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Original Research Article

Perception of Competency-based Medical Education (CBME) versus Conventional Teaching Methods among Medical Teachers and MBBS Students of various Medical Institutes in M.P. (India): A Cross-Sectional Study

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Abstract:

Background: Competency-Based Medical Education (CBME) emphasizes the acquisition and demonstration of predefined competencies through active learning and continuous assessment, replacing traditional didactic, time-based teaching methods. In India, CBME was introduced by the National Medical Commission in 2019 to improve clinical competence of medical graduates.

Aim: To evaluate the perception of CBME compared to conventional teaching methods among medical teachers and MBBS students in medical institutes of Madhya Pradesh, India.

Methods: A cross-sectional study was conducted for one month, involving 160 participants (medical teachers and MBBS students) from various medical institutes of Madhya Pradesh. Data were collected using a pre-tested structured questionnaire distributed via Google Forms. The collected data were compiled and analyzed using SPSS version 23.0. Descriptive statistics and Chi-square tests were used for analysis.

Results: Most participants (94.7%) were aware of CBME, and 72% could distinguish it from conventional teaching. Awareness of key components was high—88.5% knew AETCOM, 84.7% SDL, and 77.1% CBME's target population. A majority (94%) found CBME superior for clinical learning, and 91.5% believed it produces more competent graduates. However, challenges included lack of student awareness (41.3%), insufficient faculty/resources (32%), and limited administrative support (19.8%). Faculty Development Programs were reported in 85.8% of institutions, yet persistent issues remained. Objective Structured Practical and Clinical Examinations were highly valued (92.1% and 93% respectively).

Conclusion: CBME is positively perceived by medical teachers and students as an effective method to enhance clinical competence compared to conventional teaching. However, challenges such as lack of resources, faculty shortages, and insufficient student awareness limit its successful implementation.

Recommendations: It is recommended to strengthen Faculty Development Programs, improve administrative and resource support, conduct targeted awareness programs for students, and optimize MEU functions to support effective CBME adoption.

Keywords: Competency-Based Medical Education, Conventional Teaching Methods, Medical Teachers, MBBS Students, Perception Study

Introduction

The curriculum of medical education is evolving to meet the dynamic needs of healthcare systems globally. (CBME) is an educational framework that emphasizes the demonstration of predefined competencies in medical teaching practice. CBME has emerged as a progressive alternative to conventional teaching methods, focusing on outcomes rather than time-based learning [1]. The core principle of CBME is that learners must demonstrate specific competencies over a predefined time frame, ensuring that they achieve essential skills before progressing in their education [2].

In India, the National Medical Commission (NMC) introduced the CBME curriculum for undergraduate medical education in 2019, replacing the conventional didactic and summative assessment-focused system. The new approach was intended to better equip graduates for clinical practice by focusing on structured competency development [3]. CBME is designed as a result-based program that

organizes teaching, learning, and assessment around well-defined competencies in domains such as medical knowledge, patient care, professionalism, communication, and self-directed learning [3].

Since the launch of CBME in India, both medical teachers and MBBS students have faced several challenges. These include lack of awareness, limited training for faculty, insufficient resources, and ambiguous assessment frameworks. The opinion of teachers and students about CBME compared to conventional teaching methods is critical to assess its practical effectiveness and acceptance in real-world academic settings.

Conventional teaching methods in medical education have typically been characterized by didactic lectures, where the focus is on delivering theoretical knowledge, and summative assessments, where final exams determine competency, rather than continuous skill development [4]. This approach has often been criticized for failing to adequately develop clinical competence and professional attitudes among medical graduates.

In contrast, CBME fosters clinical competence by integrating formative assessments, regular feedback, active learning, early clinical exposure, and a learner-centered approach [5]. Studies have shown that CBME can lead to improved clinical preparedness and a better alignment of educational objectives with patient care requirements [5]. For example, a study by Srinivasan et al. (2020) reported that CBME enhances student engagement, promotes self-directed learning, and improves problem-solving skills in clinical scenarios [5].

Given the novelty of CBME in India and the significant role of medical teachers and students in its implementation, it is important to assess their perception of the CBME framework. Understanding their views will help identify gaps in awareness, barriers to implementation, and strategies to enhance the effectiveness of CBME in transforming medical education.

Methodology

Study Design: This was a cross-sectional, questionnaire-based study conducted to compare the perception of (CBME) with conventional teaching methods among medical teachers and MBBS students.

Study Setting: The study was carried out across five medical institutes in (M.P.), India. The duration of the study was one month.

Participants: A total of 160 participants, including medical teachers and MBBS students from various medical institutes in Madhya Pradesh, were enrolled in the study. Participation was voluntary, and informed consent was obtained before data collection.

Inclusion Criteria

- Medical teachers and MBBS students currently affiliated with medical institutes in M.P.
- Willingness to participate and provide informed consent.
- Individuals with basic awareness of CBME and conventional teaching practices.

Exclusion Criteria

- Participants who did not complete the questionnaire.
- Those unwilling to provide consent.
- Students who had not yet been exposed to CBME-based curriculum.

Bias: To minimize selection bias, participants were recruited from multiple medical institutes across the state. Information bias was reduced by using a pretested, semi-structured questionnaire distributed via Google Forms. Confidentiality of responses was maintained to avoid response bias.

Data Collection: Data were collected using a structured, pre-tested questionnaire designed in Google Forms. The questionnaire comprised sections on demographic details, awareness of CBME, perceived advantages, challenges in implementation, and comparisons with conventional teaching methods. Responses were automatically recorded in Google Sheets for analysis.

Procedure: The questionnaire link was circulated electronically through institutional groups and direct communication with participants. Reminders were sent to ensure maximum participation within the study duration. Data completeness was checked, and incomplete responses were excluded from the final analysis.

Statistical Analysis: Collected data were compiled in Microsoft Excel and analyzed using SPSS version 23.0. Descriptive statistics, including frequency and percentage, were used for categorical variables. Associations between categorical variables were assessed using the Chi-square test. A p-value <0.05 was considered statistically significant.

Results

A total of 160 participants were enrolled in the study, which included a mix of medical teachers and MBBS students from various medical institutes in Madhya Pradesh, India. This allowed us to capture a broad perspective regarding CBME versus conventional teaching methods.

Awareness of CBME Pattern: A significant majority, 94.7% (n = 151) of participants, reported being aware of the Competency-Based Medical Education (CBME) pattern, indicating widespread familiarity with the curriculum reform. Only 5.3% (n = 9) were unaware.

This high level of awareness suggests that CBME has been sufficiently promoted across medical institutes.

Table 1: Awareness of CBME Pattern among Participants

Awareness of CBME	Number of Participants	Percentage (%)
Aware	151	94.7
Unaware	9	5.3

Awareness of CBME Components Compared to Conventional Methods: Approximately 72% (n = 115) of participants were aware of the differences between CBME components and conventional teaching methods, suggesting that a majority had a good understanding of the distinct educational frameworks.

Table 2: Awareness of CBME vs. Conventional Teaching Methods

Awareness of CBME vs. Conventional	Number of Participants	Percentage (%)
Aware	115	72.0
Not Aware	45	28.0

Awareness of Key CBME Concepts

- 88.5% (n = 142) of participants were familiar with the meaning of AETCOM (Attitude, Ethics, and Communication).
- 84.7% (n = 135) knew the concept of SDL (Self-Directed Learning).
- 77.1% (n = 123) understood the target population covered by the CBME curriculum.

Table 3: Awareness of Specific CBME Concepts

CBME Concept	Number of Participants Aware	Percentage (%)
AETCOM Meaning	142	88.5
Self-Directed Learning (SDL) Concept	135	84.7
Target Population of CBME Curriculum	123	77.1

Perceived Effectiveness of CBME Compared to Conventional Teaching: A vast majority of participants believed in the effectiveness of CBME compared to conventional methods:

- 94% (n = 150) considered CBME a better approach for clinical learning.
- 91.5% (n = 146) admitted that CBME produces more competent medical graduates.

Table 4: Perception of CBME Effectiveness Compared to Conventional Methods

Perception Statement	Number of Participants	Percentage (%)
CBME better for clinical learning	150	94.0
CBME produces more competent graduates	146	91.5

Role of Medical Education Unit (MEU)

Participants recognized multiple functions of the MEU as contributing to educational improvement:

- 7.8% (n = 12) saw MEU's role primarily as Faculty Development.
- The majority, 85% (n = 136), considered it involved in Assessment and Evaluation.
- 9.3% (n = 15) indicated involvement in Educational Research.
- 4.7% (n = 8) acknowledged Student Support functions.

Table 5: Perceived MEU Contributions

MEU Contribution	Percentage (%)
Faculty Development (FDPs)	7.8%
Assessment & Evaluation	85%
Educational Research	9.3%
Student Support	4.7%

Perceived Importance of CBME Components

Participants assigned varying importance to different components of CBME:

- 57.7% (n = 92) viewed all components as significant.
- AETCOM and Basic Research/Early Clinical Exposure were considered least significant by

most (16.9% [n = 27] and 10.8% [n = 17], respectively).
- Components like SDL (8.5% [n = 14]), elective postings (7.7% [n = 12]), PBL (6.2% [n = 10]), and integrated learning (5.4% [n = 9]) were viewed as moderately important.

Table 6: Perceived Significance of Individual CBME Components

CBME Component	Percentage (%) Viewing as Significant
All Components	57.7%
AETCOM	16.9%
Basic Research & Early Clinical Exposure	10.8%
Self-Directed Learning (SDL)	8.5%
Elective Posting	7.7%
Problem-Based Learning (PBL)	6.2%
Integrated and Aligned Learning	5.4%

Challenges in CBME Implementation

Participants reported several key challenges to implementing CBME:

- 32% (n = 51) reported lack of faculty and resources.
- 41.3% (n = 66) noted lack of student awareness.
- 19.8% (n = 32) identified lack of administrative support.
- 8.7% (n = 14) saw frequent transfers of medical faculty as a problem.

Table 7: Key Challenges Faced in CBME Implementation

Reported Challenge	Number of Participants	Percentage (%)
Lack of faculty and resources	51	32.0
Lack of student awareness	66	41.3
Lack of administrative support	32	19.8
Frequent transfers of medical faculty	14	8.7

Perception of OSPE and OSCE Exposure

A large proportion of participants appreciated Objective Structured Practical Examinations (OSPEs) and Objective Structured Clinical Examinations (OSCEs):

- 92.1% (n = 147) agreed that OSPE provides better laboratory exposure.
- 93.0% (n = 149) stated that OSCE provides better clinical exposure compared to conventional methods.

Table 8: Perception of Effectiveness of OSPE and OSCE

Exposure Type	Number of Participants	Percentage (%)
OSPE – Better Laboratory Exposure	147	92.1
OSCE – Better Clinical Exposure	149	93.0

Observations: CBME Study Results - Graphs & Charts

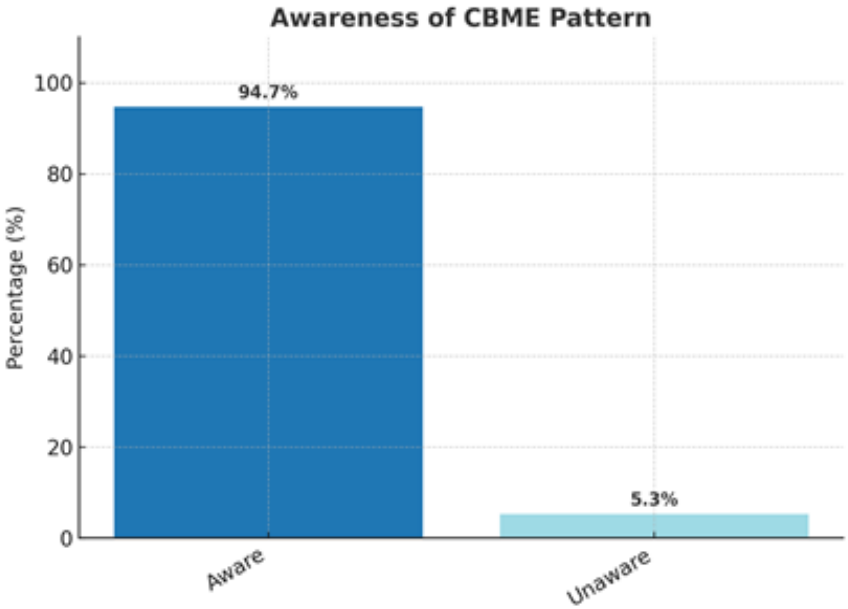

Figure 1: Awareness of CBME Pattern

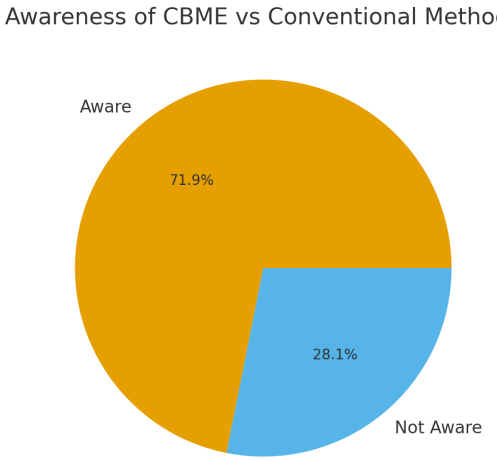

Figure 2: Awareness of CBME vs conventional Methods

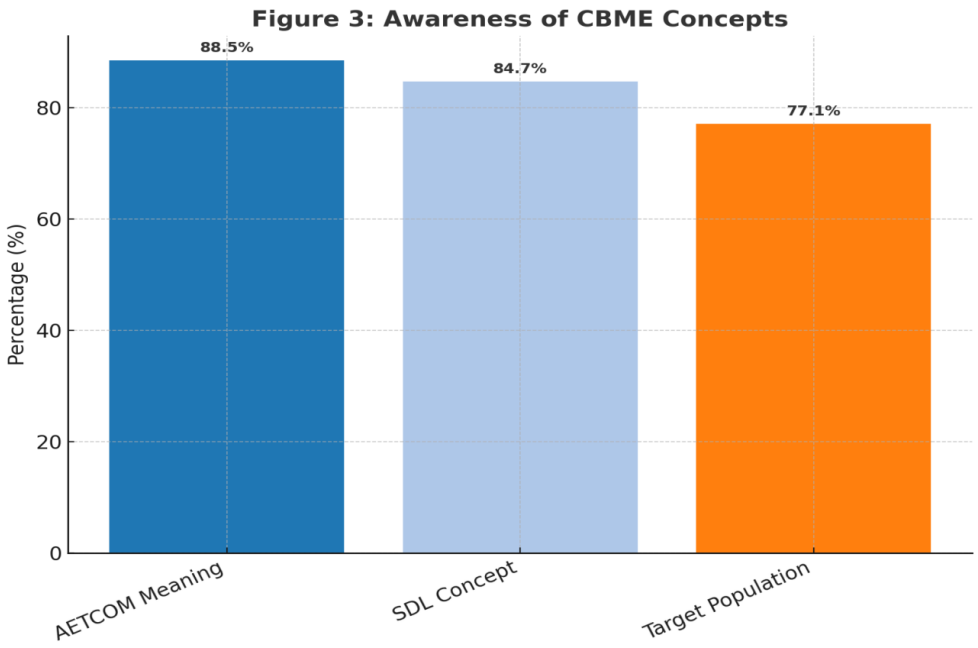

Figure 3: Awareness of CBME Concepts

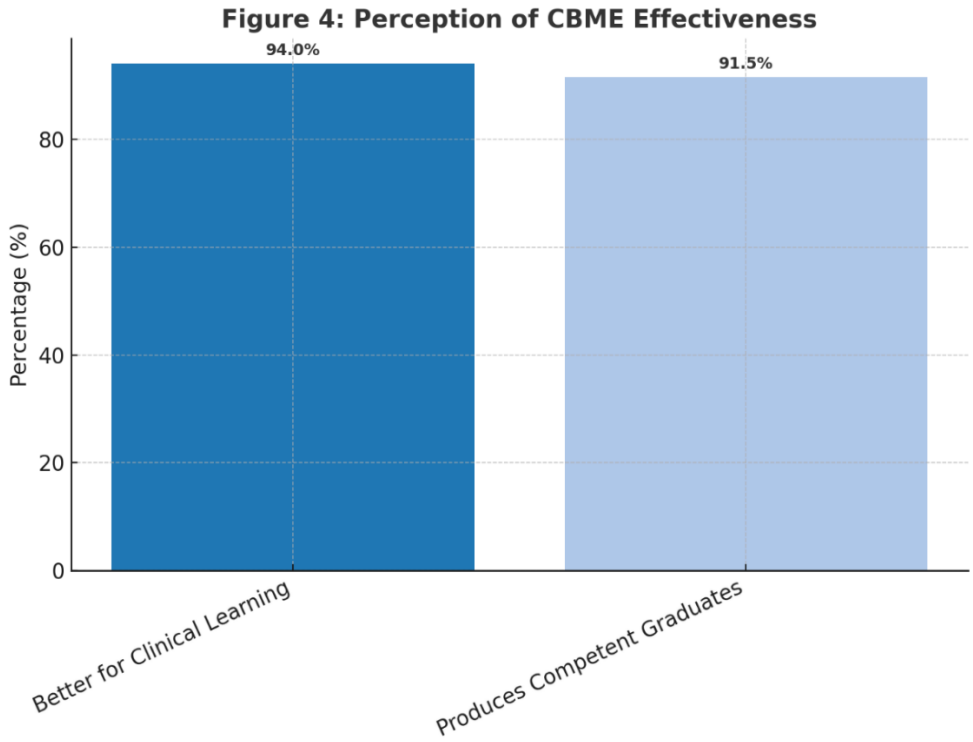

Figure 4: Perception of CBME Effectiveness

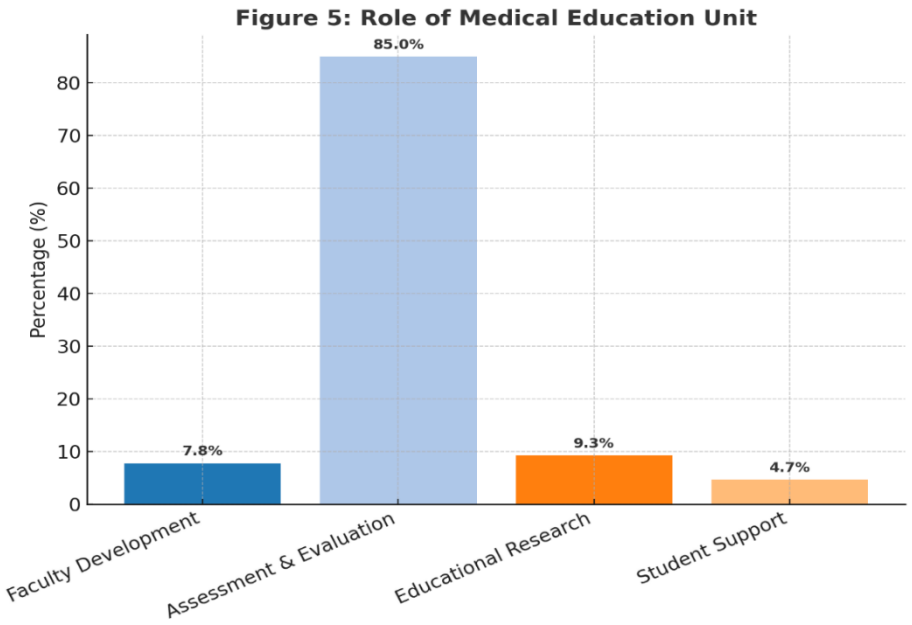

Figure 5: Role of medical education unit

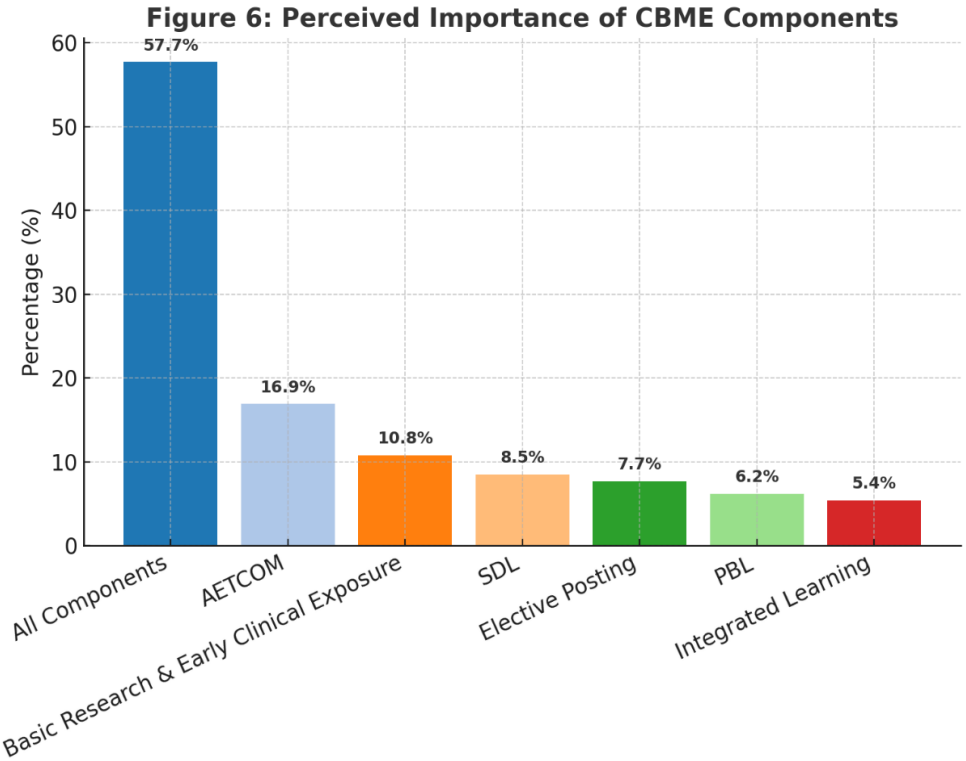

Figure 6: Perceived importance of CBME components

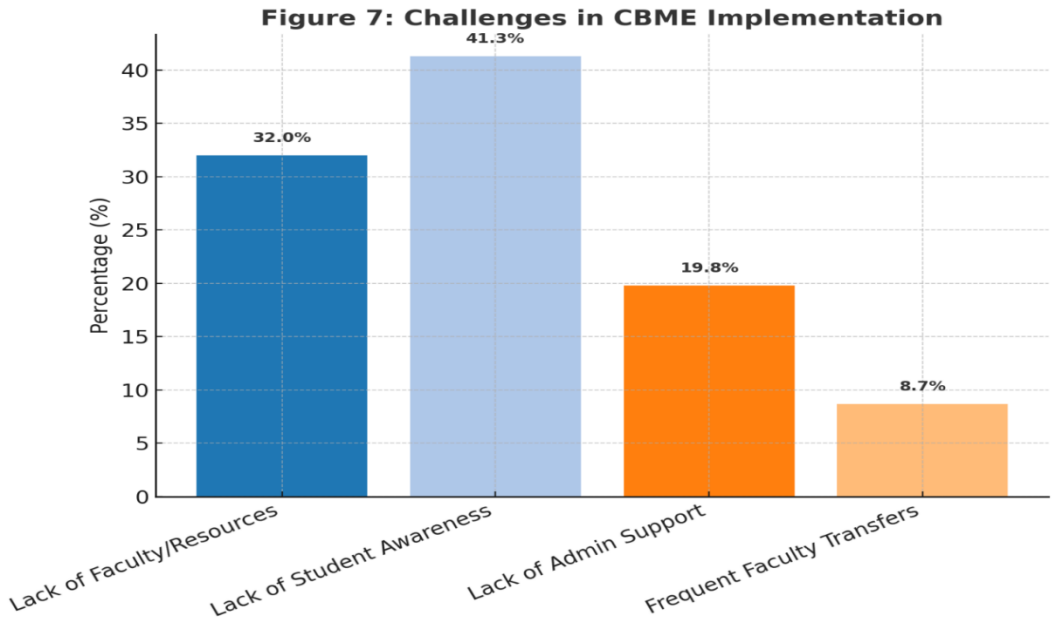

Figure 7: Challenges in CBME implementation

Questionnaire on Perception of Competency-Based Medical Education (CBME) vs. Conventional Teaching Methods

Research Study: (For Medical Teachers, Doctors, and Students across Medical Institutes

A. **Personal Details and Demography**

1. **Age (in years)** *
2. **Gender** *
3. **Institute Name and Location** *
4. **Department / Course Name** *
5. **Designation** *
   - o UG / PG (with batch)
   - o JR / SR
   - o Medical Teacher / M.O.
   - o Assistant Professor / Associate Professor / Professor

B. **Knowledge**

6. Are you aware of the CBME pattern of teaching/learning? *
   - o Yes
   - o No
7. Which of the following is **not** a component of CBME curriculum (but a conventional method of teaching)? *
   - o Early Clinical Exposure
   - o AETCOM
   - o Textbook-based Learning
   - o Integrated and Aligned Learning
8. AETCOM stands for? *
   - o All elements for training and communication
   - o Attitude, Ethics and Communication
   - o All entities for teaching and communication
   - o None of the above
9. Expand **SDL** *
   - o Social Distance Learning
   - o Simple Didactic Lecture
   - o Solely Designed Lecture
   - o Self-Directed Learning
10. Research in CBME curriculum is implemented for *
    - o Undergraduates
    - o Postgraduates
    - o Medical Teachers
    - o All of the above

C. **Attitude**

11. Is CBME a better approach for assessment and for present medical teaching/learning compared to conventional methods? *
    - o Yes
    - o No
12. Do AETCOM, Integrated Learning, and Early Clinical Exposure make more competent medical graduates compared to conventional teaching methods? *
    - o Yes
    - o No
13. In your opinion, the Medical Education Unit (MEU) contributes in: *
    - o Faculty Development

- Assessment, Evaluation, and Educational Research
- Accreditation, Quality Assurance, and Student Support
- All of the above

14. Which component is least important in the CBME curriculum (in your opinion)? *
    - Early Clinical Exposure
    - AETCOM
    - Self-Directed Learning
    - Elective Posting
    - Basic Research
    - Problem-Based Learning
    - Integrated and Aligned Learning
    - None of the above
15. Are there sufficient faculty members and resources in your institute to run the CBME curriculum properly as per NMC norms? *
    - Yes
    - No

D. **Practices**

16. Are Faculty Development Programs (FDP) conducted for medical teaching in your institute? *
    - Yes
    - No
17. What are the challenges faced after the launch of new CBME guidelines? *
    - Lack of administrative support
    - Lack of medical faculty
    - Frequent transfers
    - Lack of awareness
    - All of the above
18. What can be done for proper accomplishment of CBME goals? *
    - Sensitization programs for raising awareness
    - Strengthening MEU, faculty, and student training
    - Incentives and promotions
    - Optimization of student-to-faculty ratio
    - Dedicated faculty and staff for MEU
    - All of the above
19. Are Objective Structured Practical Examinations (OSPEs) giving better laboratory exposure compared to conventional methods? *
    - Yes
    - No
20. Are Objective Structured Clinical Examinations (OSCEs) giving better clinical exposure compared to conventional methods? *
    - Yes
    - No

Discussion

The study involved 160 participants, including medical teachers and MBBS students from various medical institutes in Madhya Pradesh, India, aiming to assess the perception of (CBME) versus conventional teaching methods.

A very high proportion (94.7%) of participants were aware of the CBME pattern, indicating that the new curriculum framework has been effectively disseminated across medical institutes. However, when asked about the specific differences between CBME and conventional methods, only 72% demonstrated clear understanding, highlighting a gap between general awareness and in-depth knowledge of the new system's structure.

Regarding knowledge of key CBME concepts, most participants were familiar with AETCOM (88.5%) and Self-Directed Learning (SDL) (84.7%), but slightly fewer understood the target population covered by the CBME curriculum (77.1%). This suggests that while the core ideas of CBME are well understood, more emphasis is needed in training programs to clarify the full scope of the curriculum.

Perceptions about the effectiveness of CBME were overwhelmingly positive. A large majority believed CBME offers a superior approach for clinical learning (94%) and produces more competent medical graduates (91.5%) compared to conventional teaching methods. This reflects strong acceptance of CBME's practical, skills-oriented, and learner-centered approach by both medical teachers and students.

When evaluating the role of the Medical Education Unit (MEU), most participants (85%) recognized its function in assessment and evaluation. However, fewer identified its contributions to faculty development (7.8%), educational research (9.3%), or student support (4.7%), suggesting limited awareness about the full range of MEU activities beyond assessment.

Regarding the perceived importance of various CBME components, more than half of participants (57.7%) viewed all components as equally significant. However, AETCOM, Basic Research, and Early Clinical Exposure were seen as less significant by a large proportion of respondents. This indicates that some components of the CBME framework are not yet fully appreciated in terms of their role in competency development.

Several implementation challenges were identified. A major barrier was the lack of student awareness

(41.3%), followed by lack of faculty and resources (32%), lack of administrative support (19.8%), and frequent faculty transfers (8.7%). These findings highlight systemic issues that limit effective CBME implementation despite positive perceptions.

Finally, participants showed strong confidence in the Objective Structured Practical Examinations (OSPEs) and Objective Structured Clinical Examinations (OSCEs), with 92.1% and 93.0% respectively agreeing that these assessments provided superior laboratory and clinical exposure compared to traditional methods. This reinforces the perception that hands-on, competency-based assessments better prepare students for clinical practice.

Recent studies exploring the perception of Competency-Based Medical Education (CBME) highlight both its strengths and challenges compared to conventional teaching. A cross-sectional survey in India found that medical students appreciated CBME for enhancing clinical exposure, self-directed learning, and skill acquisition, though infrastructural deficiencies and limited faculty preparedness were significant barriers [6]. Similarly, faculty from various institutions perceived CBME as a reform that fosters holistic student development but raised concerns regarding increased workload, assessment complexity, and resistance from traditional educators [7].

Another faculty perception study emphasized that while CBME promoted learner-centered training and professional skill development, its implementation required continuous faculty training and institutional support to overcome administrative hurdles [8]. Comparative evaluations also suggested that CBME aligns better with global medical education standards and competency frameworks, whereas conventional methods remain easier to implement in resource-limited settings [9].

Student-focused studies further revealed that learners valued CBME's emphasis on hands-on competencies, communication skills, and professionalism, yet some remained uncertain about its long-term assessment fairness [10]. A multi-institutional analysis reinforced these findings, noting that while both students and teachers acknowledged the relevance of CBME in producing practice-ready graduates, systemic challenges such as faculty shortages, assessment logistics, and uneven adoption hindered full acceptance [11].

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Additional recent research corroborates these perspectives. A thematic analysis of Indian medical teachers found that while the majority supported CBME, they emphasized the urgent need for region-specific adaptation and systematic feedback mechanisms [12]. Similarly, a nationwide survey of medical students noted that learners appreciated AETCOM modules, clinical exposure, and skills training, but called for revisions in assessment methods and stronger psychosocial support [13]. Faculty readiness has also emerged as a critical barrier, with many educators reporting inadequate preparation for new assessment responsibilities, underscoring the importance of structured faculty development programs [14]. Finally, regional faculty surveys have highlighted strong support for CBME but dissatisfaction with frequent regulatory changes and insufficient infrastructure, pointing to the need for systemic reforms [15]. In summary, CBME is widely perceived as superior for competency development and holistic medical training, but its success depends heavily on adequate infrastructure, faculty readiness, and robust assessment systems.

Conclusion

CBME is perceived as a beneficial but demanding educational model among medical faculty and students in M.P. Successful CBME implementation requires faculty training, institutional resources, and policy support. Results indicate a favorable

perception of CBME due to its student-centered approach, though challenges such as increased workload and the need for faculty training were highlighted. CBME pattern is a great initiative but is expected to work better by strengthening MEUs, faculty & student training, Optimizing student/faculty ratio and all of the mentioned actions collectively by about 70% participants

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