



Mini-Clinical Evaluation Exercise in Dental Education in Kingdom of Saudi Arabia - A pilot study

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ABSTRACT

The Mini-CEX (clinical evaluation exercise) is a workplace based assessment tool designed to assess the clinical skills, attitudes, and behaviors of students that are essential in providing high quality patient care. It involves direct observation of real patient encounters followed by one on one structured feedback sessions by observing faculty. Mini-CEX has already found wide acceptance in medical education but is largely untested in dental education

Aim:

1. This pilot study has been planned to implement Mini-CEX as an assessment tool
2. To analyze the perception of students and faculty about the use of Mini-CEX
3. To analyze the possible advantages and disadvantages of Mini-CEX as an assessment tool in dental education.

Method: Twelve undergraduate students of final year BDS, from Buraydah College of Pharmacy and Dentistry underwent one Mini-CEX encounter each. Four teaching faculties performed the roles of assessors who rated the performance of students by directly observing the students while they performed various clinical skills. Rating was done using the standardized Mini-CEX rating form. This was followed by systematic feedback session and at the end students' and teachers' perception of the Mini-CEX was sought through structured questionnaires.

Results: Both the students and assessors were more than satisfied and showed positive response to the new assessment method. Direct observation of students performing various clinical skills and immediate feedback on the areas where the student went wrong were appreciated the most.

Conclusion: This pilot study strongly supports the implementation of Mini-CEX as a very effective assessment method in the field of Dental Education.

Key Words: Assessment method, Dental Education, Mini-CEX

INTRODUCTION

Assessing students in Dental education by certain number of marks in examination is less important because it will give information of the end result about a student's performance with very little information on "how" the student got those scores. Hence, gathering evidence of clinical competence and professional behaviour by direct observation in real clinical environments becomes very significant way of assessment. In the Miller's framework for assessing clinical competence, Mini-CEX (clinical evaluation exercise) falls in the highest

level of the pyramid and collects information about student's performance in their everyday practice (Fig.1)^[1]

The assessments at the lower level of Miller's Pyramid focus more on knowledge domain. "Does" level of Pyramid assess the students on a real patient encounter which are designed to assess the clinical skills, attitudes, and behaviors of students that are essential in providing high quality patient care. It involves direct observation of real patient encounters followed by one on one structured feedback sessions by observing faculty^[1]

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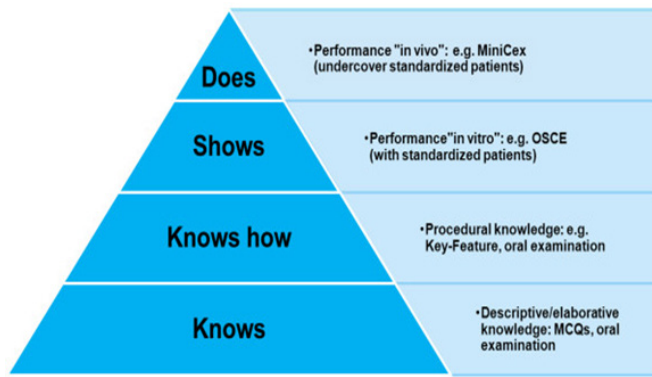


Figure 1: (Miller's prism of clinical competence).

Originally Mini-CEX was designed by J. Norcini in 1995^[2] in the USA for the evaluation of Internal Medicine residents' clinical skills. The principal characteristics of Mini-CEX are direct observation of real patient encounters and immediate structured feedback to the learner after the encounter^[2, 3]

A Mini-CEX is approximately a twenty minute encounter, during which a student performs focused history taking and physical examination of a patient in a real setting while the faculty or the assessor observes. After a discussion on the diagnosis and management plan for the patient, the faculty assesses the student using the Mini-CEX evaluation form and provides feedback^[2, 3]

Some of the important drawbacks of traditional methods of assessments especially in the subject of Oral Medicine and Radiology are that, it only considers the final diagnosis if it's right or wrong and not "how" the students have reached the diagnosis. There is rarely a direct observation of students performing various skills before arriving at final diagnosis. This impacts both the 'validity' and the 'reliability'. Moreover, communication skills are rarely assessed, there is very little scope for direct feedback, and some important skills may not be tested at all.

Since the traditional long case discussions are time consuming, the number of cases and exposure to variety of cases become very limited^[4]

Mini-CEX, in contrast, has the potential to be a more practically suited assessment tool in situations involving patient-doctor interactions and where communication skills and professionalism are important.

The search of data base revealed that Mini-CEX has not been implemented as an assessment tool in dental education in Kingdom Of Saudi Arabia. Hence, this pilot study was planned to implement Mini-CEX as assessment tool in KSA. The goal of this pilot study was to introduce Mini-CEX as an assessment tool for undergraduate students in the subject of Oral Medicine and Radiology and study the perception of both students and faculty towards this method of assessment.

Methods: This pilot study was carried out in the Buraydah College of Pharmacy and Dentistry, Al Qassim, KSA in 2016. Twelve undergraduate Students of final year BDS underwent Mini-CEX in the subject of Oral Medicine and Radiology.

Since it's a novel method of workplace based assessment. An orientation session on the details of Mini-CEX was given to both the students and the teaching faculties. In that session, detailed description was given regarding the method of assessment and criteria for scoring the Mini-CEX rating form and the do's and don't's of feedback sessions. A presentation was made to the entire faculty and handouts of Mini-CEX forms were distributed. (Annexure 1)

Totally there were 12 Mini-CEX encounters. 12 cases of equal complexity were selected. After patient consent, the student starts the encounter by performing a focused case history, does appropriate physical examination and orders the relevant investigations and arrives at final diagnosis and then plans for appropriate treatment plan. During the entire encounter, the assessor directly observes the student and with the help of the checklist, rates the student's performance under the six domains using the Mini-CEX rating form (Annexure 2)

At the end a Global scoring was done to grade a student as clinically competent or incompetent. The scoring was done on 9 point scale with 3 categories as below satisfactory, satisfactory and above satisfactory. After the student-patient interaction was complete, a systematic feedback session of about 10 min took place. The assessor first explained to the student the things that were done well, followed by the things that could be done better. These suggestions were put in writing on the Mini-CEX rating form. The assessor then suggested a specific learning plan for the student to improve in the weak areas.

Finally student's and assessor's perception on the use of this novel Mini-CEX as an assessment tool was obtained with the help of a structured questionnaire. All 12 students and 4 faculty members participated voluntarily in giving the feedback.

RESULTS

Twelve undergraduate students of final year BDS underwent Mini-CEX in the subject of Oral Medicine and Radiology. After the completion of the encounter, Perceptions of were obtained from both students and faculty members using structured questionnaire.

Implementation of Mini-CEX: Student selects an interesting case at the outpatient. After the Patient consent the student fixes the appointment for Mini-CEX with faculty. Student does the focused case history relevant to the chief complaint of the patient, does appropriate examinations and orders re-

quired investigations, arrives at diagnosis and discusses the appropriate treatment plan with the patient. The entire procedure should not exceed 15-20 minutes. While the student performs all the above mentioned procedures, the faculty is directly observes and scores the student based on structured criteria (Annexure 2). However, the faculty does not interfere the student. After the completion of the encounter, the faculty gives an effective feedback on where the student went right and where exactly he went wrong and also suggests an action plan to improve.

Perceptions of students on Mini-CEX:

After the orientation, all the students voluntarily agreed to undergo Mini-CEX as an assessment tool. All the twelve students felt that the entire Mini-CEX session was well organized. Students felt that the skills chosen to be assessed during the Mini-CEX were very significant to become a successful clinician than just score good marks. The students particularly appreciated that their communication skills were assessed which they felt was never assessed by the traditional method of assessment. All the students felt that direct observation by the faculty was very significant due to which their preparation was better than the traditional method of assessment.

The immediate feedback on the weak areas and quick coaching and action plan to improve was appreciated the most by all the students. Students also felt that the immediate feedback enhanced experiential learning and increased their level of confidence.

Two students felt that time given was not sufficient to finish all the 6 competencies of Mini-CEX. One student felt it was more stressful experience than the traditional format since the faculty observed her performance.

All students felt that the constructive feedback helped reinforce the skills that they did well, and helped them identify weak areas. All the students agreed that the feedback motivated them to learn further. Overall, the students were found to perceive Mini-CEX positively.

Perception of faculty towards Mini-CEX:

Four faculty members assessed Mini-CEX encounters. All the assessors felt that the orientation session was adequate to understand the working of Mini-CEX. All assessors agreed that planning the Mini-CEX process requires more time and thinking than traditional evaluation methods. However, all also felt that a major advantage of Mini-CEX over other newer methods of assessment like OSCE (Objective Structured Clinical Examination) is that no additional manpower, equipment, instruments, materials are required. Three assessors felt that more time was required to conduct a Mini-CEX encounter

All the assessors found that this method allows assessment

of a student's attitude and communication skills, which are very important in all professions and especially in dentistry. They agreed that the Mini-CEX format allows for more opportunities for improvement by providing immediate focused feedback, which also acts as a motivating factor to students for further learning

DISCUSSION

The objective of this pilot study was to introduce Mini-CEX as an assessment tool for students in the subject of Oral Medicine and Radiology, and to study the perception of both students and faculty toward this novel method of assessment. Since there are many drawbacks with the traditional methods of assessments especially in the subject of Oral Medicine and Radiology, there is need for better assessment methods especially in the real patient scenario. Hence this pilot study was planned to implement this novel assessment method.

Among all the positive response, the assessment of communication skills and the immediate feedback on how it could be improved was appreciated the most by all the students. Only one student felt that it was stressful to have the assessor observing her performance. Two students also felt that the time was insufficient. Immediate feedback was also appreciated by all the students. They felt it was very significant to note their areas of weakness.

Overeem and Govaerts also reported higher satisfaction with narrative feedback, and they also suggested that narrative feedback can improve in training evaluation^[5, 6]

The overall perception of students toward Mini-CEX was positive and they felt that this assessment method was a good experience would motivate them to improve in specific areas. Behere R also found similar perception when used on 12 undergraduate students of dentistry^[7]

All assessors agreed that organizing and implementing the Mini-CEX required more planning and involvement than traditional assessment. Alves de Lima^[8], Wilkinson^[9] reported issues regarding the feasibility of using Mini-CEX. These studies suggests that assessment tool must be well integrated within the curriculum and additionally propose that workshops are a better way to implement an instrument than written instructions. All assessors felt that being an examiner for Mini-CEX was more time consuming than the traditional method of evaluation. All assessors agreed that their presence impacted the trainees' performance. Weller^[9] also found similar results.

Mini-CEX has been largely tested and used in the field of Medical education; however, very few studies reported the use of Mini-CEX in dental education. Studies by Behere R, Pande N and M. Iniesta are the only 3 reports till date to implement the use of Mini-CEX in dental education^[7,10,11].

All the three studies recommend the use of Mini-CEX as an assessment tool in dental education.

that dental students develop sound communication and counseling skills to allay patient fears and anxiety. This makes it ideal for implementation of Mini-CEX as an assessment tool.

CONCLUSIONS

Mini-CEX was introduced in dental education in KSA may be for the first time. Traditional assessment methods in the subject of Oral medicine and Radiology have certain significant drawbacks like its time consuming and that limits the exposure of variety of cases to learning students. Moreover, fear of dental treatment is widely recognized, it is important

The data arising from this pilot study strongly supports the implementation of Mini-CEX to improve the learning experience for undergraduate dental students. This pilot study certainly recommends the use of Mini-CEX as an assessment tool in the subject of Oral Medicine and radiology and it also shows that both the students and faculties appreciated Mini-CEX as an assessment tool. However, further studies are required to check the feasibility of using Mini-CEX for other disciplines and procedures in dentistry.

ANNEXURE-1-MINI CEX FORM

Student name: _____ Year of student: _____
 Assessor: _____ Designation: _____
 Patient chief complaint: _____
 Patient complexity: High Moderate Low:
 Patient location: Outpatient unit Clinic Others:

1. History Taking Skills (Not Observed _____)

1	2	3	4	5	6	7	8	9
Unsatisfactory			Satisfactory			Exceeds Expectations		

2. Intraoral Examination Skills (Not Observed _____)

1	2	3	4	5	6	7	8	9
Unsatisfactory			Satisfactory			Exceeds Expectations		

3. Professionalism (Not Observed _____)

1	2	3	4	5	6	7	8	9
Unsatisfactory			Satisfactory			Exceeds Expectations		

4. Counseling Skills/ Communication Skills (Not Observed _____)

1	2	3	4	5	6	7	8	9
Unsatisfactory			Satisfactory			Exceeds Expectations		

5. Clinical Judgment (Not Observed _____)

1	2	3	4	5	6	7	8	9
Unsatisfactory			Satisfactory			Exceeds Expectations		

6. Organization/ Efficiency (Not Observed _____)

1	2	3	4	5	6	7	8	9
Unsatisfactory			Satisfactory			Exceeds Expectations		

7. OVERALL CLINICAL COMPETENCE

1	2	3	4	5	6	7	8	9
Unsatisfactory			Satisfactory			Exceeds Expectations		

Observation Time: _____ Feedback Time: _____
 This case adequately tested student's abilities: Yes No:
 Student's signature: _____ Assessor's signature: _____ date: _____

ANNEXURE-2 CRITERIA FOR SCORING THE STUDENT

1. HISTORY TAKING SKILLS
 - a. Listens effectively
 - b. Picks up on non-verbal clues
 - c. Explores the issues and concerns of the patient
2. INTRAORAL EXAMINATION SKILLS
 - a. Efficient, logical, appropriate for the problem
 - b. Uses appropriate technique
 - c. Explains to the patient what is happening/will happen
 - d. Shows respect for comfort of the patient
3. PROFESSIONALISM
 - a. Shows respect, compassion, empathy
 - b. Establishes trust
 - c. Attends to the needs of the patient
 - d. Behaves appropriately with other family members, if present
4. COUNSELLING/COMMUNICATION SKILLS
 - a. Explains rationale for tests
 - b. Obtains consent from the patient for investigations
 - c. Educates about the condition and its management
 - d. Involves patient in decisions about treatment/management
 - e. Deals with questions from the patient
5. CLINICAL JUDGMENT
 - a. Orders or performs appropriate investigations
 - b. Interprets evidence - differential diagnosis
 - c. Accurate diagnosis and treatment planning
 - d. Considers appropriate referral
6. ORGANIZATION/EFFICIENCY
 - a. Sets priorities
 - b. Makes decisions in a timely fashion
 - c. Moves the process along effectively and efficiently without making the patient feel rushed.
7. OVERALL CLINICAL COMPETENCE
 - a. Demonstrates judgment, synthesis, caring, effectiveness, efficiency

REFERENCES

1. Miller GE. The assessment of clinical skills /competence /performance. Acad Med1990;s63-7
2. John J. Norcini, Linda L. Blank, Gerald K. Arnold and Harry R. Kimball, The Mini-CEX (Clinical Evaluation Exercise): A Preliminary Investigation. Ann Intern Med.1995;l23:795-799
3. Norcini JJ, Blank LL, Duffy FD, Fortna GS. The Mini-CEX: A method for assessing clinical skills. Ann Intern Med 2003; 138:476-81.
4. Norcini JJ. Death of the long case? BMJ 2002; 324:408-9.
5. Overeem K, Lombarts MJ, Arah OA, Klazinga NS, Grol RP, Wollersheim HC. Three methods of multisource feedback compared: A plea for narrative comments and coworkers' perspectives. Med Teach 2010; 32:141-7.
6. Govaerts MJ, van der Vleuten CP, Schuwirth LW, Muijtjens AM. The use of observational diaries in intraining evaluation: Student perceptions. Adv Health SciEduc Theory Pract 2005;10:171-88.
7. Behere R. Introduction of Mini-CEX in undergraduate dental education in India. Educ Health 2014;27:262-8
8. Alves de Lima A, Barrero C, Baratta S, Castillo Costa Y, Bortman G, Carabajales J, *et al.* Validity, reliability, feasibility and satisfaction of the mini clinical evaluation exercise (mini-CEX) for cardiology residency training. Med Teach 2007; 29:785-90.
9. Wilkinson JR, Crossley JG, Wragg A, Mills P, Cowan G, Wade W. Implementing workplace based assessment across the medical specialties in the United Kingdom. Med Educ 2008; 42:364-73.
10. Pande Neelam , Raisoni Poonam , Deshpande Saeed ;Perceptions of dental postgraduates about Mini-cex: A Pilot Study; JETHS-Volume 1 Issue -2 Sept - Dec 2014
11. M. Iniesta, J. Viñuela, F. Utrilla, L. Aracil, A. Bascones-Martínez (2012) Implementation Of Mini-cex In The Subject of Periodontology, ICERI2012 Proceedings, pp. 4203-4210.