Original Article

Satisfaction of Postgraduate Residents with Mini-CEX: A Student-Centered Evaluation at Rawalpindi Medical University

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Abstract

Objective: To evaluate postgraduate residents' satisfaction with Mini-CEX as a formative assessment tool and use their feedback to guide improvements in its implementation at the Rawalpindi Medical University.

Methods- A structured and validated questionnaire comprising 18 closed-ended items was distributed using a five-point Likert scale. It assessed trainees' understanding of Mini-CEX, perceptions of its educational value, facilitator involvement, and its impact on personal, professional, and clinical development. It also collected trainee-driven feedback to inform future improvements in Mini-CEX sessions.

Results- Of the 135 eligible trainees, 116 completed the questionnaire, resulting in an 85.9% response rate. Most trainees expressed satisfaction with Mini-CEX, noting improvements in clinical skills, personal development, and professional growth. The mean satisfaction score across all domains was 3.6. However, several respondents reported gaps in orientation, unclear format, inconsistent feedback, and poor facilitator engagement.

Conclusion- These findings highlight the need for clearer orientation regarding Mini-CEX objectives and practical strategies to improve time management during assessments. To address concerns about facilitator engagement, establishing a formal feedback channel between trainees and instructors could improve the quality of interactions. Strengthening communication and aligning expectations will enhance the educational value of Mini-CEX in postgraduate training.

Keywords: Clinical Competence, Education, Medical, Graduate, Educational Measurement, Professional Satisfaction, Workplace.

Introduction

During medical training, the traditional system primarily emphasised summative assessments, with limited focus on workplace-based evaluations. Recently, there has been a growing emphasis on workplace-based assessments (WBAs) to evaluate clinical skills and professional behaviour through direct observation in real-world settings, accompanied by structured feedback.[1] One such formative tool is the Mini-Clinical Evaluation Exercise (Mini-CEX), which is now widely adopted across medical institutions to assess clinical competence and enhance feedback quality.[2] Studies have shown that the Mini-CEX enhances the interaction between assessors and trainees, encourages self-reflection, and promotes performance improvement.[3,4] It is suitable for both inpatient and outpatient settings and has proven feasible and acceptable, even in busy emergency departments.[5] The Mini-CEX evaluates key clinical skills during real patient encounters, including history taking, physical examination, communication, clinical judgment, professionalism, and efficiency. It allows for performance assessment in a short time using clinically relevant, objective, checklist-based criteria, along with structured feedback. This helps trainees develop time management skills, which are especially crucial in clinical practice. Furthermore, the Mini-CEX offers the advantage of being conducted in real clinical settings with structured feedback that enables both faculty and trainees to improve their skills. Our study takes a distinctive approach by focusing on postgraduate trainees' experiences and satisfaction with Mini-CEX activities—an aspect often overlooked in favour of faculty perspectives. Faculty-reported satisfaction may not align with trainees' experiences, and trainees' perceptions often vary across disciplines and specialties.[6] At our institution, the Mini-CEX has been systematically integrated into the postgraduate training curriculum, ensuring structured and ample clinical exposure across all residency years. Specifically, residents participate in seven Mini-CEX sessions in their first year, six in the second, eight in the third, and five in the fourth year, spanning multiple specialties. This distribution aligns with recommended standards and provides consistent opportunities for formative assessment and feedback. Recognising that trainees' satisfaction is a critical indicator of educational quality, our study places particular emphasis on capturing their perceptions. We also incorporated a feedback proforma to identify limitations in the current format and gather suggestions for improvement. Regular review and targeted training for both assessors and trainees are essential to maintain the integrity and effectiveness of the Mini-CEX process as part of ongoing quality assurance.

Materials And Methods

This descriptive cross-sectional study was conducted at Rawalpindi Teaching Hospital in December 2024, following ethical approval from the Institutional Ethics Committee and the Department of Medical Education.

Contributions:
TK MIA RAN SR AIUH MR - Conception, Design
TK MIA RAN SR AIUH MR - Acquisition, Analysis, Interpretation
TK MIA RAN SR AIUH MR - Drafting
TK MIA RAN SR AIUH MR - Critical Review

All authors approved the final version to be published & agreed to be accountable for all aspects of the work.

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The hospital is affiliated with Rawalpindi Medical University and serves as a recognized center for postgraduate medical training. Postgraduate trainees who had completed at least five Mini-CEX encounters were recruited using purposive sampling. Of 135 eligible residents, 116 completed the survey, yielding a response rate of approximately 86%. Data were collected using a structured questionnaire developed in-house by the research team, based on a review of Mini-CEX literature and aligned with institutional training objectives. The questionnaire included 18 closed-ended items rated on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree), grouped into four domains: understanding of Mini-CEX, supervisor's role, clinical and professional development, and overall satisfaction. Internal consistency was assessed using Cronbach's alpha, which yielded a value of 0.80, indicating good reliability for educational instruments. Additional structured items captured trainee perceptions of benefits, limitations, and suggestions for improving Mini-CEX implementation. Responses were numerically coded and analyzed using SPSS version 20. Descriptive statistics, including means, standard deviations, frequencies, and percentages, were used to summarize the data.

Results

Of the 135 eligible postgraduate trainees, 116 completed the questionnaire, resulting in an 85.9% response rate. There were 85 females and 31 males. The participants represented various specialties, with 54 from gynecology/obstetrics, 42 from general surgery, 6 from neurosurgery, 5 from anesthesia, 3 from the eye department, and 4 from ENT. Their average age was 28.94 years, with a standard deviation of 1.95.

Year of residency	N=116	Percentage
First year	20	17.2
Second year	53	45.6
Third year	27	23.2
Fourth year	16	13.7

The response from our post-graduate trainees is given under each domain.

1. Basic understanding and knowledge

Questions 1-4	Strongly disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly agree 5	Mean score
Format communicated before assessment?	8 6.9%	22 19%	38 32.8%	31 26.7%	17 14.7%	3.23±1.12
Was the content relevant?	7 6%	21 18.1%	37 31.9%	35 30.2%	16 13.8%	3.27±1.10
Evaluated for a variety of skills?	6 5.2%	16 13.8%	27 23.3%	41 35.3%	26 22.4%	3.56±1.13
Got constructive feedback?	5 4.3%	23 19.8%	55 47.4%	16 13.8%	17 14.7%	3.14±1.04
Overall mean score - 3.3						

Our study found that first- and second-year residents expressed concerns about their understanding of the mini-CEX format, objectives, and feedback. Notably, 20 residents (17.2%)— seven first-years (6.03%) and 13 second-years (11.2%)—felt they lacked sufficient knowledge of the format beforehand. Additionally, 19 residents (16.3%)— six first-years (5.17%) and 13 second-years (11.2%)—considered the content irrelevant, noting that they were assessed on skills beyond their training level. The mean score for this domain was 3.3.

2. Supervisor/teacher's role

Questions 5-7	Strongly disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly agree 5	Mean score
Were teachers committed?	12 10.3%	29 25%	26 22.4%	38 32.8%	11 9.5%	3.06±1.17
Teachers helped in mini-CEX activities?	6 5.2%	13 11.2%	36 31%	44 37.9%	17 14.7%	3.34±1.04
Do teachers provide constructive feedback?	5 4.3%	28 24.1%	38 32.8%	24 20.7%	21 18.1%	3.24±1.13
Overall mean score - 3.21						

Regarding facilitators' roles in mini-CEX activities, 40 residents (34.4%)—including 27 from the 1st and 2nd years (23.2%) and 13 from the 3rd and 4th years (11.2%)—disagreed with the level of commitment and interest shown by their teachers. Additionally, 33 residents (28.4%) were dissatisfied with the feedback received. This domain had the lowest mean score of 3.21, highlighting the need for improvement to enhance future mini-CEX experiences.

We assessed clinical, personal, and professional development through seven Mini-CEX-related questions using a five-point Likert scale. Most residents reported positive outcomes, with improvements noted in clinical judgment, examination methods, OSPE and exam performance, communication, confidence, and motivation. The overall mean score was 3.8, reflecting a generally favourable impact of Mini-CEX on resident growth.

The mean satisfaction score across all domains was **3.6**, indicating a generally positive perception of Mini-CEX as a formative assessment tool.

Most trainees agreed that Mini-CEX scores accurately reflected their clinical performance and considered it a valuable formative assessment tool. Overall, residents were satisfied with the number of encounters and acknowledged Mini-CEX's role in enhancing key competencies, such as interviewing, examination, professionalism, and counselling. Trainees reported that Mini-CEX helped improve their clinical reasoning, communication, and time management skills. However, 28.4% were dissatisfied with the time allocated for clinical activities.

3. Clinical skills, personal and professional improvement

Questions 8-14	Strongly disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly agree 5	Mean score
Improve your Clinical judgment skills?	4 3.4%	8 6.9%	17 14.7%	51 44%	36 31%	3.92±1.02
Improve your clinical examination methods?	3 2.6%	9 7.8%	26 22.4%	44 37.9%	34 29.3%	3.83±1.02
Improve OSPE performance?	2 1.7%	10 8.6%	26 22.4%	59 50.9%	19 16.4%	3.71±0.9
Improve your performance in clinical Exams?	2 1.7%	8 6.9%	21 18.1%	65 56%	20 17.2%	3.80±0.86
Improves your communication skills?	3 2.6%	16 13.8%	20 17.2%	47 40.5%	30 25.9%	3.73±1.07
Make you more confident in real-life scenarios?	2 1.7%	8 6.9%	19 16.4%	65 56%	22 19%	3.83±0.87
Motivates to practice more on skills?	5 4.3%	2 1.7%	35 30.2%	43 37.1%	31 26.7%	3.80±0.99
Overall mean score- 3.8						

4. Overall satisfaction

Questions 15-18	Strongly disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly agree 5	Mean score
Mini -CEX score reflects your clinical performance appropriately?	2 1.7%	6 5.2%	16 13.8%	66 56.9%	26 22.4%	3.93±0.85
Time allocated satisfactory?	11 9.5%	22 19%	39 33.6%	32 27.6%	12 10.3%	3.10±1.121
Should encounters be increased?	4 3.4%	16 13.8%	47 40.5%	37 31.9%	12 10.3%	3.31±0.95
Mini- CEX is an effective formative assessment tool?	0 0%	7 6%	8 6.9%	72 62.1%	29 25%	4.06±0.74
Overall mean score-3.6						

Quantitative Feedback-(categorized and quantified)

Questions	Response	Percentage
What are the benefits of miniCEX exposure?	Organized tool for assessment	93.1
	Real patient interaction	95.3
	Improvement in clinical skills	89.4
	Improvement in performance during the exam	89.8
What are the shortcomings of miniCEX in your institute?	Teachers/instructors' lack of interest	53.8
	Poor scheduling and lack of coordination	42.4
	Inadequate orientation before exposure	27.4
	Training on assessed skills was incomplete or lacking	27.5
	Demotivating feedback	12.9
Your suggestions for improvements?	Teacher training	82
	Improvement in feedback	50.86
	Combine with OSPE	21.3
What modifications would you suggest for miniCEX in your institute?	Preliminary mock assessment to familiarize with the format and expectations	57.8
	Time management workshops	59.2

Student feedback on the Mini-CEX experience at our institute revealed strong appreciation for its structured format, real patient interaction, and its role in improving clinical skills and exam performance. Despite these benefits, several challenges were noted, most prominently limited teacher engagement, time constraints, and poor scheduling. Residents emphasised the need for better orientation and more supportive feedback, especially for junior trainees who felt unprepared for the level of evaluation. Some reported receiving feedback that focused solely on weaknesses, which they found demotivating. To enhance the experience, students recommended teacher training, improved feedback practices, and integration with OSPE. They also proposed preliminary mock assessments and time management workshops to help trainees better understand expectations and balance clinical duties. These suggestions reflect a clear desire to optimise Mini-CEX as a formative tool that supports both skill development and learner confidence.

Discussion

This study found that most postgraduate trainees at Rawalpindi Medical University expressed satisfaction with the current structure of the Mini-CEX within their residency curriculum. Trainees acknowledged its value in enhancing clinical competencies, supporting professional development, and improving performance in OSPE and other structured assessments, contributing positively to their overall growth and confidence.

Despite these benefits, a substantial number of residents, particularly those in their first and second years, reported dissatisfaction with the level of facilitator engagement, citing limited commitment, interest, and feedback. These concerns may be attributed to the demanding nature of clinical specialties, which often limit supervisors' availability for direct observation and feedback. To address this, trainees proposed several supportive strategies, including peer-assisted learning, flexible scheduling, integration of technology, continuous feedback systems, faculty development programs, and structured mentorship initiatives. Regular and repeated Mini-CEX encounters have been associated with increased satisfaction, as they promote skill acquisition, confidence, and constructive feedback.[7] Feedback is a critical component of formative assessment, essential for identifying learning gaps and guiding professional growth. However, the limited use of interactive feedback and the absence of actionable follow-up plans may compromise the educational value of the Mini-CEX. Durrani et al. similarly observed that while Mini-CEX feedback was generally appreciated, it often lacked structured follow-up and actionable learning plans, limiting its long-term educational value.[8] These findings underscore the need for more structured and reflective feedback practices. Time allocation emerged as another area of concern, with 28.4% of our trainees expressing dissatisfaction with the duration dedicated to clinical tasks. Comparative studies from India reported that a mean observation time of 12.3 minutes (range: 8–30 minutes) and a mean feedback time of 4.2 minutes (range: 3–10 minutes) were considered satisfactory by both assessors and trainees, yielding satisfaction scores of 6.04 and 7.49, respectively.[9,10] Our institution adheres to internationally recommended standards, with each Mini-CEX session lasting approximately 15 minutes, followed by 5–8 minutes of feedback. Our trainees suggested practical improvements, such as timed practice sessions and mock Mini-CEX assessments, to simulate real evaluation conditions. These learner-driven proposals emphasise the importance of incorporating trainee perspectives into curriculum development and quality assurance efforts.

Faculty engagement is identified as a key factor influencing Mini-CEX success. Khan et al. reported that variability in faculty commitment directly affects the quality of feedback and trainee satisfaction, highlighting the need for institutional support and structured faculty development.[11] Shafqat et al. emphasised that clear orientation and consistent implementation of Mini-CEX significantly improve its feasibility and effectiveness in undergraduate settings.[12] Wu et al. found that the educational impact of Mini-CEX may differ across trainee levels, suggesting that feedback and assessment strategies should be tailored to the learner's training stage. [13] Smeby et al. demonstrated in a randomised controlled trial that structured Mini-CEX sessions significantly enhance educational outcomes, reinforcing the importance of feedback quality and time management.[14] Our residents consistently perceived Mini-CEX as a feasible and effective assessment tool, contributing positively to personal and professional development. By design, Mini-CEX facilitates meaningful interactions between trainees and supervisors through its embedded feedback process. Understanding and addressing factors influencing trainee satisfaction is essential for optimising the educational value of Mini-CEX.

Conclusions

The Mini-CEX emerged as a valuable formative assessment tool for postgraduate trainees, contributing meaningfully to the development of clinical skills, professional growth, and personal confidence. A mean satisfaction score of 3.6 across domains reflected generally positive perceptions. However, the study also identified areas that require attention. A significant number of first- and second-year residents reported a limited understanding of the Mini-CEX format and objectives, along with dissatisfaction regarding the relevance of content and the quality of feedback. These findings highlight the need for structured orientation sessions and clearer guidance before Mini-CEX implementation. Facilitator engagement emerged as another critical factor influencing trainee satisfaction. Many residents expressed concerns about the level of commitment and feedback provided by supervisors, particularly in high-demand clinical specialties. Additionally, dissatisfaction with the time allocation for Mini-CEX activities suggests the need for improved scheduling and time management strategies. Trainees recommended the inclusion of mock Mini-CEX sessions to enhance familiarity and confidence. In summary, while the Mini-CEX is widely accepted as an effective tool for workplace-based assessment, its impact can be further strengthened through targeted improvements in facilitator involvement, trainee preparation, and logistical support. Addressing these areas will help optimise its implementation and ensure a more enriching and supportive learning environment for postgraduate medical trainees.

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