

## Educational Impact of Mini-Clinical Evaluation Exercise (Mini-CEX) on Psychiatry Residents: A Prospective Observational Study

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### Abstract

**Introduction:** Workplace-based assessment has gained importance in postgraduate medical education as it allows evaluation of clinical performance in real-life settings. The Mini-Clinical Evaluation Exercise (Mini-CEX) is a structured assessment tool that involves direct observation of clinical encounters and provision of immediate feedback, which may enhance learning and professional development. Its educational impact in psychiatry residency training warrants evaluation.

**Aim:** To assess the educational impact of introducing the Mini-Clinical Evaluation Exercise (Mini-CEX) on psychiatry residents.

**Materials and Methods:** This prospective observational educational study was conducted in the Department of Psychiatry at a tertiary care teaching hospital in Jaipur, India, after Institutional Ethics Committee approval. Ten first- and second-year psychiatry residents were included after obtaining informed consent. Faculty members were sensitized and trained in the use of Mini-CEX. Each resident underwent five Mini-CEX encounters involving patients of moderate clinical complexity. Residents were assessed across seven domains using a 9-point rating scale. Perceptions of residents and evaluators were collected using validated questionnaires. Data were analysed using descriptive statistics with SPSS version 24.

**Results:** Among the residents, 70% rated the Mini-CEX experience as satisfactory and 30% as just satisfactory. Progressive improvement was observed across successive encounters. Resident satisfaction scores increased from 5.5 in the first encounter to 7.2 by the fifth encounter, while evaluator satisfaction scores increased from 6.0 to 8.1, which was statistically significant ( $p < 0.05$ ). Residents reported improvement in communication skills, history taking, and clinical examination, along with appreciation for immediate feedback.

**Conclusion:** Mini-CEX is a feasible, acceptable, and effective formative assessment tool for psychiatry residents. Its implementation in routine clinical settings has a positive educational impact and contributes to improvement in multiple clinical competency domains.

**Keywords:** Mini-CEX; Psychiatry Residents; Workplace-Based Assessment; Feedback; Medical Education.

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### Introduction

Assessment of clinical competence is a fundamental component of postgraduate medical education, particularly in specialties such as psychiatry, where effective communication, professionalism, clinical judgment, and counseling skills are central to patient care. Traditional

assessment methods in medical education have largely focused on summative evaluations conducted at the end of training periods, which may fail to provide timely feedback or adequately reflect real-world clinical performance [1]. This has led to a growing emphasis on workplace-based

assessment (WPBA) tools that allow direct observation of trainees in authentic clinical settings. The Mini-Clinical Evaluation Exercise (Mini-CEX) is one such WPBA tool that was developed to assess clinical skills through brief, structured observations of doctor-patient encounters, followed by immediate feedback [2]. Unlike conventional assessment methods, Mini-CEX evaluates multiple domains of clinical competence, including medical interviewing, physical examination, professionalism, clinical judgment, counseling skills, organizational efficiency, and overall clinical competence [3]. The provision of real-time, formative feedback is a key strength of the Mini-CEX and is considered crucial for promoting reflective learning and continuous improvement among trainees.

Psychiatry training poses unique challenges in clinical assessment due to the subjective nature of symptoms, the importance of therapeutic communication, and the need for empathy and professionalism in patient interactions. Conventional written examinations or objective structured clinical examinations (OSCEs), though useful, may not fully capture these nuanced competencies in real clinical environments [4]. Mini-CEX, by virtue of its real-time observation and feedback, offers an opportunity to assess these essential skills in authentic psychiatric practice settings.

Several studies have demonstrated the validity, reliability, and educational impact of Mini-CEX across various medical specialties [5,6]. Norcini et al. reported that Mini-CEX possesses psychometric properties comparable to standardized patient-based assessments while offering greater feasibility in routine clinical practice [2]. Wilkinson et al. further emphasized that structured workplace-based assessments such as Mini-CEX enhance learner engagement and promote a culture of feedback in postgraduate training programs [7].

In psychiatry specifically, the use of Mini-CEX has shown promising results in improving residents' clinical performance and satisfaction with assessment methods. Studies from different educational settings have highlighted improved communication skills, enhanced clinical confidence, and better identification of learning needs among residents undergoing repeated Mini-CEX encounters [8,9]. Immediate feedback provided during Mini-CEX sessions has been shown to reinforce positive behaviors and facilitate correction of deficiencies at an early stage of training.

Despite its recognized advantages, the implementation of Mini-CEX is not without challenges. Concerns related to time constraints, faculty workload, and initial resistance from both

trainees and assessors have been reported [10]. However, evidence suggests that with appropriate faculty sensitization and structured implementation, Mini-CEX becomes increasingly acceptable and feasible within routine clinical workflows. In the Indian medical education context, competency-based medical education (CBME) has further underscored the importance of formative assessment and continuous feedback. Mini-CEX aligns well with CBME principles by promoting direct observation, learner-centered feedback, and competency-based progression [11]. However, data on the educational impact and acceptability of Mini-CEX among psychiatry residents in Indian tertiary care teaching hospitals remain limited.

Therefore, the present study was undertaken to evaluate the educational impact of introducing the Mini-Clinical Evaluation Exercise as a formative assessment tool for psychiatry residents in a tertiary care teaching hospital. The study aims to assess residents' perceptions, satisfaction levels, and perceived improvement in clinical competencies following repeated Mini-CEX encounters, thereby contributing evidence to support its integration into routine psychiatry residency training programs.

## Materials and Methods

**Study Design and Setting:** This prospective observational educational study was conducted in the Department of Psychiatry at a tertiary care teaching hospital in Jaipur, Rajasthan, India. The study was carried out after obtaining approval from the Institutional Ethics Committee. The study focused on evaluating the educational impact of the Mini-Clinical Evaluation Exercise (Mini-CEX) as a formative assessment tool for psychiatry residents during routine clinical training.

**Study Participants:** All first- and second-year postgraduate residents of the Department of Psychiatry were invited to participate in the study. A total of ten residents were included after obtaining written informed consent. Residents who were persistently absent during the study period or who did not provide consent were excluded. Faculty members involved in assessment underwent prior sensitization and training in the Mini-CEX methodology through role plays and audio-visual demonstrations.

**Data Collection Procedure:** Each resident participated in five Mini-CEX encounters involving outpatient and inpatient cases of moderate clinical complexity. Each observed clinical encounter lasted approximately 10–20 minutes, followed by 10–15 minutes of structured, immediate feedback. Performance was assessed using a standardized Mini-CEX rating form with a 9-point scale, where scores of 1–3 were considered unsatisfactory, 4–6 satisfactory, and 7–9 superior. Residents were

evaluated across seven domains: medical interviewing skills, physical examination skills, professionalism, clinical judgment, counseling skills, organizational efficiency, and overall clinical competence.

Residents' perceptions of the Mini-CEX were collected using a pre-validated questionnaire consisting of both closed-ended and open-ended questions. Faculty satisfaction with the Mini-CEX process was also recorded using a 9-point satisfaction scale. Questionnaire validation was performed through expert review, demonstrating high content validity and internal consistency.

**Statistical Analysis:** Data obtained from Mini-CEX assessment forms and perception questionnaires were entered into Microsoft Excel and analyzed using Statistical Package for the Social Sciences (SPSS) version 24. Quantitative variables were expressed as mean values, while

categorical variables were presented as frequencies and percentages. Changes in resident and evaluator satisfaction scores across encounters were analyzed, and a p-value of less than 0.05 was considered statistically significant.

## Results

A total of ten psychiatry postgraduate residents (first- and second-year) participated in the study.

All residents completed five Mini-Clinical Evaluation Exercise (Mini-CEX) encounters and the post-intervention perception questionnaire.

**Residents' Perception of Mini-CEX:** Most residents rated the Mini-CEX as satisfactory. Seven residents (70%) reported the Mini-CEX experience as satisfactory, while three residents (30%) rated it as just satisfactory. None of the participants rated it as highly satisfactory.

**Table 1: Residents' Perception of Mini-CEX (n=10)**

Perception level	Number	Percentage
Satisfactory	7	70%
Just satisfactory	3	30%
Highly satisfactory	0	0%
Total	10	100%

**Residents' Views on Utility of Mini-CEX:** Residents reported varied perceptions regarding the usefulness of Mini-CEX. Six residents (60%) felt that Mini-CEX helped in improving time management for university examinations. Two residents (20%) perceived it as useful for self-

rectification and future clinical practice. One resident (10%) considered it an excellent assessment and improvement tool, while one resident (10%) expressed the need for multiple exposures to Mini-CEX starting earlier in training.

**Table 2: Residents' Views on Utility of Mini-CEX (n=10)**

Residents' views	Number	Percentage
Assistance in university examinations and time management	6	60%
Useful for rectification and future practice	2	20%
Excellent method for assessment and improvement	1	10%
Need for multiple exposures	1	10%

**Feedback Received from Residents:** Residents highlighted specific benefits experienced during the Mini-CEX process. Improved communication skills were reported by five residents (50%). Two

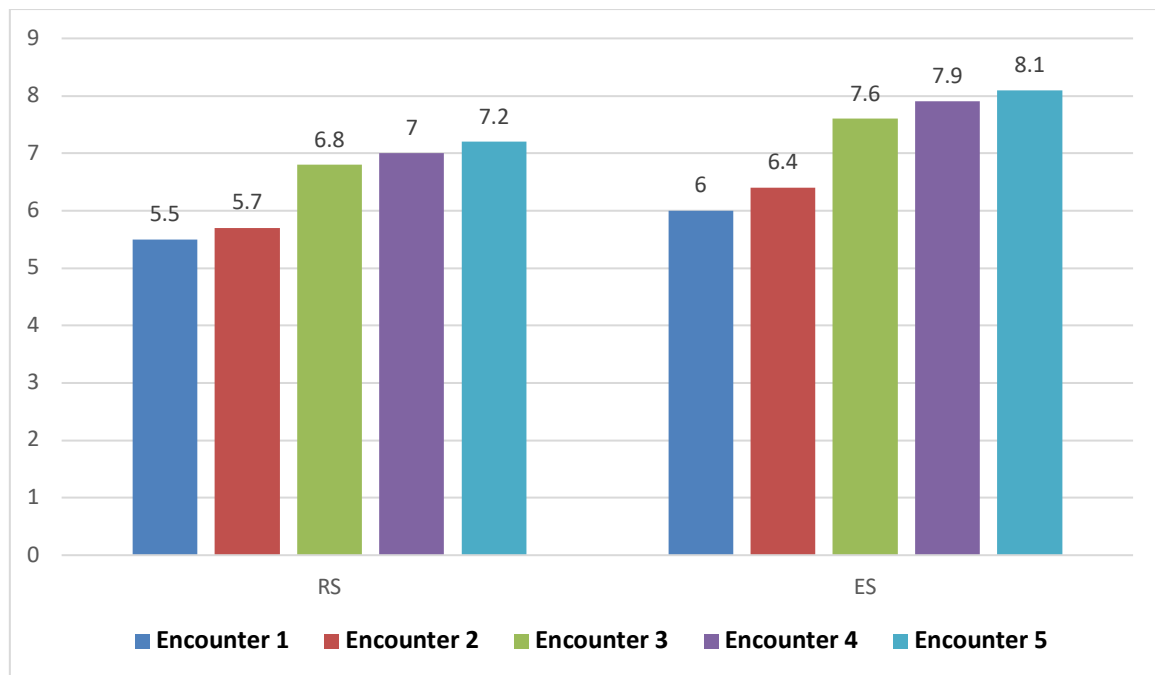
residents (20%) appreciated immediate feedback, while three residents (30%) reported improvement in history-taking and physical examination skills.

**Table 3: Feedback Reported by Residents Following Mini-CEX (n=10)**

Feedback domain	Number	Percentage
Improved communication skills	5	50%
Immediate feedback	2	20%
Improved history taking and examination	3	30%

**Resident and Evaluator Satisfaction across Encounters:** Resident satisfaction scores showed a progressive increase across the five Mini-CEX encounters. The mean resident satisfaction score increased from 5.5 in the first encounter to 7.2 in the fifth encounter, and the improvement was

statistically significant ( $p < 0.05$ ). Similarly, evaluator satisfaction scores improved from a mean of 6.0 in the first encounter to 8.1 by the fifth encounter, which was also statistically significant ( $p < 0.05$ ).



**Figure 1: Comparison of Resident and Evaluator Satisfaction Scores across Mini-CEX Encounters**

### Discussion

The present study evaluated the educational impact of introducing the Mini-Clinical Evaluation Exercise (Mini-CEX) as a formative workplace-based assessment tool for psychiatry residents in a tertiary care teaching hospital. The findings demonstrate that Mini-CEX is feasible, acceptable, and educationally beneficial in routine psychiatry training.

In this study, the majority of residents perceived Mini-CEX as a satisfactory assessment method, with progressive improvement in both resident and evaluator satisfaction scores across successive encounters. This trend suggests increasing familiarity, comfort, and acceptance of the tool over time. Similar improvements in learner satisfaction following repeated Mini-CEX encounters have been reported in earlier studies, emphasizing the role of repeated observation and feedback in enhancing clinical learning [2,7].

One of the key strengths of Mini-CEX observed in this study was its impact on communication skills, professionalism, and clinical organization—competencies that are particularly crucial in psychiatry practice. Half of the residents reported improved communication skills, and others highlighted benefits related to history-taking, examination, and immediate feedback. These findings are consistent with previous studies in psychiatry and other clinical disciplines, which have shown that Mini-CEX effectively captures interpersonal and professional competencies that are often inadequately assessed by traditional examination formats [8,9]. Immediate feedback is a defining feature of the Mini-CEX and is known to

facilitate reflective learning. In the present study, residents valued the structured and timely feedback provided after each encounter. This aligns with evidence suggesting that feedback delivered close to the clinical encounter is more likely to be internalized and translated into improved performance [4]. Faculty satisfaction also increased significantly over successive encounters, indicating that faculty members became more comfortable and confident in using the Mini-CEX as an assessment and teaching tool.

The progressive rise in satisfaction scores across encounters reflects the formative nature of Mini-CEX. Initial apprehension and time constraints reported in earlier studies were also observed in the initial phase of this study but diminished with continued use [10]. This finding highlights the importance of faculty sensitization and institutional support for the successful implementation of workplace-based assessments.

In the context of competency-based medical education (CBME), Mini-CEX aligns well with the emphasis on direct observation, formative assessment, and continuous feedback. Psychiatry training, which relies heavily on communication, empathy, and clinical judgment, particularly benefits from assessment tools like Mini-CEX that evaluate performance in real clinical environments rather than simulated settings [8,11].

However, certain limitations should be acknowledged. The small sample size and limited duration of the study restricted the number of encounters and the diversity of case complexity. Additionally, each encounter involved a single assessor, which may introduce observer bias, a

limitation also noted in previous literature [3,12]. Despite these limitations, the study provides valuable evidence supporting the educational usefulness of Mini-CEX in psychiatry residency training.

### Conclusion

The Mini-Clinical Evaluation Exercise is a feasible, acceptable, and effective formative assessment tool for psychiatry residents. Its integration into routine outpatient and inpatient clinical settings provides meaningful opportunities for direct observation, structured feedback, and competency-based learning. The study demonstrates a positive educational impact of Mini-CEX on residents' clinical skills, communication, professionalism, and overall clinical competence. With appropriate faculty training and repeated implementation, Mini-CEX can be successfully incorporated into psychiatry residency programs as part of competency-based medical education.

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