



Research Article – Dental Science

Assessment of feasibility of objective structured clinical examination for final BDS students in conservative dentistry and endodontic at Government Dental College and Hospital, Nagpur

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Abstract

Objective structured clinical examination (OSCE) have become established as reliable, valid and objective methods of assessing practical and clinical skills in dental schools. This study explored the perceptions of dental undergraduates regarding OSCE. After a clinical course in Conservative Dentistry and Endodontics, 32 Final year dental students were assessed summatively, using OSCE. The students were informed beforehand about the assessment formats. The self-assessed clinical competence, study time and strategies (i.e. practice with a manikin, peers and patient case) were evaluated by means of a questionnaire. After a comprehensive dental care course, all 32 students were assessed by OSCE, in which Five stations were included 'Cavity Preparation', 'Base application' 'Restoration', &; educating patients; and; Post-Operative Instructions; Each Student was evaluated separately in each Station with predetermined structured questions. Data was collected and send for statistical analysis. The results were obtained using SPSS-17 and comparison done with Conventional Exam. Implementation of an OSCE in undergraduate Conservative Dentistry and Endodontics Curriculum helps in greater achievement of specific clinical competence and greater level of realistic self-assessment.

Keywords: Cavity Preparation, Base application, Restoration

Introduction

Clinical competency can be defined as the behavior or ability essential for the newly qualified practitioners to begin independent, unsupervised dental practice (Chambers and Garrow, 1988). the ability of the students to carryout clinical procedures competently and independently must be adequately assessed prior to their graduation. This is important as to ensure that they are competent and able to perform the clinical procedures without doing any harm to the patients (Rolland *et al.*, 2007). The objective structured clinical examination (OSCE) was first developed to assess the clinical competence of medical students (Harden *et al.*, 1975). Since then it has been used widely as an assessment method for other discipline such as nursing, pre-clinical subjects and dentistry (Manogue and Brown, 1998). The development and implementation of OSCE within a department is challenging and it provides different perspective to the staffs and students as it requires careful planning and thorough discussion with the staffs to ensure that the test achieves its objectives (Yip *et al.*, 2001, Schoonheim-Klein *et al.*, 2006). Based on Blooms taxonomy, we can assess the students' ability to apply the information that they have acquired earlier by asking them to demonstrate and explain the procedure or process. In addition, with the implementation of OSCE several domains of competence can be assessed in one question such as knowledge, communication skills and understanding of the procedure or technique performed (Manogue and Brown, 1998)4. For example, all these domains can be assessed when the students are performing a diagnostic test on a patient. He or she will have to explain (communication skill) to the patient the reasons for doing the test, its importance and interpretation of the results (knowledge & understanding of

the procedure). Hence, it shows that OSCE is indeed one of the best and more practical assessment methods that can be incorporated into the dental course assessment.

In this study the development, implementation and improvement of a dental OSCE for the operative dentistry course at the department of conservative dentistry GDCH is reported. The characteristics of the OSCE by Manogue and Brown (1998) are:

a) Use of a series of standardized 'stations' at which each student attempts the same, specific clinical tasks, b) Assessment of competence - direct observation by marking of answers using pre-determined criteria

Material and methods

A total of 32 final BDS students were taken for study and they were divided into two groups, group A and group B of 16 each after the comprehensive dental care course, all 32 students were assessed by OSCE, and conventional method. Five stations which were there in OSCE included. 'Question Station Procedural station (Cavity prep) 3. Procedural Station (Manipulation) 4. Response station (Diagnosis & T/t plan) 5. Response Station (post-operative instructions). Each Student was evaluated separately in each Station with predetermined structured questions.

In conventional method students were assessed using routine method of assessment of History taking, Cavity Preparation', 'Base application' 'Restoration', and Post-Operative Instructions.

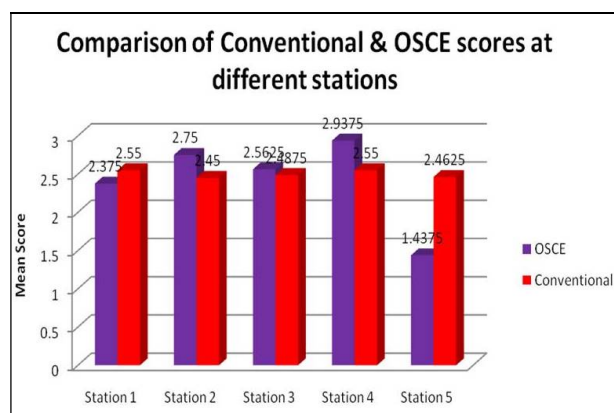
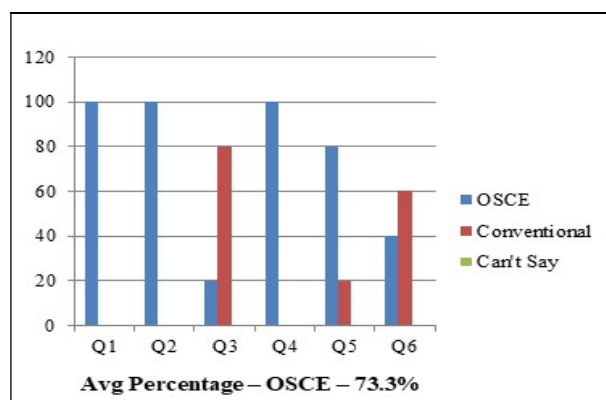
Each student of both groups was evaluated for a total of 20 marks. Data was collected and send for statistical analysis.

Table 1. Comparison between conventional and OSCE at different stations

Stations	Groups	N	Mean	Std. Deviation	P Value
Station 1	osce	16	2.3750	.61914	0.35
	Conventional	16	2.5500	.40988	
Station 2	osce	16	2.7500	.68313	0.10
	Conventional	16	2.4500	.21292	
Station 3	osce	16	2.5625	1.20934	0.81
	Conventional	16	2.4875	.35000	
Station 4	osce	16	2.9375	.99791	0.16
	Conventional	16	2.5500	.40988	
Station 5	osce	16	1.4375	1.03078	0.001
	Conventional	16	2.4625	.49379	
Total	osce	16	12.0625	2.71953	0.46
	Conventional	16	12.6125	1.24466	

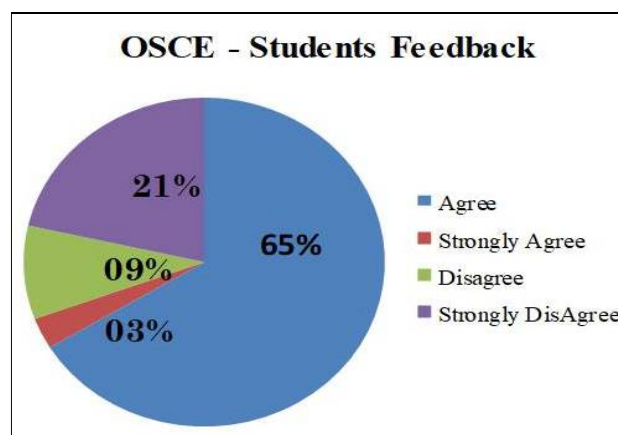
Results

The results were obtained using SPSS-16 and comparison done with Conventional Exam Pattern.

**Fig. 1.** Comparison of conventional and OSCE scores at different stations**Fig. 2.** Comparison of results of feedback obtained from staff

Results in Table I show that result is statistically significant at station V, where P value is 0.001, which is communication skill station. It takes us to the conclusion that a lot of improvement in students is required as far as communication skill is concerned. Fig.1 compares the scores between OSCE and conventional method, where students have done equally same except in station V. Fig. 2 shows the feedback from the teaching staff where teachers were given a feasibility questionnaire and they are of the opinion that OSCE is better method, at the same time they feel that taking exam by conventional method causes more fatigue to the examiner as it is evident in Bar graph. Fig. 3 shows the

feedback from the students, where 65% agree that examination pattern should be OSCE, whereas 21 strongly disagree with OSCE as it is seen in pie chart.

**Fig. 3.** OSCE Students Feedback

Discussion

Competency curriculum is essential for dental practice as it ensure that the students are competent upon graduation. In order to ascertain that the students are competent, several assessment methods have been introduced and practiced in the teaching of dentistry such as clinical competency test (with or without patient) and objective structured clinical examination (OSCE). Achievement of the essential knowledge and the assessment of the acquired fundamental skills are important to ensure the students' competency (Yip *et al.*, 2001). Some dental schools have implemented clinical competency tests whereby the students were required to perform specific treatment procedure on patient in the clinic without direct supervision by the clinical instructor. However, this method has some drawbacks such as inability to find appropriate patient or shortage of clinical supervisors, inconsistency between examiners, and timing of the test may not be suitable for the patient or inability to standardize the level of difficulty of the treatment as it depends on individual patient or case. Therefore, in order to overcome these inconsistencies and to provide a fair assessment method for the students, OSCE has been chosen as a method for the assessment of competencies. In this assessment method the students were able to perform well which is in accordance with study by Baharin (2012). The students performed well in both OSCE and Conventional method but in Station 5 which is Communication Skill Station the students scored very less. The results obtained after statistical analysis indicated that students fared poorly in

communication skill. An observation that has surfaced from this study is that in the subject of Conservative Dentistry, the Conventional method offers no avenue to test the communication skills of the students. . This being a skill of prime importance, OSCE pattern helps us to evaluate and further train students accordingly. Students were more anxious during OSCE compared to Conventional method but still preferred this method of assessment which is in accordance with Omu AE (2016) —Fig. 3 shows feedback from the staff members. 73.3% of the staff members are in favour of OSCE as they feel it gives less fatigue to the teacher while conducting exams because it requires many staff members to conduct the exam. But at the same time they were of the opinion that entire course is not covered in OSCE type of exam pattern. This is in contrast with Omu (2016)—which say that entire course is covered.

Conclusion

Objective structured clinical examination provides an opportunity for the assessment of students' competency in area that is important when they begin independent practice. This assessment method also allows the identification of areas that needs to be improved, as in this study it is communication skill area, thus it provides an opportunity for improvement of course curriculum. Based on examinees' attitudes, OSCE may be a more appropriate choice for graduation examinations of compared to the conventional clinical examination. It is expensive in terms of manpower requirement. There should be continuing research to find strategies to reduce cost stress to students and examiners. Validity and reliability of the whole OSCE and the different stations should be veritable areas of research to further improve the outcome of OSCE as an evaluation tool.

Limitations

The present study involved a small sample size limited

to one academic session. Future study should involve a larger sample size and many years of use of OSCE, and should include evaluation of students' performance from one station to the other.

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