



## EFFECTIVENESS OF MINI- CLINICAL EVALUATION EXERCISE (MINI CEX) IN ASSESSMENT OF PHYSIOTHERAPY STUDENTS

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### ABSTRACT

Traditional pattern of assessment is lacking in uniformity, time constraint, and is bias. The mini-clinical evaluation exercise (mini-CEX) is widely used for assessment in single work-based encounters of clinical competence. Drawbacks of traditional method can overcome by using this technique. But it is not used in physiotherapy education. To assess effectiveness of Mini-CEX pattern of assessment in evaluating Physiotherapy undergraduate students. The study was conducted in Dr. D. Y. Patil College of Physiotherapy, Pune on 20 Final year physiotherapy students. Students were evaluated by 12 teachers using Mini CEX assessment Performa. Students were evaluated case in given time and examiner observed them while evaluating the patient silently. After assessment, feedback was taken regarding the effectiveness of this pattern. All students and 83.33% teachers accepted that Mini CEX is more objective pattern of assessment than traditional one. Students (80%) and Teachers (58.33%) felt that it should be the ideal pattern of examination in the physiotherapy curriculum. Students (90%) and 83.33% teachers accepts that this pattern assess the student thoroughly. Both students (85%) and teachers (91.67%) agreed that overall it is very effective way of assessment of student. This study concluded that Mini CEX was well accepted by the students and teachers and it is feasible to introduce in the physiotherapy examination provided time allotted for diagnosing the case was sufficient. However, further studies are required before implementation of Mini CEX in university examination.

**KEYWORDS:** *Mini- Clinical Evaluation Exercise, Traditional examination, Medical Interview, Physiotherapy Clinical Competence, Humanistic qualities.*



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## INTRODUCTION

Assessment of actual performance means what the physiotherapist will do in practice, and it is the ultimate goal for a valid assessment of clinical competence. Even though the traditional assessment is practicing everywhere, various problems are faced like lack of standardization, limited observations, bias and limited sampling of skills and that limits their use in qualifying examinations.<sup>1</sup> Many Physiotherapy students complete training without ever being observed performing a clinical skills. Mini-Clinical Evaluation Exercise (Mini-CEX) has overall good utility for assessing multiple aspects of the clinical training that encounters in an undergraduate setting.<sup>2</sup> The Mini-CEX evaluation format has been designed to incorporate the skills that a medicine student needed while they encounter a actual patient as well as the educational interactions that they gain while interacting with attending physician which often encounters during ward rounds or teaching rounds. Mini CEX is an evaluation technique that mainly emphasizes on the assessment of clinical skills and its association with attitude and behaviour which is an integral part of high quality patient care. There is the feasibility of collecting multiple mini-CEX assessments from both inpatient and outpatient settings using teachers and resident evaluators in medicine. The feasibility of collecting multiple assessments is important if the mini-CEX is to be a reproducible assessment of clinical skills.<sup>3</sup> Balakrishnan R Nair (2008) concluded that mini-CEX is a reliable tool for performance assessment of International Medical Graduates, and is acceptable to and well received by both learners and supervisors.<sup>4</sup> Mini-CEX has higher fidelity than traditional formats, permits evaluation based on a much broader set of clinical settings and patient problems, and is administered on site.<sup>5-8</sup> Mini CEX has proved its effectiveness in medical students but there are no evidence about its practice in assessing physiotherapy students. Hence the objectives of this study are to find out the feasibility and effectiveness of Mini-CEX by

evaluating final year Bachelor of Physiotherapy students.

## MATERIALS AND METHOD

This analytical study was conducted in Dr. D. Y. Patil College of Physiotherapy, Pimpri, Pune. Ethical approval was taken from the Institutional Ethical Committee of Dr. D. Y. Patil College of Physiotherapy, Pune, India with reference no. DYPCPT/669/2013. and Written Informed consent was obtained from all the participants. Study was carried out with the help of 20 final year bachelor of physiotherapy students and 12 teachers. A brief information was given to all teachers about the Mini-CEX. A Video about Mini-CEX pattern of evaluation was shown to all teachers to acquaint with this evaluation pattern. One practice session was organized for all the teachers. All the students were also briefed about the Mini-CEX pattern of evaluation and informed them about their evaluation by teachers using Mini-CEX format. Time given for the evaluation of each case was 30 min. A case was allotted to each student and asked to do the assessment in the given time (30Min.) Students were observed silently by teachers while evaluating the complete case sitting in the same cubicle aside without disturbing or interfering the student. After evaluation was completed, patient was sent out and teachers gave immediate feedback to the students regarding the right and wrong things they did. Students were rated in seven competencies (interviewing, physical examination, professionalism, clinical judgment, counseling, organization, and overall clinical competence) using a Nine-point rating scale (1 = unsatisfactory to 9 = superior). Then a separate pre validated questionnaire which had 12 questions (Annexure A and B), was given to the students and teachers to get feedback regarding the assessment pattern of Mini CEX and to know the feasibility of this pattern of assessment. They were asked to mark the answers by using 5 point Likert scale. Data was recorded and then analyzed using percentile score.

### Annexure A

#### Feedback of teachers on the Mini-CEX pattern of Assessment

Please mark the score you will rate for the questions from 1 to 12 by using Likert Scale Strongly agree:- 5 , Agree:- 4, Neither :- 3, Disagree:- 2 , Strongly disagree:- 1

Sr. No.	Question
1	Mini CEX pattern of assessment is more objective than the traditional pattern
2	Assesses Knowledge, skills and attitude of the student thoroughly
3	This pattern will improve student's performance in the University examination as feedback was timely given
4	Timings allotted for the assessment is appropriate
5	It is practically possible to implement this pattern of assessment in Physiotherapy curriculum
6	Patients point of view, it is appropriate to evaluate patients in short time
7	Students can come to the diagnosis in this short period of time
8	feel satisfied with this assessment pattern as students were evaluated before me
9	This assessment helps the student in examining patients in structured way
10	Students feel uncomfortable while assessing the patient in front of teacher
11	Students feel uncomfortable while assessing the patient in front of teacher
12	Overall it is very effective way of assessment

### Annexure B

#### Feedback of student on the Mini-CEX pattern of Assessment

Please mark the score you will rate for the questions from 1 to 12 by using Likert Scale Strongly agree:- 5, Agree:- 4, Neither :- 3, Disagree:- 2, Strongly disagree:- 1

Sr. No.	Question
1	Mini CEX pattern of examination is more objective than the traditional pattern.
2	Assesses knowledge, Skills and attitude of us thoroughly .
3	Improve our performance in the University examination as feedback was timely given
4	Time allotted for the assessment was appropriate.
5	This assessment should be included in the curriculum as ward exam/IA exam
6	It is good to learn diagnosing skills in short period of time
7	It becomes difficult to make the diagnosis in this short period of time.
8	satisfied with this assessment pattern as teacher has observed me while assessing
9	This type of assessment will help us in examining the patient properly.
10	feel uncomfortable while assessing the patient in front of teacher.
11	can score better with this form of assessment.
12	Overall it is very effective way of assessment.

## RESULT

Twenty final year Bachelor of Physiotherapy students (6 males and 15 females) were participated in this study. And these students were evaluated by 12 Teachers (6 males and 6 females). Table No. 1 shows the average score in all 7 competencies of Mini CEX Proforma. When all students were evaluated, they got maximum

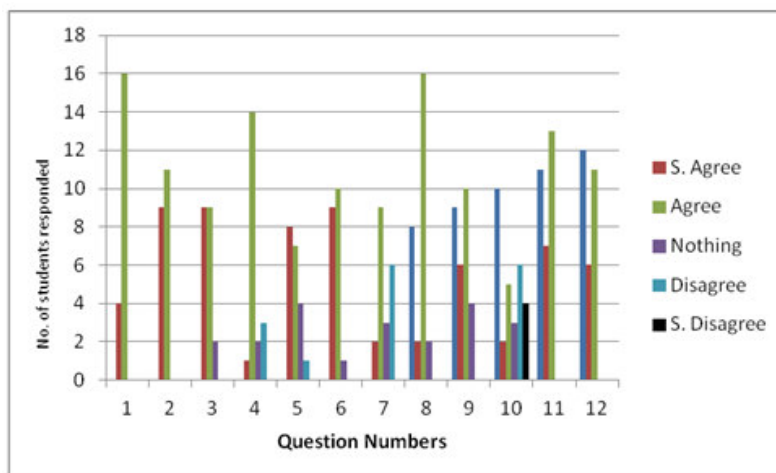
score in humanistic qualities or professionalism whereas least score in clinical judgment. Student scores less in physical examination skills which is the main domain of assessment. This indicates that students have not developed satisfactory skills in the very important domain of the patient evaluation. This part must be emphasized in detail during clinical teaching.

**Table 1**  
**Average score in all 7 competencies of Mini CEX Proforma**

Sr. No.	Competency	Average Score out of nine	Score in Percentage
1	Medical interviewing skills	6.3	70 %
2	physical examination skills	3.5	38.88%
3	Humanistic qualities/ Professionalism	6.55	72.77%
4	Clinical Judgment	3.25	36.11%
5	Counseling Skills	5.5	61.11%
6	Organization/ Efficiency	6.05	56.11%
7	Overall Clinical Competence	4.75	52.77%

Graph 1 shows students' feedback regarding the Mini CEX. All i.e.100% student accepted that Mini CEX is the more objective pattern than traditional one. Eighty percent students felt that the Mini CEX should be the pattern of examination in the physiotherapy curriculum. Ninety percent students accepts that this pattern assess the student thoroughly. Almost 75% student accepts that time allotted was appropriate whereas 35% students were uncomfortable while assessing the patient in

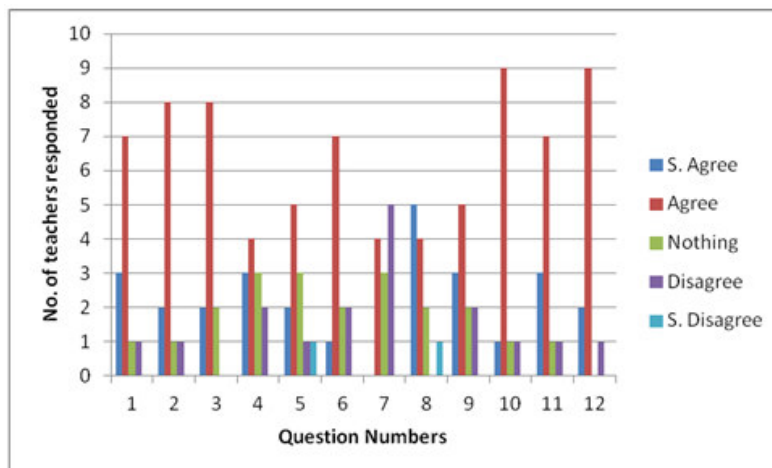
presence of the teacher. Eighty five percent student agreed that overall it is very effective way of assessment of student in Physiotherapy and all of them agree that they can score better in future exams as immediate feedback was given. Overall it was found that maximum students were either agree (Mean = 10.92, SD= 3.37) or strongly agree (mean= 5.41, SD=3.08) for assessment of the students using Mini CEX format.



**Graph 1**  
**Feedback of students on Mini CEX pattern of examination**

Graph 2 shows teachers' feedback regarding the Mini CEX. More than eighty three percent teachers accepted that Mini CEX is the more objective pattern than traditional one, assess student thoroughly and will improve student's performance in university examinations. Seventeen percent of teachers felt that time allotted was not appropriate whereas 25% teachers feels that they cannot comment on time allotment. Fifty eight percent teachers feel that it is possible to implement this pattern in Physiotherapy curriculum so that student's performance will improve in university

exams. Overall 83.66 % teachers were agreeing or strongly agreeing that students were uncomfortable while assessing in presence of teachers which was contradictory to students finding. Amongst all teachers, 83.33% teachers feel that student can score better in further exams as feedback about their best performance, and worst performance was given. Majority of teachers (91.67%) agreed that overall it is very effective way of assessment of student in Physiotherapy.



**Graph 2**  
**Feedback of teachers on Mini CEX pattern of examination**

## DISCUSSION

The objectives of this study were to assess the feasibility and effectiveness of Mini-CEX pattern of assessment in Final Year physiotherapy undergraduate students. We observed that 100% student and 83.33% teachers accepted that Mini CEX is more objective pattern than traditional one. These results are consistent with the results of other studies done by Hill F et al (2009), Liao KC et al (2013) and Alves de Lima A (2013).<sup>2,9,10</sup> As the mini-CEX is conducted within the workplace with real patients, it has high fidelity and it is acceptable to both students and teachers. Students (80%) and Teachers (58.33%) felt that the Mini CEX should be the pattern of examination in the physiotherapy curriculum. The mini-CEX facilitates feedback<sup>7,8,11</sup>, and can lead to improvement in students performance<sup>5,12</sup>. Few students felt uncomfortable while assessing the case in presence of teachers. This may be because students were not exposed to such evaluation pattern till now and they get conscious. This indicates the need for the practice of Mini CEX in routine practical Examinations. As observed by Preeti G. et al (2016), Audio-Video clips is an effective method of learning practical skills in the students of Physiotherapy course, this improves the evaluation of the patient in a specific manner.<sup>13</sup> Few teachers and students felt that time allotment for the complete evaluation of the case was short. Students were not used to assess the patient in short period of time and in a precise way as they were taking complete evaluation of the case with lots of time

wasting in thinking what to ask next as well as not synchronized. Once this will start implementing, students will know and practice case evaluation in short period of time, and then this difficulty can be recovered. Eighty percent students and 58% teachers felt that it is feasible to implement in the curriculum. Few teachers reported that they could not interfere the students' wrong assessment as they were not suppose to talk or give any comments in between hence the whole further assessment went wrong. Further study can be done with larger sample size and students should assess frequently before implementing in Physiotherapy Curriculum.

## CONCLUSION

This study concludes that Mini CEX is feasible and effective mode of assessment of student performance in final year Bachelor of Physiotherapy. This will help the student to evaluate the patient in better way with more confidence.

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## CONFLICT OF INTEREST

Conflict of Interest declared None

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