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ORIGINAL ARTICLE

Evaluating Medical Students' Perspectives on the CBME Curriculum: A Qualitative Exploration of Curriculum Structure, Pedagogical Approaches, and Educational Integration

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Abstract

Introduction: The introduction of the Competency-Based Medical Education (CBME) curriculum by the National Medical Commission (NMC) in India in 2019 has reshaped medical education by integrating foundational courses, learning strategies, and assessment methods that emphasize competencies essential for modern healthcare. Unlike the traditional knowledge-centric model, CBME aims to produce well-rounded physicians equipped with clinical skills, ethical grounding, and communication abilities. This study aims to examine medical students' perspectives on the CBME curriculum, focusing on its foundational components, learning strategies, integration practices, and assessments. **Materials and Methods:** This cross-sectional qualitative study was conducted over April and May 2023 at the Andaman and Nicobar Islands Institute of Medical Sciences (ANIIMS), Port Blair, among MBBS students from the 2019-2022 batches. Students were surveyed using a semi-structured questionnaire addressing key CBME components. Open-ended questions were utilized to capture students' insights on CBME's perceived benefits, challenges, and improvement suggestions. Thematic analysis was applied to identify recurrent themes, offering a comprehensive understanding of student experiences within the CBME framework. **Results:** Feedback revealed high student appreciation for foundational components, notably Basic Life Support and ethics. Recommendations for new curriculum elements included mental health support, interactive learning formats, and direct patient exposure. Common challenges cited were the extensive logbook requirements and lengthy assessments. Notably, students suggested restructuring self-directed learning (SDL) to include more guidance and advocated for case-based, scenario-driven assessments over traditional formats. Integration practices were valued, though students expressed a need for alignment between subject teachings and integrated sessions to maximize holistic learning. **Conclusion:** This study highlights a generally positive reception of the CBME curriculum, with specific areas identified for enhancement, including reducing administrative burdens, incorporating more practical learning activities, and adjusting assessment formats. Student feedback underscores the curriculum's strengths in fostering competency but also suggests the need for flexibility and responsive updates to meet evolving educational demands.

Keywords: Competency-Based Medical Education, qualitative study, curriculum assessment, medical students, integrated learning

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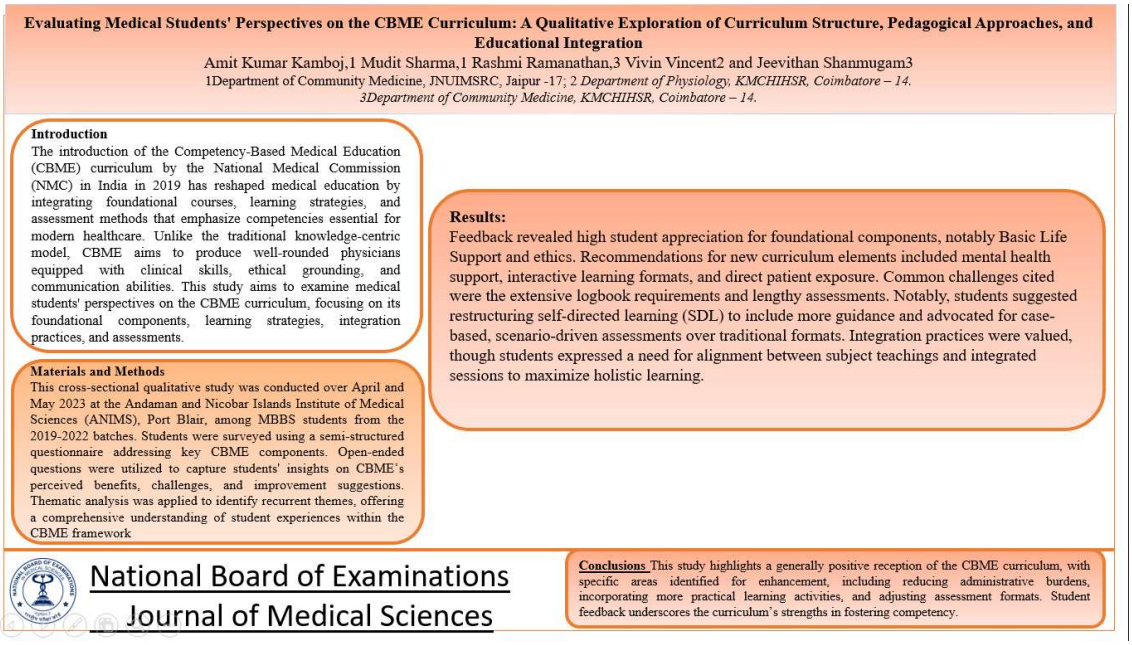
Graphical Abstract



Introduction

The introduction of the Competency-Based Medical Education (CBME) curriculum in India has marked a significant shift in medical training, aiming to equip future physicians with the essential competencies required for modern healthcare delivery. Launched by the National Medical Commission (NMC) in 2019, the CBME curriculum emphasizes a holistic approach to medical education, incorporating foundational courses in professionalism, ethics, and communication skills in the early phases of training. Unlike the traditional curriculum, which predominantly focused on knowledge acquisition, CBME is designed to integrate knowledge, skills, and attitudes through contextualized learning experiences and assessments [1-4].

Foundation courses, a core component of the CBME framework, have been structured to address critical skills such as basic life support, stress management, and biomedical waste handling [1,2]. These courses aim to develop essential competencies at the outset of training, thus setting a strong foundation for clinical education. Early Clinical Exposure (ECE), Self-Directed Learning (SDL), and integrated teaching sessions are other hallmark features introduced within the CBME model, fostering self-sufficiency and interdisciplinary learning among students. However, the effectiveness of these components has been the subject of ongoing debate, with variations observed in their acceptance across different student cohorts [3-9].

Integration of medical sciences, both horizontally across subjects within a single phase and vertically across different phases, has also been a focal point within CBME [10]. Research suggests that integrated curricula may facilitate a more comprehensive understanding of complex medical topics, though the implementation of such integrated sessions presents logistical challenges, including time constraints and content overlap [11,12].

Furthermore, assessment methods under CBME have shifted to include a blend of formative and summative evaluations, prioritizing problem-solving, case-based learning, and objective assessments [13]. While this shift intends to enhance clinical readiness, students have reported concerns about increased academic stress and the practical difficulties associated with assessment methods, such as extensive logbook maintenance and rigorous 100-mark theory papers [3-5].

As medical schools continue to refine and adapt the CBME curriculum, qualitative feedback from students can offer valuable insights into its efficacy and areas for improvement. Gathering perceptions directly from students enrolled in the program allows educators and policymakers to better align the curriculum with the evolving needs of the medical profession and healthcare delivery. This study aims to explore students' views on the strengths and limitations of the CBME curriculum, particularly focusing on foundational courses, learning strategies, integration practices, and assessment methods, to inform ongoing curricular development.

Materials and Methods

This qualitative cross-sectional study was conducted over two months, from April to May 2023, among MBBS students at the Andaman and Nicobar Islands Institute of Medical Sciences (ANIIMS), Port Blair. The primary objective was to explore medical students' perspectives on the implementation of the Competency-Based Medical Education (CBME) curriculum, introduced by the National Medical Commission (NMC) of India, with an emphasis on understanding their lived experiences, perceived benefits, and challenges within the curriculum. Ethical clearance was secured from the institutional ethics committee at ANIIMS, ensuring adherence to ethical standards and protecting participant rights.

Participants included students from the 2019, 2020, 2021, and 2022 MBBS batches who had completed their first year. The 2023 batch was excluded from participation, as these students had not yet completed the first MBBS and would be unable to address all aspects of the CBME curriculum. Students were informed about the study's objectives, its significance, their rights, and relevant ethical considerations through an information sheet. After consenting to participate, each student provided written informed consent, affirming their voluntary involvement and confidentiality of responses.

Data were collected using a semi-structured questionnaire designed to elicit in-depth responses on key CBME curriculum components, including foundational courses, learning strategies, integration, ethics, and assessment methods. Open-ended questions allowed students to express their thoughts on the perceived benefits, challenges, and suggestions for curriculum enhancement, providing nuanced insights into their experiences.

Thematic analysis was conducted on the collected responses to identify recurrent themes and patterns across students' feedback. Coding was performed, followed by categorization of themes related to student perceptions on the curriculum components. Key themes were extracted to highlight common perspectives and unique insights, with quotes used to illustrate these findings. This qualitative approach allowed for an in-depth exploration of student experiences,

revealing areas of strength in the curriculum as well as potential opportunities for improvement.

Results

This qualitative analysis explored student perspectives on the CBME curriculum, highlighting both the appreciated aspects and areas for enhancement. Feedback was gathered on potential additions to the curriculum, aspects students felt could be omitted, sessions they found beneficial, and recommendations for improving specific course elements. The verbatims of the students are quoted in Table 1 below.

Table 1. Perceptions of Students towards CBME curriculum

Category	**Verbatim Excerpts**
Interactive Learning	"Interactive learning such as skit, role play, debate etc."
Extracurricular Focus	"Sports and skill development," "Stress management games," "Outdoor games," "Fitness-related programs."
Mental Health Sessions	"Mental health of medical students," "Stress Management," "Mental health importance, self-defense."
Field Exposure	"Visit to rural and vulnerable areas for experience and to break language barrier."
Direct Patient Interaction	"Direct patient interaction," "Introduction to every department," "Field visits and medico-legal importance."
Technology Integration	"More digital and technological use than just mere writing notes."
Skill-based Modules	"Case-based learning," "First aid care," "Basic skills, like bandaging and wound care."
Logbooks	"Maintaining separate logbooks is very hectic," "Should be one logbook per phase."
SDL (Self-Directed Learning)	"I feel SDL is a waste, no one studies to be honest."
Lengthy Theory Assessments	"80 marks in 2.5 hours is hard to write," "100 mark, 3-hour papers are too long."
Non-Clinical Topics	"Unnecessary history and topics with no clinical relevance."

Sports and Group Activities	"Group activities to know our colleagues better," "Sports was useful for bonding."
Ethics and Professionalism	"Ethics and communication skills exposure is essential," "Career guidance sessions in first year will improve our focus"
Stress and Mental Health	"Stress management sessions are frequently needed," "Mental health sessions are critical for understanding ourselves"
Career Guidance	"Orientation to what life as a doctor in India is really needed."
Assessment Preparation	"Explain the marking scheme, paper structure and Preparation for university exams is a must"
Hands-On Skills	"Hands-on practice of basic skills," "Sessions on self-defense, dealing with patients."
Interactive and Case-Based	"Should be case-based," "Religiosity and spirituality should be considered alongside ethical discussions."
Encouraging Open Dialogue	"Encourage healthy, open discussions on ethical scenarios," "Integrate real-world cases that consider cultural factors."
Integrated and Personal Reflection	"Students should integrate ethics with personal values," "Sessions should reflect on both patient and provider perspectives."
Application-Oriented Approach	"Make it application-oriented within the manageable limits of time and information load."
Gradual Integration	"Introduce horizontal integration first, then vertical," "Ensure integration reflects in assessments and learning goals."
Continuous Revision and Assessment	"Conduct assessments of prior year subjects in later years to refresh memory," "Weekly short tests could aid integration."
Case-Based and Problem-Solving	"Case-based questions in exams," "Problem-based learning assessments," "Scenarios and viva voce."
MCQs and Frequent Testing	"More MCQs, reducing weight of theory papers," "Frequent university-style exams," "Weekly tests to reduce stress."

Students provided multiple suggestions for "*newer components*" that could enhance the MBBS curriculum. Many expressed interest in interactive learning formats such as skits, debates, and role plays to enhance engagement. Extracurricular activities, particularly sports and stress-relief games, were frequently mentioned as effective tools for managing academic pressures. Students also highlighted the need for mental health support and field exposure, including visits to rural or underserved areas, to foster practical skills and real-world empathy. Additionally, students advocated for more skill-based modules, including basic patient care, first-aid skills, and exposure to direct patient interactions. These suggestions reflect a strong desire for practical, hands-on learning and interactive teaching methods that foster both clinical competence and emotional resilience.

In terms of "*elements students felt could be omitted*", the most common theme was the burden of maintaining extensive logbooks for each department. Students consistently suggested a consolidated logbook system, arguing that the current structure is too time-consuming and detracts from learning. Another area of concern was the emphasis on lengthy theory assessments, with students suggesting that the current 100-mark, three-hour format may not adequately capture clinical understanding and application. Additionally, self-directed learning (SDL) was viewed skeptically by some students who felt it lacked effectiveness without structured guidance, further emphasizing a preference for teacher-led or hands-on learning approaches.

"*Sessions found useful*" by students spanned a range of topics. They highly valued sessions promoting student-teacher interaction and appreciated guidance from senior students on adjusting to the demands of medical training. Extracurricular sessions, such as sports activities and team-building events, were also positively received for their role in helping students build relationships and manage stress. Notably, sessions focusing on ethics, professionalism, and communication skills were viewed as essential, underscoring the importance of these topics in medical training. Students frequently suggested extending these sessions throughout the MBBS course to reinforce these foundational skills.

In addition to the current curriculum, students proposed "*enhancements to existing sessions*". Many advocated for more specific career guidance and early orientation to the realities of the medical profession, including how to handle patient interactions and workplace challenges. Practical skill-building was another area of focus, with students recommending hands-on practice in areas like wound care, self-defense, and basic medical procedures. They also highlighted the need for assessment preparation sessions to better understand university marking schemes and examination formats. These suggestions indicate a desire for the curriculum to include direct, practical preparation for real-world medical scenarios and assessments.

To improve the effectiveness of "*ethics-related sessions*", students suggested integrating case-based learning to foster critical thinking and real-world application. They emphasized the importance of an open and interactive format, encouraging dialogue around ethical dilemmas and cultural considerations. Additionally, they proposed

that sessions on ethics should include personal reflection, guiding students to align professional values with personal beliefs to develop a more holistic understanding of ethical practice.

For "*integrated classes*", students suggested a gradual approach to integration, beginning with horizontal integration of subjects within the same academic year, followed by vertical integration across years. They expressed a preference for assessments that reflect integrated learning goals and advocated for weekly short tests or case-based quizzes to reinforce integrated concepts in a manageable format. These recommendations reflect an understanding that integrated learning is most effective when supported by frequent assessments that reinforce and revisit prior material.

Finally, students provided input on "*alternative assessment methods*". Many recommended case-based or problem-solving questions to better gauge clinical reasoning, while others suggested frequent, university-style mock exams and weekly quizzes to reduce stress during major exams. This feedback underscores the need for assessment formats that balance theoretical knowledge with practical application, helping students to develop and demonstrate clinical competency effectively.

Discussion

The implementation of the Competency-Based Medical Education (CBME) curriculum represents a transformative shift in medical education, designed to cultivate key competencies in students through an integrated and student-centered approach [1-5]. This qualitative study highlights both the strengths and challenges perceived by MBBS students at the Andaman and Nicobar Islands Institute of Medical Sciences (ANIIMS), offering insights that are valuable for understanding and improving the CBME curriculum.

Thematic analysis of student responses underscored the foundational course components as essential but with varied levels of perceived benefit. Many students emphasized the practical relevance of skills such as Basic Life Support and Biomedical Waste Management, aligning with the CBME's focus on building core competencies essential for early medical training. However, some students indicated the need for a more contextual approach, suggesting that foundational components could be made more interactive and directly related to clinical scenarios. Interactive learning methods, such as role plays and case discussions, have been shown to enhance engagement and retention, supporting the student feedback advocating for these approaches [14].

In the area of CBME learning strategies, students responded positively to the integration of self-directed learning (SDL), but raised concerns regarding its implementation. While SDL is a core component of CBME, encouraging autonomous and reflective learning, students noted difficulties in adapting to this method without sufficient guidance. The need for balanced instructor-led support has been noted in other studies on SDL in medical education, suggesting that its effectiveness depends significantly on students' preparedness and the provision of resources that scaffold their learning journey. Another notable aspect was the endorsement of small group teaching and early clinical exposure, which students found to be beneficial for reinforcing theoretical knowledge through real-world application. This observation aligns with

existing literature, which posits that small group settings and early clinical interactions can enhance critical thinking and facilitate deeper understanding [15,16].

Integration, a hallmark of the CBME approach, was well received, particularly in its horizontal and vertical forms, where students recognized the value of interconnected learning across disciplines. Students suggested, however, that the integration sessions could be better synchronized with the timing of other subject teachings, indicating that misalignment might hinder holistic learning. The suggestion for concurrent, subject-aligned integration has been proposed in other CBME studies, which emphasize timing as a critical factor for maximizing the integration of medical knowledge. Students also expressed interest in more frequent interactive sessions within the integration component, supporting studies that found interactive, interdisciplinary sessions improve engagement and comprehensive learning [11-14].

Ethics and professionalism were recognized as integral to the CBME curriculum, with students endorsing the relevance of ethics education at the undergraduate level. They suggested enhanced approaches, including discussions that incorporate cultural and spiritual perspectives, reflecting an awareness of patient diversity and individual values in clinical practice. Students' suggestions align with the evolving perspective that ethics teaching should address personal and cultural contexts, providing a foundation for compassionate, patient-centered care [17].

In the area of assessment, students offered insights into the perceived challenges with the CBME's formative assessments, particularly logbook maintenance and the emphasis on multiple-choice questions (MCQs). While students agreed on the necessity of structured assessment, they highlighted the excessive time demands of logbook maintenance, suggesting that it detracts from study time and could benefit from simplification or digital solutions. Previous studies have similarly noted the administrative burden of logbooks, proposing more efficient alternatives such as electronic portfolios [3,15]. Additionally, students proposed viva voce as an effective supplement to MCQs, aligning with findings that suggest verbal assessments enhance clinical reasoning and verbal communication skills [18].

Conclusion

This qualitative study provides valuable insights into student perspectives on the CBME curriculum, revealing areas where the curriculum succeeds in fostering competency as well as opportunities for refinement. Foundational and integration components were generally well-received, but there is room for enhancing interactivity and aligning integration sessions more closely with other subjects. The feedback on SDL indicates the need for a balanced approach that supports student autonomy while providing adequate guidance. Furthermore, the perspectives on ethics suggest that broader cultural contexts could enrich ethics education. In terms of assessment, students' suggestions for reducing the time burden of logbook maintenance and incorporating more verbal assessments could help improve efficiency and practical relevance. These findings underscore the importance of a responsive approach to CBME implementation, one that considers student feedback to enhance the curriculum's efficacy in preparing

competent, patient-centered healthcare providers.

Statements and Declarations

Ethical Approval

Ethical clearance was secured from the institutional ethics committee at ANIIMS

Conflicts of interest

The authors declare that they do not have conflict of interest.

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