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# Exploring Knowledge, Perception And Perspective Of Resident Doctors And Tutors Towards Competency Based Medical Education: A Cross- Sectional Study

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**Abstract**

**Introduction:** Competency based undergraduate curriculum is an outcome driven curriculum which conforms to global trends making medical education more learner-centric, patient-centric, gender sensitive, outcome -oriented and environment appropriate. Faculty development programs (FDPs) are fundamental for smooth implementation of competency based medical education (CBME).

**Aim:** To explore the knowledge, perception and perspective of resident doctors and tutors towards competency based medical education.

**Materials and Method:** A cross- sectional, electronically distributed, questionnaire- based study was conducted among residents and tutors from December 2023 to February 2024. A total of 30 participants responded to the questionnaires and were included in the study. A validated set of 25 closed-ended questions and 05 open ended questions were included in the questionnaire.

**Results:** More than 75% of respondents were aware of the various aspects and features of CBME as per the responses of the closed ended questions. However, there was lack of in- depth knowledge and understanding about CBME in more than 90% of the participants as reflected by the responses of the open- ended questions.

**Conclusion:** There is clear lack of comprehensive and thorough knowledge about CBME among resident doctors and tutors which could be due to their non-inclusion in training and development programs for implementation of CBME.

**Keywords**: Competency based medical education, Assessment, Indian Medical Graduate, Foundation course, AETCOM

## Introduction

Competency based Medical Education (CBME) provides an effective outcome-based strategy where various domains of teaching including, teaching learning methods and assessment form the framework of competencies. The goal of the undergraduate medical education program implemented across medical colleges in India in 2019 is to create an 'Indian Medical Graduate' having the requisite knowledge, skills, attitude, values, and responsiveness [1]. The CBME curriculum lists 2949 outcomes (competencies) along with teaching, learning and assessment methods [2]. The emphasis has been laid on alignment and integration of subjects both horizontally and vertically while respecting the strengths and necessity of subject-based instruction and assessment. It attempts to provide the orientation

and the skills necessary for life-long learning to enable proper care of the patient. The curriculum provides early clinical exposure, electives and longitudinal care. Skill acquisition is an indispensable component of the learning process in medicine. The curriculum reinforces this aspect by necessitating certification of certain essential skills [1]. To lay stress on the significance of ethical values, responsiveness to the needs of the patient and acquisition of communication skills, dedicated curriculum time in the form of longitudinal program based on Attitude, Ethics and Communication (AETCOM) competencies has been provided [3]. For the smooth and appropriate transition of students coming from diverse educational, economic, social, linguistic and cultural backgrounds to the challenging medical stream, there is foundation course [4,5]. Also, dedicated time has been allotted for self-directed learning and co-curricular activities. Formative and internal assessments have been streamlined to achieve the objectives of curriculum. Faculty development programs (FDPs) are fundamental for smooth implementation of the new curriculum across the country [6]. Apart from faculty, upper year residents, tutors and senior residents are also involved in the teaching of medical undergraduates. The literature concerning competency based medical education mainly focusses on the knowledge/ perspective of faculty or the learners (medical students) and the benefits and challenges in implementation of CBME. The residents' and tutors' perception and knowledge regarding CBME has been conspicuously ignored [7]. As the residents and tutors also assist faculty for DOAP (Demonstration, Observation, Assistance, Performance) sessions, SDL(Self-directed learning), PBL (Problem based learning), assessments, feedback, clinical evaluation exercises, AETCOM sessions, their perspectives and preparedness about CBME may help in effective implementation of the program.

## Materials And Method

A cross- sectional, electronically distributed, questionnaire- based study was conducted among residents and tutors studying/ working in various medical colleges in North India. A total of 30 participants were included in the study. The questionnaire identified participants' awareness, knowledge and perspectives regarding CBME. No participant was trained in Revised Medical Education Technology or Curriculum Implementation Support Program (CISP) for implementation of CBME curriculum. The questionnaire was prepared and validated by three faculties trained in Revised Course Basic Workshop. There were 25 closed ended and 5 open ended questions. On a three-point Likert scale (Yes, No, Neutral), the closed ended questions were framed to assess the knowledge, perception and awareness about various aspects of competency based medical education. Five open ended questions were based on the general terms and basic aspects related to teaching and assessment pertaining to traditional and competency based medical education. The responses were entered in an excel spreadsheet and results were tabulated. The responses for open ended questions were assessed for completeness and relevance and graded on a scale 0 to 5 by two faculty members.

## Results

The participants included 18 males (60%) and 12 females (40%). These included 10 Junior Residents, 9 tutors and 11 senior residents. Eighteen participants were from pre/ para specialties and 12 were from clinical specialties. The closed ended questions explored their perceptions, awareness and perspectives regarding various aspects and components of CBME. Out of 30 participants, 27 (90%) were aware about implementation of CBME across medical colleges in India and 96.6% were aware about the faculty development programs. Twenty-six participants (86.6%) were aware of their role in implementation of CBME and 80% believed that tutors/ residents should also be included in faculty development or similar programs for their training in CBME. Ninety percent participants responded that they were aware of the roles of Indian Medical Graduate and agreed that implementation of CBME would improve medical education in India. Twenty-five participants (83.3%) responded in affirmation that they were aware of the competencies of IMG and same percentage of respondents agreed that foundation course is helpful in orienting students towards medical education and early clinical exposure is beneficial in meeting competencies desired from IMG. Twenty-six respondents (86.6%) agreed that CBME is beneficial for students but also asserted that there is need for increase in infrastructure, faculty and other staff for better implementation of CBME. Eighty percent (80%) of the participants were aware of the AETCOM competencies and believed that these competencies would help students acquire necessary competence in



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the attitudinal, ethical and communication domains. They also believed in the relevance of integration and alignment for patient care and for reducing redundancy in subjects. Twenty-seven participants (90%) were aware of the role of self-reflection and feedback in assessment, tools for competency-based assessment, about elective posting of two months and skill development program in all phases. Competency based assessment had improved validity and reliability as compared to traditional assessment was believed by 70% participants.

The awareness about restriction of didactic teaching to less than one third of the total time allotted was 80% and about longitudinal module on pandemic management was 70%. More than 70% agreed that online learning and acquisition of enhanced skills in use of Information Technology were essential for encouraging self-directed learning among students and they saw logbook and portfolio as integral part of formative/ continuous assessment program. Around 80% participants believed that implementation of CBME earlier during their graduation years would have helped them in achieving more personally as well as professionally.

The responses for open ended questions elaborate the depth of knowledge and basic understanding about CBME. The answers were graded on a scale 0 to 5 based on relevance and completeness. For the first question (Define Competency), 17 participants scored 0 and only one participant got a score of 4. Only one participant correctly enumerated the roles of Indian Medical Graduate, and 16 participants could not enumerate any of the roles. The questions: Differences between Competency based medical education and traditional medical education (write any two points) and Differences between traditional assessment and competency-based assessment (write any two points) were each answered correctly by two students (score 5) and 18 students each got a score of 0 in both the questions. Five small group learning methods were satisfactorily enlisted by 4 participants (3 scored 5; 1 scored 4), whereas 18 participants could not enlist any such method and scored 0. More than 75% of participants were aware about various aspects and domains of CBME as reflected from the responses of closed ended questions. However, there was lack of in-depth knowledge and understanding about CBME as only average 7% participants could answer the closed ended questions satisfactorily.

**Answer Key to Open ended Questions:**

**Q1. Define Competency**

Competency is an observable ability of a health professional, integrating multiple components such as knowledge, skills, values and attitudes.

**Q2. Enumerate the roles of Indian Medical Graduate**

1. Clinician
2. Leader and member of the health care team and system
3. Communicator
4. Lifelong learner
5. Professional

**Q3. Differences between Competency based medical education and traditional medical education (write any two points)**

Competency-based medical education focuses on outcomes and mastery of specific skills, emphasizing individual progression. In contrast, traditional medical education follows a time-based structure, with a fixed curriculum and set duration for training.

**Q4. Differences between traditional assessment and competency-based assessment (write any two points)**

Competency- based assessment is a continuous and ongoing process with opportunities for providing developmental feedback. Assessment tools should align with competencies/objectives. Traditional assessments are snapshot observations of learning, are generally not linked to instructions or outcomes and promote test taking behaviour. They are fragmented and mainly focus on knowledge.

**Q5. Enlist five small group learning methods.**

1. Problem based learning
2. Case based learning
3. Jigsaw technique
4. Think pair share
5. Team based learning

**Discussion**

This study was conducted to assess the knowledge and perception of resident doctors and tutors towards CBME curriculum. There is limited literature regarding residents' perspective on CBME [7]. Almost



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75% of the participants were aware of the newer components of Graduate medical education regulations like foundation course, early clinical exposure, AETCOM, integration, alignment, self-reflection, feedback, elective postings, formative assessments, self-directed learning etc. The awareness was essentially based on secondhand information or knowledge as evidenced by the fact that none of the participants was trained in any of the CBME curriculum training or development programs. The percentage of participants who believed that tutors and residents must also be included in faculty development programs was as high as 80%. These observations were far more encouraging than studies done on faculty perceptions towards CBME [6,8] and at par with the study by Gopalakrishnan et al [9]. The core aim of CBME is to produce a competent Indian Medical Graduate through skill-based training and to equip them with self-reflection [9]. An Indian medical graduate must be able to function in the following roles effectively: Clinician, communicator, leader and team member, life-long learner and professional, for this the medical teacher is required to function as a proficient teacher, facilitator, planner, manager, performance assessor, researcher, and mentor [2, 10-13].

A medical graduate should possess knowledge, skills, attitudes, values, and responsiveness, to function appropriately and effectively as a "physician of first contact" of the community while also being globally relevant [2]. Various studies have emphasized that inappropriate student to teacher ratio, poor infrastructure, time constraints, lack of commitment, lack of administrative support and non-uniformity in assessment methods are perceived as significant barriers in the effective implementation of CBME [14,15,16]. The Medical council has been training thousands of medical teachers over the last few years through basic course workshop and advance courses in medical education technologies. As evidenced from studies conducted on faculty perspective towards CBME, faculty training and capacity building are the key determinants for successful implementation of CBME [2,6,17]. Mann et al [7] in their study on residents' perceptions of competency based medical education have concluded that for CBME implementation, training to both faculty and residents should be provided to help maximize effective feedback dialogue. Understanding residents' apprehension and expectations will allow training programs tailor orientation activities and introductory rotations to ameliorate concerns and enhance the benefits of CBME [7]. But many medical colleges still have a substantial backlog of faculty awaiting basic training in CBME curriculum [4].

## Conclusion

The awareness and knowledge about the salient features and various aspects of CBME was not uniform across resident doctors and tutors. Although most of them were aware of the changes, around 20% were not aware. Most of them had a positive outlook towards implementation of CBME. But this awareness, knowledge and perception seems rumor based and acquired through secondhand information. There is a clear lack of comprehensive and thorough knowledge about CBME due to their non-inclusion in training and development programs for implementation of CBME. The perspectives and preparedness of residents and tutors about CBME may help in effective implementation of the program.

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**Tables:**

**Table 1: Responses of closed ended questions**

| S. no. | Questions | Yes | No | Neutral | Total (30) |
|---|---|---|---|---|---|
| 1. | Are you aware of the new competency-based curriculum implemented across medical colleges in India? | 27 | 01 | 02 | 30 |
| 2. | Are you aware of your role as Tutor/ Resident towards implementation of Competency based Medical Education (CBME)? | 26 | 01 | 03 | 30 |
| 3. | Are you aware of the Faculty Development Programs for training of faculty regarding new curriculum? | 29 | 0 | 01 | 30 |
| 4. | Do you believe that Tutors/ Residents should also be included in the Faculty Development programs or similar programs for tutors/ residents must be organised? | 24 | 02 | 04 | 30 |



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| | | | | | |
|---|---|---|---|---|---|
| 5. | Are you aware of the competencies for the Indian Medical graduate (IMG) mentioned in UG curriculum module? | 25 | 02 | 03 | 30 |
| 6. | Are you aware of the various roles of Indian Medical graduate (IMG)? | 27 | 0 | 03 | 30 |
| 7. | Do you believe implementation of CBME will help in improvement of medical education in India? | 27 | 02 | 01 | 30 |
| 8. | Do you agree that Foundation course helps students in orienting themselves about medical school? | 25 | 03 | 02 | 30 |
| 9. | Is early clinical exposure beneficial in meeting the competencies desired from IMG? | 25 | 01 | 04 | 30 |
| 10. | Is CBME beneficial for medical students? | 26 | 01 | 03 | 30 |
| 11. | Is there a need for increase in Infrastructure, faculty, and other staff for better implementation of CBME? | 26 | 0 | 04 | 30 |
| 12. | Are you aware of AETCOM competencies as part of the new curriculum? | 24 | 01 | 05 | 30 |
| 13. | Do you believe AETCOM competencies will help students acquire necessary competence in the attitudinal, ethical and communication domains? | 24 | 01 | 05 | 30 |
| 14. | Do you believe that Integration and Alignment are necessary for providing relevance to patient care, understanding, interconnectedness and to reduce redundancy in the subjects? | 24 | 01 | 05 | 30 |
| 15. | Are you aware of the role of self-reflection and feedback in assessment? | 27 | 02 | 01 | 30 |
| 16. | Are you aware of the tools for competency-based assessment? | 27 | 0 | 03 | 30 |



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| | | | | | |
|---|---|---|---|---|---|
| 17. | Are you aware that Elective posting for two months has been designed after completion of third MBBS part I? | 27 | 02 | 01 | 30 |
| 18. | Are you aware that didactic teaching has been restricted to less than one third of the total time allotted and emphasis has been laid on hands on training, symposia, seminars, small group discussions, problem-based discussions, and self-directed learning? | 24 | 02 | 04 | 30 |
| 19. | Are you aware of the major components and structure of skill development programs for skill development in all phases? | 27 | 0 | 03 | 30 |
| 20. | Are you aware of the longitudinal module on pandemic management extending from foundation course to the final year undergraduate program? | 21 | 04 | 05 | 30 |
| 21. | Do you agree that the Integration of Traditional face to face learning with online activities will enhance the learning experience? | 24 | 01 | 05 | 30 |
| 22. | Do you agree that emphasis on online learning and acquiring enhanced skills in use of Information Technology are essential for encouraging self- directed learning among students? | 23 | 04 | 03 | 30 |
| 23. | Do you see Logbook and Portfolio as an integral part of formative/ continuous assessment program? | 23 | 02 | 05 | 30 |
| 24. | Do you believe that competency-based assessment has improved validity and reliability as compared to traditional assessment? | 21 | 03 | 06 | 30 |
| 25. | Do you believe implementation of CBME earlier during your graduation years would have helped you in achieving more personally as well as professionally? | 24 | 01 | 05 | 30 |



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**Table2: Scores obtained for open ended questions**

| S.no | Open ended question | Total | Score | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | **0** | **1** | **2** | **3** | **4** | **5** |
| 1. | Define Competency | 30 | 17 | 05 | 07 | 0 | 01 | 0 |
| 2. | Enumerate the roles of Indian Medical Graduate | 30 | 16 | 05 | 04 | 02 | 02 | 01 |
| 3. | Differences between Competency based medical education and traditional medical education (write any two points). | 30 | 18 | 05 | 04 | 01 | 0 | 02 |
| 4. | Differences between traditional assessment and competency-based assessment (write any two points) | 30 | 18 | 07 | 02 | 01 | 0 | 02 |
| 5. | Enlist five small group learning methods. | 30 | 18 | 03 | 03 | 02 | 01 | 03 |



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