

Efficacy and Feasibility of Objective Structured Clinical Examination in the Internal Assessment for Surgery Postgraduates

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INTRODUCTION: Traditionally assessment in medical training programs has been through subjective faculty evaluations or multiple choice questions. Conventional examinations provide assessment of the global performance rather than individual competencies thus making the final feedback less meaningful. The objective structured clinical examination (OSCE) is a relatively new multidimensional tool for evaluating training. This study was carried out to determine the efficacy and feasibility of OSCE as a tool for the internal assessment of surgery residents.

METHODS: This study was carried out on the marks obtained by surgery residents at different levels of training in a single tertiary center in India over the 4 OSCEs conducted in the years 2015 and 2016. The marks of the OSCE were collected from the departmental records and analyzed. Reliability was calculated using internal consistency using Cronbach's α . Validity was calculated by item total correlation. Content validation was done by obtaining expert reviews from 5 experts using a proforma, to assess the content and checklist of each station of the OSCE.

RESULTS: A total of 49 surgery residents were assessed in small batches during the above mentioned period. Of the 4 OSCEs conducted by us, 3 had a high value of Cronbach's α of greater than 0.9, as opposed to the set standard of 0.7. Out of 23 stations used in the

4 examinations separately, only 3 stations were found to have a low correlation coefficient (item total correlation), and hence, a low validity. The remaining 20 stations were found to have a high validity. Expert review showed unanimous validation of the content of 17 out of the 23 stations, with few suggestions for change in the remaining 6 stations. The material and manpower used was minimal and easy to obtain, thus making the OSCE feasible to conduct.

CONCLUSION: OSCE is a reliable, valid, and feasible method for evaluating surgery residents at various levels of training. (J Surg Ed ■■■■■. © 2016 Association of Program Directors in Surgery. Published by Elsevier Inc. All rights reserved.)

KEY WORDS: OSCE, objective assessment, reliability, validity, surgical residents

COMPETENCIES: Surgical Teaching, Professionalism, Resident Evaluation, Interpersonal and Communication Skills, General Surgery

INTRODUCTION

Traditionally assessment in medical training programs has been through subjective faculty evaluations or multiple choice questions. The former tend to inflate or diminish resident performance and the latter is a one-dimensional assessment tool. The objective structured clinical examination (OSCE) is a relatively new tool for evaluating physicians in training. The examination was introduced by Harden et al.¹

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at the University of Dundee (Dundee, Scotland) in an effort to improve the evaluation of medical students' clinical performance. In this study, OSCE consisted of a number of stations through which medical students rotated, spending predetermined amounts of time at each station.¹ Different clinical skills were assessed at the individual stations, and item checklists were used to objectively grade students' skills in performing clinical tasks. Evolution of OSCE as a teaching methodology is becoming widespread in use because of the feedback provided which is lacking in the conventional methods of examination. In an OSCE, the variables and complexity of examination are more easily controlled, its aims more clearly defined and the students' knowledge can be tested. Hence, the patient and examiner variables are controlled, and the test becomes more objective and thereby easily repeatable. Moreover, communication skills, attitude, and psychomotor skills are not assessed objectively in our current assessment system.

OSCE was described as the "gold standard for clinical assessment" by Norman.² Though it quickly caught up as a gold standard assessment tool in Europe and North America, it was studied in Asia only after 1993.³ Yet even after 2 decades, there is not enough data from India available about the usage of OSCE as a tool for assessment as its use is limited to a few institutes. Moreover it has been used more for undergraduate assessment. OSCE, being a multidimensional assessment tool, can help assess individual competencies such as cognitive skills (including problem solving, decision making, and treatment skills) and psychomotor skills (including technical, communication, and physical examination skills) and, hence, can be of immense use in the assessment of students at postgraduate level of training.⁴ However, the experience with OSCE in postgraduate training programs, particularly surgical programs is limited. The utility of OSCE becomes more pronounced in a surgical residency training, where the conventional examination continues to evaluate the technical skills by the residents' "know-how" regarding a particular technique/procedure. In an OSCE examination, evaluation of how the residents perform the task on a simulators or simulated situations can be observed and evaluated thus making it more objective when compared to traditional examination, albeit not as effective as an ideal examination carried out within the operating room.⁵ OSCE can thus help in the improvising the assessment of a resident, particularly surgical trainee.

Reliability and validity of OSCE as a tool for assessment has been previously determined in several studies carried out in the Western setup.⁶ OSCE can be used as a part of final assessment (summative OSCE) or as a continuous or sequential assessment tool (formative assessment).⁷ Pell et al.⁸ have shown that sequential testing improves the reliability, especially for borderline students.

Feedbacks from students and student perception have been evaluated in several studies. OSCE has been found to

be highly accepted in previously described literature.⁹ Most of the student perception has been that OSCEs are easier than traditional examinations, and this perception has been seen to increase with the year of training of the resident.

The recent rising trend and shift to the need for "competency-based medical education" has highlighted the need for direct observation and effective feedback. OSCE has thus been found to be a multidimensional and wholesome assessment tool for testing the competency of residents.

Hence, this study was carried out to assess the reliability, validity, and feasibility of OSCE in the formative assessment of surgical residents.

METHODOLOGY

Total 4 OSCEs were conducted in the year 2015 and 2016 in the department of surgery of a tertiary care institute in South India. The examinations conducted in the year 2015 had 5 comprehensive OSCE stations administered to 10 junior residents at the end of their second year of training (PGY2 2015), and 7 stations administered to 13 junior residents at the end of their first year of training (PGY1 2015). Similarly, the examinations conducted in the year 2016 had 5 OSCE stations administered to 13 (PGY2 2016) residents and 6 stations administered to thirteen (PGY1 2016) residents. All residents were from the same surgical training program in the above mentioned institute. The examinations were conducted at the end of each academic year. The examination for the PGY1 and PGY2 residents were conducted separately with a different set of questions. The various skills assessed were the residents problem solving ability, technical skills, communication skills, physical examination skills, and knowledge as given in [Table 1](#).

Each station was assigned a total score of 10 with the minimum required mark per station set as 50%. Each candidate was given 10 minutes at each station. Some of the stations were manned stations and some stations were unmanned. At each station the candidate had to carry out a different task based on the set of instructions provided. At some stations, they were asked to examine a patient or get consent for a procedure or demonstrate their suturing skills. The stations which required physical examination had actual patients whereas some other stations had someone playing the role of the patient. These people were given instructions before the beginning of the examination. All manned stations had a faculty member grading each resident, according to a given set of predetermined criteria presented in the form of a checklist. The items on the checklist were deemed critical for a competent examination. The faculty at the manned stations were given instructions to be passive evaluators, and not to guide or prompt the residents. All faculties belonged to the department of

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