were analyzed using the chi-square test with a 5%

significance level. The Statistical Package for Social Science software (SPSS, version 20.0, SPSS Inc. Chicago, IL, USA) was used for all analyses.

3 RESULTS

The comparisons of the students' answers on the perception of the OSCE methodology from the first to fourth bimesters are shown in graphs (figure 1). As for the method, there was not statistically significance difference between the answers of each bimester ($p > 0.05$). The students did not have different perceptions in the first, second, and third bimesters.

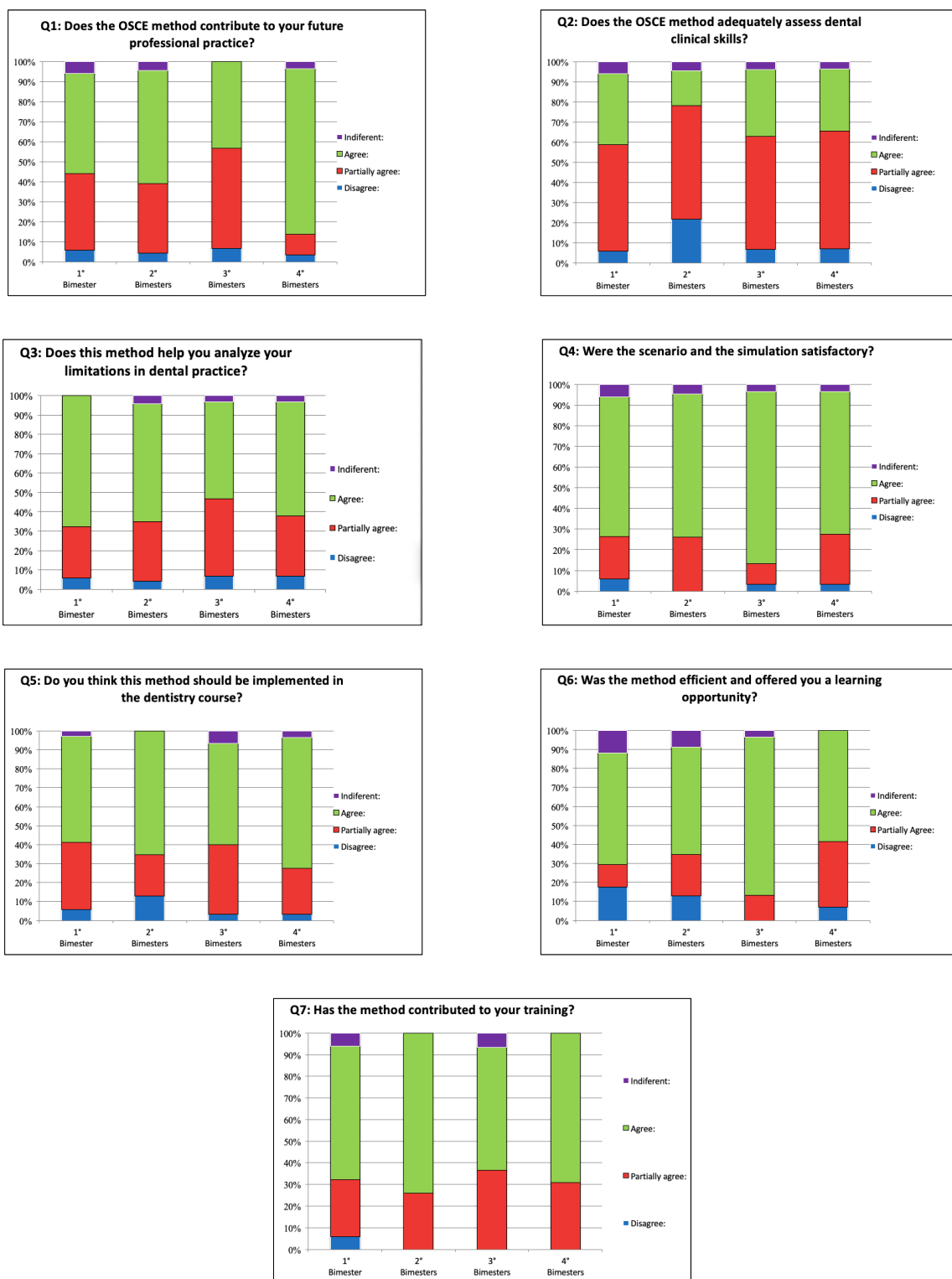


Figure 1. Percentage of frequency of the students' answers to each question (Q1 to Q7) of the OSCE assessment questionnaire in the four bimesters

Table 2 shows absolute and relative frequencies in the comparison of answers from the first and fourth bimesters, showing statistically significant differences for questions Q1 and Q6 ($p = 0.042$ and $p = 0.017$, respectively). These results show an improvement in the students' perception in the fourth bimester of the year when compared to the first assessment.

Table 2. Comparison of the students' answers to questions (Q1 to Q7) showing statistically significant differences regarding the OSCE applications. The values refer to absolute and relative frequencies

Time	Opinion	Q1	Q2	Q3	Q4	Q5	Q6	Q7
		N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
First bimester	Indifferent	2 (5.9)	2 (5.9)	0 (0.0)	2 (5.9)	1 (2.9)	4 (11.8)	2 (5.9)
	Disagree	2 (5.9)	2 (5.9)	2 (5.9)	2 (5.9)	2 (5.9)	6 (17.6)	2 (5.9)
	Partially agree	13 (38.2)	18 (52.9)	9 (26.5)	7 (20.6)	12 (35.3)	4 (11.8)	9 (26.5)
	Agree	17 (50.0)	12 (35.3)	23 (67.6)	23 (67.6)	19 (55.9)	20 (58.8)	21 (61.8)
Fourth bimester	Indifferent	1 (3.4)	1 (3.4)	1 (3.4)	1 (3.4)	1 (3.4)	0 (0.0)	0 (0.0)
	Disagree	1 (3.4)	2 (6.9)	2 (6.9)	1 (3.4)	1 (3.4)	2 (6.9)	0 (0.0)
	Partially agree	3 (10.3)	17 (58.6)	9 (31.0)	7 (24.1)	7 (24.1)	10 (34.5)	9 (31.0)
	Agree	24 (82.8)	9 (31.0)	17 (58.6)	20 (69.0)	20 (69.0)	17 (58.6)	20 (69.0)
	p-value	0.042*	0.940	0.595	0.921	0.729	0.017*	0.160

*: chi-square test with 0.05 significance level

4 DISCUSSION

The OSCE presents some advantages as a clinical and preclinical assessment method, such as providing a more objective assessment and the selection of tasks and skills to be assessed, but also the possibility of assessing student/patient communication skills, professionalism, time management, critical thinking, interpersonal relationship, and professional ethics.

The results of the present study showed that

a mean of 62.86% of the students agreed throughout the four bimesters that the method should be implemented in the dentistry course, suggesting that their perception was positive regarding its implementation.

The professors could analyze communication skills in the simulated stations in which students interacted with a patient/actor to obtain information for disease diagnosis. However, this study also shows that the method presents

some disadvantages, such as reduced permanence time in the stations, impossibility of simulating invasive procedures in real patients, student anxiety, difficulty to manage a large number of examiners and patients/actors, and higher cost compared to other assessment methods¹⁷⁻¹⁹.

In the present study, the students initially resisted to accept a new assessment format. This can be observed in question Q6, when comparing the increased number of positive answers from the first to fourth bimesters, showing that the method was effective and provided learning opportunities. This significant change from the first to final assessments can be understood as the students' familiarization with the method over time, and shows increased acceptance after the first two months, when the students had the first contact first with the new methodology.

Although the students' anxiety and nervousness were not assessed, these behaviors were frequently observed, especially in the first OSCE applications. It can be explained by the assessment environment and the fact that it was the first time contact with this type of examination. However, in the fourth bimester the students showed more confidence and acceptance of the method, which could be seen by the greater number of positive answers in question Q1, assessing if the methodology contributed to future practice. In the first two months only 50% of the students agreed. However, in the fourth bimester there was a significant increase in the number of students who agreed with this question (82.8%). After the end of this experience, the students reported that the OSCE is a more objective and real assessment of the reality of clinical activity, corroborating the literature¹⁸⁻²¹.

The final OSCE stage is feedback, which aims to report the student's performance at each station, providing information to compare real and expected learning. During this stage, it is important to discuss this information so that the students can

confirm, add, replace, adjust or restructure their knowledge¹⁷⁻²⁰. In the present study, the feedback was given one week after the OSCE application. At this moment, the professors showed how the proposed tasks could be done and the students' main mistakes. The videos of the three best consultations were showed in class, with the consent of the involved students. It is important for the student to know how they performed in the assessment to reinforce correct answers, overcome difficulties, and correct mistakes. The professors should identify and correct these difficulties before the student starts the clinical subjects of the dentistry course. Professors from each area should also meet to analyze the most common mistakes and identify strategies and measurements to improve teaching.

The OSCE can be used to assess dental skills, but logistical problems can limit its implementation, so the assessment should be very well organized before beginning, with a previously established number of professors and assistants available.

Finally, the continuous and systematic use of the OSCE can have a favorable impact on training future dental surgeons, considering that this method is probably the best to demonstrate that assessment is an important and fundamental tool in the training process^{13,22}. Despite the challenge, the experiment was successful, allowing the identification of the students' strengths and weaknesses.

5 CONCLUSION

Based on the analysis of questionnaire answers in the four bimesters, we concluded that the perception of the students attending the 5th year of dentistry at Positivo University is that the implementation of the OSCE method was well accepted and positive, since most of the answers indicated that the method significantly contributed to their training and provided learning opportunities.

RESUMO

O *Objective Structured Clinical Examination* (OSCE) é uma avaliação que observa e intervém nas inseguranças dos estudantes em uma condição clínica simulada. Essa forma de avaliar competências, habilidades clínicas, conhecimento, atitudes, comunicação e profissionalismo é considerada uma ferramenta importante no processo de ensino-aprendizagem. Nesse contexto, surgiu a necessidade em implementar, no curso de Odontologia, a avaliação de competência clínica OSCE. O objetivo do estudo foi avaliar a percepção do estudante de Odontologia sobre o método OSCE e seu impacto na formação acadêmica deles. Participaram 34 estudantes do último ano do curso. O instrumento de coleta de dados foi um questionário com opções de respostas ("discordo", "concordo", "concordo parcialmente", "indiferente") que foi respondido voluntariamente. Os dados foram submetidos ao teste Qui-quadrado que comparou as respostas das quatro aplicações da metodologia OSCE durante o ano, com nível de significância de 95% ($p < 0,05$). Em relação à mesma pergunta, a diferença também foi significativa na última avaliação (93,1%; $p = 0,017$). Quanto ao método ter contribuído para o futuro na prática profissional, 93,1% ($p = 0,042$) dos estudantes concordaram, na última avaliação do ano. Pode-se concluir, com base na análise de resposta dos questionários nos quatro bimestres, que a percepção dos estudantes de Odontologia do 5º ano noturno da Universidade Positivo frente à introdução do método OSCE foi bem aceita e positiva, uma vez que a maioria das respostas indicaram que o método contribuiu significativamente para a formação e ofereceu oportunidade de aprendizagem.

Descritores: Avaliação Educacional. Odontologia. Educação em Odontologia. OSCE.

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