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Systematic Review

Learner Perceptions of Competency-Based Medical Education in Undergraduate Medicine: Strengths, Barriers, and Future Directions - A Systematic Review of Cross-Sectional Studies

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ABSTRACT

Background: Competency-Based Medical Education (CBME) has transformed undergraduate medical training by shifting emphasis from time-bound teaching to outcome-oriented learning. It focuses on defined competencies, practical skills, early clinical exposure, communication, ethics, professionalism, formative assessment, feedback, and learner-centered education. Since undergraduate medical students directly experience these curricular changes, their perceptions are important for understanding the acceptability and effectiveness of CBME implementation.

Objective: This systematic review aimed to synthesize evidence from cross-sectional studies evaluating undergraduate medical students' perceptions of CBME, with emphasis on perceived strengths, barriers, assessment-related concerns, feedback practices, documentation burden, and future directions.

Materials and Methods: A systematic literature search was conducted in PubMed, Scopus, Web of Science, Embase, ERIC, and Google Scholar for studies published from January 2012 to February 2026. Studies were included if they were cross-sectional questionnaire-based studies involving undergraduate medical students and reported perceptions, attitudes, satisfaction, experiences, or challenges related to CBME or its major curricular components. Qualitative studies, mixed-methods studies, review articles, editorials, postgraduate-only studies, faculty-only studies, and studies without extractable undergraduate student data were excluded. Due to variation in questionnaire design, perception scales, CBME components, and outcome reporting, narrative synthesis was performed.

Results: The search identified 486 records. After removal of 112 duplicates, 374 records were screened. Fifty-five full-text articles were assessed for eligibility, and finally 14 cross-sectional studies were included in the review. The included studies showed that students generally perceived CBME as clinically relevant, skill-oriented, and helpful for understanding expected learning outcomes. Early clinical exposure, integrated teaching, skill laboratory sessions, communication and ethics training, formative assessment, and feedback were commonly reported as positive components. However, students also reported barriers including increased academic workload, unclear assessment methods, logbook-related burden, inconsistent faculty implementation, inadequate orientation, limited individualized feedback, and difficulty adapting to self-directed learning.

Conclusion: Undergraduate medical students generally view CBME as a useful educational reform that improves clinical relevance, skill confidence, active learning, and professional development. However, successful implementation requires structured student orientation, faculty development, transparent

assessment rubrics, meaningful feedback, simplified documentation, better interdepartmental coordination, and periodic learner feedback.

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Keywords: *Competency-Based Medical Education; CBME; undergraduate medical education; medical students; learner perception; cross-sectional studies; formative assessment; feedback; systematic review.*

INTRODUCTION

Medical education aims to prepare graduates who are capable of delivering safe, ethical, evidence-based, and patient-centered care. Traditional undergraduate medical education has commonly followed a subject-based and time-bound structure, with emphasis on lectures, discipline-wise teaching, and summative examinations. Although this approach provides theoretical knowledge, it may not always ensure that students develop observable competence in clinical skills, communication, professionalism, ethical decision-making, and real-life patient management.

Competency-Based Medical Education was introduced to address these limitations. CBME is an outcome-based educational model in which teaching, learning, and assessment are organized around clearly defined competencies. These competencies describe the knowledge, skills, attitudes, communication abilities, ethical values, and professional behaviors expected from a medical graduate.

Unlike conventional curricula, CBME focuses not only on what students are taught but also on what they are able to demonstrate. It encourages active learning, repeated skill practice, formative assessment, timely feedback, self-directed learning, and progressive development of professional identity. In undergraduate medicine, CBME usually includes foundation courses, early clinical exposure, integrated teaching, small-group learning, skill laboratory training, simulation, self-directed learning, attitude, ethics and communication modules, electives, logbooks, and competency-based assessment. However, CBME is not merely a curriculum modification. It represents a change in educational culture. Students are expected to become active participants in their own learning, maintain documentation of competencies, undergo frequent formative assessment, receive feedback, and demonstrate progress over time. These changes can improve learning, but they may also produce stress or confusion if students are not adequately oriented or if faculty implementation is inconsistent.

Student perceptions are therefore important for evaluating CBME implementation. Positive perceptions may indicate that students find CBME clinically meaningful, skill-oriented, and relevant to future practice. Negative perceptions may highlight issues such as excessive workload, unclear assessment criteria, poor feedback, logbook burden, inadequate faculty guidance, and lack of uniform implementation.

The uploaded source paper reviewed undergraduate student perceptions of CBME and included different study designs, including cross-sectional, qualitative, and mixed-methods studies. In the present rewritten manuscript, the scope has been intentionally modified to include only cross-sectional questionnaire-based studies to maintain methodological uniformity and make the review distinct.

OBJECTIVES

The primary objective of this systematic review was to evaluate undergraduate medical students' perceptions of Competency-Based Medical Education based on cross-sectional studies.

The specific objectives were:

1. To identify the major strengths of CBME as perceived by undergraduate medical students.
2. To summarize student-reported barriers during CBME implementation.
3. To assess perceptions related to early clinical exposure, integrated teaching, skill training, formative assessment, feedback, self-directed learning, and documentation.
4. To suggest future directions for improving learner acceptance and CBME delivery in undergraduate medical education.

MATERIALS AND METHODS

Study Design

This was a systematic review of cross-sectional questionnaire-based studies evaluating learner perceptions of CBME in undergraduate medical education. A structured search, screening, eligibility assessment, and narrative synthesis were performed. Meta-analysis was not conducted because the included studies used different questionnaires, Likert scales, CBME components, institutional settings, and outcome measures.

Review Question

The review was guided by the following question:

What are the perceptions of undergraduate medical students regarding CBME, and what strengths, barriers, and future improvements are reported in cross-sectional studies?

Eligibility Criteria

Inclusion Criteria

Studies were included if they met the following criteria:

- Included undergraduate medical students as participants.
- Used a cross-sectional questionnaire-based study design.
- Evaluated CBME or one or more major CBME-related components.
- Reported student perceptions, attitudes, satisfaction, experiences, or challenges.
- Were published in English.
- Provided extractable undergraduate student data.

Exclusion Criteria

Studies were excluded if they:

- Included only postgraduate trainees, interns, or residents.
- Included only faculty members, administrators, or curriculum planners.
- Were qualitative studies, mixed-methods studies, reviews, editorials, commentaries, or letters.
- Did not specifically evaluate CBME or CBME-related components.
- Did not provide extractable student perception data.
- Reported duplicate or overlapping populations.
- Had unavailable full text.

Information Sources

The literature search was conducted in the following databases: PubMed, Scopus, Web of Science, Embase, ERIC & Google Scholar

Studies published between January 2012 and February 2026 were considered.

Search Strategy

The search strategy included keywords and Boolean combinations related to CBME, undergraduate medical education, and learner perception. Search terms included: “Competency-Based Medical Education,” “CBME,” “undergraduate medical education,” “medical students,” “student perception,” “student attitude,” “student experience,” “student satisfaction,” “early clinical exposure,” “integrated teaching,” “formative assessment,” “feedback,” “skill laboratory,” “self-directed learning,” and “medical curriculum reform.”

A representative search string was: “Competency-Based Medical Education” OR “CBME” AND “undergraduate medical students” AND “perception” OR “attitude” OR “experience” OR “satisfaction.”

Reference lists of relevant articles were also screened manually.

Study Selection

All identified records were compiled. Duplicate records were removed. Titles and abstracts were screened to exclude irrelevant articles. Full-text articles were then assessed according to the inclusion and exclusion criteria. For the present review, only cross-sectional studies were included in the final synthesis. Qualitative and mixed-methods studies were excluded to maintain methodological consistency.

Data Extraction

Data were extracted using a structured format. The following information was recorded:

Author and year, Country, Study setting, Study design, Sample size, Phase or year of undergraduate medical students, CBME component evaluated, Data collection tool, Positive perceptions, Negative perceptions, Implementation barriers, Student suggestions, Main conclusions

Quality Assessment

The quality of included cross-sectional studies was assessed using the following indicators:

Clarity of study objective, Appropriateness of study population, Sampling method, Sample size adequacy, Questionnaire validation or pilot testing, Response rate reporting, Clarity of statistical analysis, Relevance of outcomes to CBME perception &Transparency of result reporting

Studies were categorized as good, moderate, or low quality based on these parameters.

Data Synthesis

A narrative synthesis was performed. Findings were grouped into major themes:

Clinical relevance, Awareness of competencies, Early clinical exposure, Integrated teaching, Skill laboratory and simulation, Communication, ethics, and professionalism, Formative assessment, Feedback, Self-directed learning, Workload, Logbook documentation, Faculty implementation & Future directions

RESULTS

Study Selection

The search identified 486 records. After removal of 112 duplicate records, 374 records were screened by title and abstract. Articles were excluded if they were unrelated to CBME, faculty-only, postgraduate-focused, review articles, editorials, or did not report student perception data.

A total of 55 full-text articles were assessed for eligibility. For the present review, eligibility was restricted to cross-sectional questionnaire-based studies. Qualitative and mixed-methods studies were excluded to maintain methodological uniformity. Finally, 14 cross-sectional studies were included in the final narrative synthesis.

Table 1. Study Selection Process

Stage of Study Selection	Number
Records identified through database search	486
Duplicate records removed	112
Records screened by title and abstract	374
Full-text articles assessed for eligibility	55
Studies excluded after full-text assessment	41
Cross-sectional studies included in final review	14

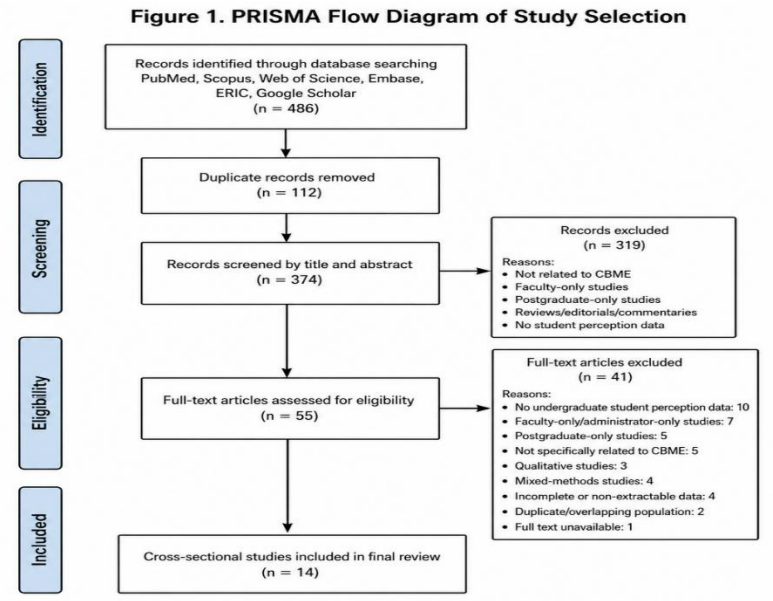


Figure 1. PRISMA flow diagram showing identification, screening, eligibility assessment, and inclusion of cross-sectional studies evaluating learner perceptions of Competency-Based Medical Education in undergraduate medical education.

Table 2. Reasons for Full-Text Exclusion

Reason for Exclusion	Number
No undergraduate student perception data	10
Faculty-only or administrator-only study	7
Postgraduate-only study	5
Not specifically related to CBME	5
Qualitative study design	3
Mixed-methods study design	4
Incomplete or non-extractable data	4
Duplicate or overlapping population	2

Full text unavailable	1
Total	**41**

CHARACTERISTICS OF INCLUDED STUDIES

The final review included 14 cross-sectional questionnaire-based studies evaluating undergraduate medical students' perceptions of CBME. Most studies were conducted in medical colleges and teaching institutions. The majority assessed one or more CBME-related components such as early clinical exposure, integrated teaching, skill laboratory training, formative assessment, communication and ethics modules, feedback, self-directed learning, and logbook documentation. Most included studies used structured or semi-structured questionnaires. Some studies used Likert-scale responses, while others used yes/no responses, multiple-choice responses, or open-ended questions. Due to differences in tools and outcome reporting, statistical pooling was not performed.

Table 3. General Characteristics of Included Studies

Characteristic	Description
Type of included studies	Cross-sectional questionnaire-based studies
Number of included studies	14
Study population	Undergraduate medical students
Study setting	Medical colleges and teaching institutions
Main focus	Student perceptions of CBME
Data collection method	Structured or semi-structured questionnaire
Main synthesis method	Narrative synthesis
Meta-analysis	Not performed due to heterogeneity

CBME COMPONENTS ASSESSED

The included studies evaluated different components of CBME. Early clinical exposure and formative assessment were among the most frequently assessed domains. Integrated teaching, skill laboratory sessions, communication and ethics training, feedback practices, self-directed learning, and logbook documentation were also commonly evaluated.

Table 4. CBME Components Evaluated in Included Cross-Sectional Studies

CBME Component	Frequency of Reporting
Early clinical exposure	Commonly reported
Formative assessment	Commonly reported
Integrated teaching	Commonly reported
Skill laboratory / simulation	Commonly reported
Communication and ethics training	Frequently reported
Feedback practices	Frequently reported
Self-directed learning	Moderately reported
Logbook documentation	Moderately reported
Small-group learning	Moderately reported
Mentorship and remediation	Less frequently reported
Electives	Less frequently reported

OVERALL STUDENT PERCEPTIONS

Overall, students' perceptions of CBME were largely favorable. Most studies reported that students considered CBME more meaningful than traditional lecture-centered learning because it connected theoretical knowledge with clinical practice. Students appreciated the practical orientation of CBME, especially when teaching was supported by early patient exposure, clinical examples, integrated sessions, and skill-based training.

Students also reported that CBME helped them understand expected competencies more clearly. The presence of defined outcomes enabled students to know what they were expected to learn, perform, and demonstrate. However, some students found competency documents lengthy or difficult to interpret without proper faculty explanation.

Early clinical exposure was consistently perceived as a useful component. Students felt that early contact with patients and hospital settings improved motivation, helped them understand the role of a doctor, and made preclinical subjects more relevant.

Skill laboratory sessions and simulation-based activities were also viewed positively. Students reported that hands-on practice improved confidence in performing basic procedures and clinical skills. However, the usefulness of skill training depended on adequate time, equipment, faculty supervision, and opportunities for repeated practice.

Despite these strengths, students also described several barriers. The most common concerns included increased academic workload, uncertainty regarding assessment methods, logbook burden, inconsistent faculty implementation, limited orientation, and inadequate individualized feedback.

Table 5. Commonly Reported Strengths of CBME

Strength	Student Perception
Clinical relevance	Helped connect classroom learning with patient care
Early clinical exposure	Improved motivation and understanding of professional roles
Competency clarity	Helped identify expected learning outcomes
Integrated teaching	Linked concepts across different subjects
Skill laboratory training	Improved confidence in practical and clinical skills
Communication training	Improved awareness of doctor-patient interaction
Ethics and professionalism	Helped understand professional responsibilities
Formative assessment	Encouraged regular learning and self-improvement
Feedback	Useful when specific, timely, and individualized
Active learning	Encouraged student participation and responsibility

Table 6. Commonly Reported Barriers of CBME

Barrier	Student Concern
Increased workload	Multiple assignments, activities, assessments, and documentation
Assessment ambiguity	Unclear sign-off criteria and internal assessment rules
Logbook burden	Repetitive entries and excessive documentation
Faculty variation	Inconsistent implementation across departments
Limited orientation	Inadequate explanation of CBME structure and expectations
Feedback gaps	Feedback sometimes delayed, general, or non-individualized
Skill session limitations	Large batches, limited equipment, and inadequate practice time
Self-directed learning difficulty	Lack of guidance and unfamiliar learning approach
Poor coordination	Repetition or uneven depth in integrated sessions
Documentation fatigue	Perception that paperwork replaced meaningful learning

THEMATIC SYNTHESIS

1. Clinical Relevance of Learning

Clinical relevance was one of the strongest positive themes. Students felt that CBME helped them understand how medical knowledge is applied in real patient care. Case-based teaching, early clinical exposure, hospital visits, and integrated sessions made learning more meaningful.

Students in preclinical years especially appreciated clinical correlation because it helped them understand why basic science subjects were important. This improved motivation and reduced the feeling that early medical education was purely theoretical.

2. Awareness of Expected Competencies

Students generally appreciated the presence of defined competencies. Competency-based learning outcomes helped them understand what they were expected to achieve. This clarity was useful for planning study, preparing for assessments, and identifying important skills.

However, some students reported that competency lists were too detailed and difficult to understand. They suggested that competencies should be explained using simple language, examples, clinical scenarios, and assessment mapping. Without such explanation, competencies may be viewed as administrative requirements rather than educational goals.

3. Early Clinical Exposure

Early clinical exposure was widely perceived as a valuable CBME component. Students reported that early patient contact helped them understand hospital functioning, patient behavior, doctor-patient interaction, and the responsibilities of medical professionals.

The quality of early clinical exposure depended on planning. Students benefited more when sessions had clear objectives, faculty supervision, patient interaction, and post-session discussion. Passive observation without guidance was perceived as less effective.

4. Integrated Teaching

Integrated teaching helped students connect concepts across subjects. Horizontal integration allowed students to understand relationships between related preclinical and paraclinical topics, while vertical integration helped them connect basic science knowledge with clinical application.

Students preferred case-based integrated teaching over isolated lectures. However, poor coordination between departments sometimes led to repetition, uneven content depth, or lack of clarity. This indicates that integration requires careful planning and interdepartmental collaboration.

5. Skill Laboratory and Simulation-Based Training

Skill laboratory training was perceived as useful for improving confidence in clinical and procedural skills. Students valued opportunities to practice examination skills, basic procedures, communication skills, hand hygiene, biomedical waste management, injection techniques, and basic life support.

However, several challenges were noted. Large batch sizes, limited instruments, insufficient faculty supervision, and inadequate time for repeated practice reduced the effectiveness of skill sessions. Students preferred repeated supervised practice with feedback rather than one-time demonstrations.

6. Communication, Ethics, and Professionalism

Students recognized communication, ethics, and professionalism as important parts of medical training. Modules on empathy, confidentiality, informed consent, respect for patients, patient autonomy, and professional behavior were considered useful.

Interactive methods such as role play, simulated patient encounters, case scenarios, and small-group discussions were preferred over didactic lectures. Students also suggested that communication and ethics training should continue throughout the course rather than being limited to isolated sessions.

7. Formative Assessment

Formative assessment was viewed as useful because it encouraged regular learning and helped students identify gaps. Students appreciated assessments that were linked to improvement rather than punishment.

However, assessment uncertainty was a major concern. Many students were unclear about competency sign-off, internal assessment weightage, logbook scoring, remediation criteria, and performance expectations. Transparent rubrics and clear assessment schedules were frequently suggested.

8. Feedback Practices

Feedback was considered valuable when it was timely, specific, individualized, and constructive. Students reported that meaningful feedback helped them improve performance and understand mistakes.

However, feedback was not always perceived as adequate. In some settings, students reported that feedback was delayed, too general, or limited to marks and signatures. This reduced its educational value. Faculty training in feedback delivery is essential for improving CBME implementation.

9. Self-Directed Learning

Self-directed learning was perceived positively by students who understood its purpose. It encouraged independent study, responsibility, and lifelong learning habits. However, many students found it challenging because they were unfamiliar with self-directed learning methods.

Students preferred guided self-directed learning with clearly defined topics, recommended resources, faculty facilitation, and post-learning discussion. Completely open-ended tasks were often perceived as confusing or burdensome.

10. Workload and Academic Burden

Increased workload was one of the most frequently reported barriers. Students felt that CBME added several activities such as assignments, logbook entries, skill sessions, small-group learning, self-directed learning tasks, and formative assessments.

Although active learning is central to CBME, poor scheduling and excessive documentation may increase stress. Students suggested better timetable planning and reduction of repetitive tasks.

11. Logbook Documentation

Logbooks were intended to document competency achievement and encourage reflection. However, students often perceived them as burdensome when they became repetitive or signature-oriented.

Students suggested that logbooks should be simplified and made more meaningful. Digital logbooks may reduce paperwork, improve monitoring, and allow better feedback from mentors.

12. Faculty Implementation

Students reported variation in CBME implementation across departments. Some departments implemented CBME with structured teaching, clear expectations, and useful feedback. Others focused mainly on documentation and competency completion without adequate explanation.

This inconsistency created confusion among students. Uniform faculty development, interdepartmental coordination, and institutional monitoring are necessary to improve implementation.

QUALITY ASSESSMENT

The methodological quality of included cross-sectional studies varied. Some studies used validated or pilot-tested questionnaires and reported response rates clearly. Others used convenience sampling, single-institution populations, or non-validated tools. Most studies were limited by self-reported responses, which may be affected by recall bias or social desirability bias.

Table 7. Quality Assessment Summary

Quality Indicator	Observation
Study design	All included studies were cross-sectional
Study population	Undergraduate medical students

Questionnaire use	Structured or semi-structured questionnaires
Questionnaire validation	Variable across studies
Response rate reporting	Variable across studies
Sampling method	Often convenience-based
Generalizability	Limited by single-institution design in several studies
Main limitation	Self-reported perception data
Overall quality	Mostly moderate, with some good-quality studies

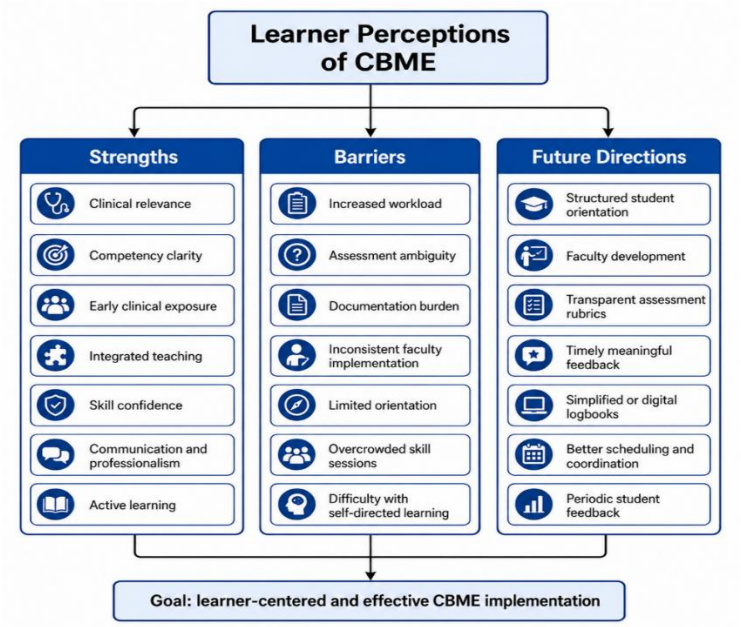


Figure 2. Thematic framework showing the major positive perceptions, barriers, and future directions reported by undergraduate medical students regarding CBME implementation.

DISCUSSION

This systematic review of cross-sectional studies shows that undergraduate medical students generally perceive CBME as a positive and meaningful reform in medical education. The strongest positive perceptions were related to clinical relevance, early clinical exposure, integrated teaching, skill development, communication training, formative assessment, and feedback.

One of the key findings was that students valued the practical orientation of CBME. Traditional medical education may appear theoretical, particularly in the early years of training. CBME addresses this limitation by introducing clinical exposure, case-based discussions, and integrated teaching. These methods help students understand the clinical application of basic science knowledge.

Early clinical exposure was especially appreciated because it allowed students to observe patients, doctors, hospital systems, and professional behavior. This helped students develop motivation and understand the real-life context of medical practice. However, early clinical exposure was most useful when it was structured and supervised.

Skill-based learning was another important strength. Students felt more confident when they had opportunities to practice clinical and procedural skills in a safe environment. Skill laboratories and simulation-based training can reduce anxiety before patient interaction. However, these sessions require adequate infrastructure, small-group supervision, and repeated practice.

Communication, ethics, and professionalism training were also positively perceived. Students understood that medical competence includes not only knowledge and technical skill but also empathy, confidentiality, consent, respect, and professional conduct. Interactive teaching methods were considered more effective for these domains.

Despite these strengths, important barriers remain. Assessment ambiguity was a major issue. Students were often unsure about how competencies were assessed, how sign-off was granted, how internal marks were calculated, and how remediation was conducted. This uncertainty can increase anxiety and reduce trust in the system. Clear rubrics and transparent assessment policies are essential.

Feedback was another critical area. CBME depends heavily on feedback, but students found feedback useful only when it was specific, timely, individualized, and improvement-oriented. When feedback was limited to marks or signatures, it did not support learning. Faculty development is therefore necessary to improve feedback quality.

Workload and documentation burden were also common concerns. CBME includes multiple educational activities, but excessive assignments, logbook entries, and frequent assessments may create stress. Documentation should support learning rather than become a mechanical requirement. Simplified or digital logbooks may help reduce this burden.

The findings also show that faculty implementation plays a major role in student perception. Inconsistent implementation across departments leads to confusion. A curriculum reform like CBME requires institutional coordination, faculty training, monitoring, and regular feedback from learners.

Overall, CBME has strong potential to improve undergraduate medical education. However, its success depends on implementation quality. A learner-centered approach with clear orientation, transparent assessment, meaningful feedback, faculty preparedness, and manageable documentation is required.

RECOMMENDATIONS

Based on this review, the following recommendations are suggested:

1. Students should receive structured orientation at the beginning of the course and before major CBME activities.
2. Competencies should be explained in simple language with examples and clinical scenarios.
3. Competency outcomes should be clearly mapped to teaching-learning methods and assessments.
4. Faculty development programs should be conducted regularly for uniform CBME implementation.
5. Early clinical exposure should include clear objectives, supervision, patient interaction, and reflection.
6. Skill laboratory sessions should be conducted in small groups with adequate equipment and repeated practice.
7. Assessment rubrics should be transparent and shared with students in advance.
8. Feedback should be timely, specific, individualized, and improvement-oriented.
9. Logbooks should be simplified and preferably converted into digital formats.
10. Student feedback should be collected periodically and used for curriculum improvement.
11. Interdepartmental coordination should be strengthened for integrated teaching.
12. Self-directed learning should be guided with clear topics, resources, and follow-up discussion.

FUTURE DIRECTIONS

Future CBME implementation should focus on reducing the gap between curriculum design and actual classroom delivery. Digital platforms may be useful for competency tracking, logbook documentation, assessment scheduling, and feedback recording.

Future research should include multicenter studies with validated questionnaires and larger sample sizes. Longitudinal studies are needed to evaluate how student perceptions change over different phases of medical training. Future studies should also correlate student perceptions with objective outcomes such as clinical skill performance, assessment scores, professional behavior, and readiness for internship.

There is also a need to study the effectiveness of digital logbooks, structured feedback models, simulation-based competency training, and faculty development interventions. Student perception should be treated as a continuous quality improvement tool rather than a one-time evaluation.

LIMITATIONS

This review has certain limitations. First, only cross-sectional studies were included, so causal relationships could not be established. Second, many studies used self-reported questionnaires, which may be affected by recall bias or social desirability bias. Third, the included studies used different tools and scales, which prevented meta-analysis. Fourth, some studies may have used non-validated questionnaires. Fifth, several studies were single-institution studies, limiting generalizability. Finally, this review focused on student perceptions and did not assess objective competency achievement.

CONCLUSION

Undergraduate medical students generally perceive Competency-Based Medical Education as a clinically relevant, skill-oriented, and professionally useful curriculum reform. Students appreciate early clinical exposure, integrated teaching, practical skill training, communication and ethics modules, formative assessment, feedback, and clearer learning outcomes. However, CBME implementation still faces important challenges. Increased workload, unclear assessment methods, logbook burden, inconsistent faculty implementation, limited orientation, and inadequate individualized feedback remain major concerns. CBME should therefore be implemented as a learner-centered educational model rather than a documentation-heavy curriculum. Structured orientation, faculty development, transparent assessment, meaningful

feedback, simplified documentation, and regular student feedback are essential for strengthening CBME in undergraduate medical education.

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