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MINI CLINICAL EVALUATION EXERCISE (MINI- CEX) AS ASSESSMENT TOOL FOR UNDERGRADUATES IN ORTHOPAEDIC DEPARTMENT.

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ABSTRACT

Assessment of medical student's actual performance in wards and outpatient clinics using Mini-CEX allows assessment and feedback at the same time. This descriptive study was conducted among 30 Final MBBS Part II students from September 2017 to February 2018, to assess their clinical skills during Orthopaedics clinics and to evaluate satisfaction of faculty members and undergraduates using the nine point scale in mini-CEX form. After obtaining Ethical Committee clearance, informed consent and sensitization sessions, 120 encounters were observed using the Mini-CEX form and mean satisfaction scores recorded. Data was entered in MS Excel 2007 for Descriptive statistical analysis. 69.2% were new cases. 72.5% were male. The observation and feedback took an average of 15 minutes and 8 minutes respectively. Mean Satisfaction scores for faculty and students were found to be 6 and 7 respectively. The mini-CEX produces scores with adequate reproducibility and promotes a feedback culture between faculty and students.

KEYWORDS : Assessment, clinical skills, feedback.

INTRODUCTION:

Assessment, an important part of the educational spiral, is the force that drives learning. Assessment of a medical student's actual performance in the wards and outpatient clinics, poses a real challenge for medical teachers. Clinical skills are traditionally assessed by long case and short case work up and newer methods such as mini clinical evaluation exercises (mini CEX), objective structured clinical examinations (OSCE), case based discussions (CbD) and portfolios.

Work-place based assessment (WPBA) has emerged as effective tool to achieve highest level of competencies of Miller's pyramid i.e. the 'does' level (2015) [1]. These are assessments of trainees' performance in the workplace. Thus, in contrast to many other assessments in medical education, they do not occur in artificial settings, but take place as part of the daily work. Another important feature of WPBA is that they offer the opportunity to provide trainees with feedback on their performance. Therefore, they play an important role in competency-based medical education (2009, 2010) [2, 3]. Mini-CEX and DOPS are two commonly used workplace-based assessments. Mini- CEX is an assessment tool which is cost effective, can be administered with minimal sensitization of faculty members. A faculty member observes a trainee as he/she interacts with a patient around a focused clinical task. In the Mini-CEX, the trainee is evaluated regarding history taking, physical examination skills, communication skills, clinical judgment, professionalism, organization/efficiency, and overall clinical care as part of direct observation and a feedback conversation. (2007)[4]. Additionally, a global score regarding the 'overall' impression of a student's performance can be assigned. A trainee would be assessed several times by a faculty on these domains during the clinical posting. Use of multiple examiners for multiple cases helps to overcome inter-rater bias. To be able to provide feedback, teachers must observe and assess what students are doing. Providing feedback on clinical skills and assessing it, therefore, are intertwined elements of the same process.

Education is a process, the chief goal of which is to bring about desirable changes in the behaviour of the learner in the form of acquisition of knowledge, proficiency in skills and development of attitudes (2000) [5]. Providing adequate and targeted feedback enables further development. Learner assessment in medical education is becoming increasingly oriented towards defined outcomes, including the adequate application of skills and knowledge in the clinical setting.

Mini-CEX is a hybrid tool that allows assessment as well as feedback at the same time and thus blurs the boundaries between formative and summative assessment. The main strength of mini-CEX is its ability to provide immediate feedback, related to the task, from a knowledgeable assessor. (2010)[6]. However, changes in competence throughout the training period, complexity of patient problems, focus of each encounter, and relative amount of time spent per encounter and for providing feedback are some issues for standardizing the routine use of mini CEX (2003) [7].

As the Medical Council of India has stated the implementation of Competency based medical education in the Vision 2015 document, use of mini CEX as one of the assessment tools can steer the trainees' learning towards the desired outcome. Thus the Indian Medical Graduate can be better equipped to perform the five roles stated i.e. Clinician, Leader and team member, Communicator, Lifelong learner, and Professional (2015) [8]. So a humble attempt has been made to evaluate the clinical skills of undergraduates during their clinical posting in the Department of Orthopaedics using mini-CEX tool and to evaluate satisfaction of faculty members and undergraduates.

Materials and methods:

This descriptive study was conducted among the Final MBBS Part II undergraduate students posted in the Department of Orthopaedics, Santhiram Medical College and Hospital, Nandyal, Kurnool district. The study period was from September 2017 to Feb 2018. The study participants were selected according to the inclusion and exclusion criteria.

Inclusion criteria:

Faculty members and undergraduates of Department of Orthopaedics, willing to give consent to participate in the study

Exclusion criteria:

Interns, postgraduate students, senior residents, doctors employed on contract basis and faculty members not willing to give consent to participate

30 undergraduate students were assessed by 6 trained Faculty from the Department of Orthopaedics, who consented to participate. Each undergraduate was exposed to minimum of 4 encounters (total of 120 encounters), in the OPD and ward which was assessed using the mini-CEX form adapted from American Board of Internal Medicine (ABIM) (2007) [4]. For each encounter, the faculty recorded the date, the complexity of the patient's problem on a 3-point scale (low, moderate and high), the sex of the patient, the type of visit (new or follow-up), the setting (ambulatory, inpatient, outpatient), the number of minutes spent observing the encounter and the

number of minutes spent giving feedback. Using a 9-point scale (1-3 is unsatisfactory, 4-marginal, 5 and 6-satisfactory), the faculty rated the trainee on interviewing, physical examination, professionalism, clinical judgement, counselling, organization and efficiency and overall competence.

The clearance from the Institutional ethical committee was obtained prior to the start of the study. Before conducting mini-CEX encounter sessions between faculty and undergraduates, sensitization sessions regarding Millers pyramid, present methods of assessment and their limitations, workplace based assessment, the technique of mini-CEX , actual student- faculty encounter in different clinical settings with prior intimation to undergraduate, objectivity of giving scores was conducted among the faculty and undergraduates. Two sessions for faculty, one session for undergraduates separately followed by one combined session was conducted. All queries from faculty and undergraduates were clarified.

Data analysis of all 120 clinical encounters was done after checking for completeness of data collection. Data was entered in MS Excel 2007 and subjected to descriptive statistical analysis. Mean duration of each clinical encounter, mean performance scores, satisfaction levels were analysed.

Results:

Among 120 Mini CEX clinical encounters, 69.2% were new cases in the OPD and the rest were in the ward. 72.5% were male patients. As shown in Table 1, 60 (50%) of the patients had a clinical problem of an average complexity.

Table 1: Complexity of patient's problems during the Mini CEX clinical encounters:

Complexity of patient's problems	Number (%)
Low	30 (25%)
Average	60 (50%)
High	30 (25%)
Total	120 (100%)

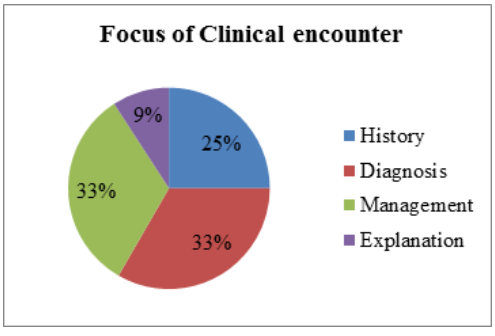


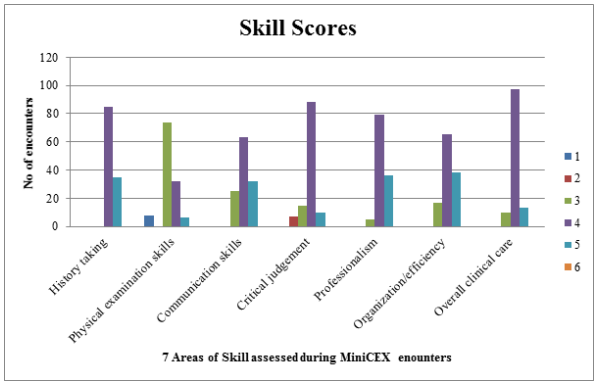
Figure 1: Focus of clinical encounters:

Table 2: Observation time during the MINICEX encounters:

Observation time	N (%)
5-10 min	97
10-15 min	12
15-20 min	11
Total	120 (100%)

Table 3: Feedback time during the MINICEX encounters:

Feedback time	N (%)
0-5 min	42
5-10 min	68
10-15 min	10
Total	120 (100%)



Mean Satisfaction scores for faculty and students were found to be 6 and 7 respectively, showing that the faculty and undergraduates were satisfied and very satisfied with Mini CEX assessment tool.

Discussion:

The purpose of this study was to evaluate the clinical skills of undergraduates during their clinical posting in the Department of Orthopaedics using mini-CEX tool and to evaluate satisfaction of faculty members and undergraduates. The results of this study suggest that it was helpful to bring out the above objectives, hence reinforce the need to include this as an assessment tool for undergraduates. In a study by Balakrishnan R Nair et al, complexity of encounters was rated by examiners as low for 19, moderate for 150 and high for 31 encounters. The average mini-CEX observation time was 20 minutes and the average time for feedback was 12 minutes compared to 15 minutes and 8 minutes respectively in the present study. Almost half of the IMGs and most examiners were satisfied or very satisfied with the mini-CEX as an assessment tool (2008) [9]. This is consistent with the results of the present study too.

Conclusions:

The ABIM Mini-Clinical Evaluation Exercise (Mini-CEX) facilitates formative assessment of core clinical skills and provides timely and specific feedback. The brief, focused encounters produce scores with adequate reproducibility if enough observations are made, in undergraduate training, to promote a feedback culture between faculty and students. Given the settings under which the study was conducted, the mini-CEX adequately assessed the clinical performance of the undergraduates in 4 encounters each. As the mini-CEX is conducted within the workplace with real patients, it is highly acceptable to both the faculty and undergraduates.

Limitations:

The mini-CEX may be more difficult to administer because multiple encounters must be scheduled for each undergraduate student. Its exclusive use prevents observation of the undergraduate while doing a complete history and physical examination.

Declarations:

Funding: None

Conflict of interest: None declared

Ethical approval: Clearance from the Institutional Ethical Committee obtained.

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