

Perception on Competency-based medical curriculum at Indian medical schools: Post-implementation position

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Abstract

The Medical Council of India had addressed the substandard quality of an Indian medical graduate by introducing Competency-based medical education. CBME expanded the dimensions besides basic medical knowledge to the core competencies of a high-grade skilled clinical graduate. Moreover, value addition with other competencies such as empathy, professionalism, altruism, communication skills, ethics, and humanities that focuses on health systems as a national goal 'Health for All'. MCI had developed faculty development programs and introductory – advanced workshops for the proper implementation of CBME; even though it has many flaws associated with it. Medical institutes in India have now gained significant experience in understanding and implementing the CBME. "Depicting a big picture" could be a shared meaningful experience for the implementation and monitoring committees. This study is a preliminary observational study investigating a large cohort of medical students and faculty at MBBS medical colleges across India. The research examines the perception of medical students and faculty on CBME implementation to find operational challenges and suggest solutions to them. Implementing CBME has built momentum even during the pandemic. However, it requires capacity building, adequate resources/equipment's for direct experience, and up-to-date faculty and clinical staff for the best transfer of knowledge.

Keywords: Competency-based medical education, Faculty development, Perception, Clinical Practice, Medical education

1. Introduction

Curriculum reform at Indian medical schools has attracted much attention recently. Because in India, the Undergraduate medical curriculum has primarily remained "traditional". Many countries have rapidly transformed their medical education frameworks to suit changing times and trends, even though our system had relied heavily on didactic lecturing. Consequently, the assessment had been excessively irrelevant with no connection with the actual practice of the medical profession (Basheer, A., 2019). Medical Council of India contended the matter of substandard quality of medical education explained as lack of integration in theory and practice, lack of early clinical exposure and skill development, summative assessment system, and ineffective teaching and

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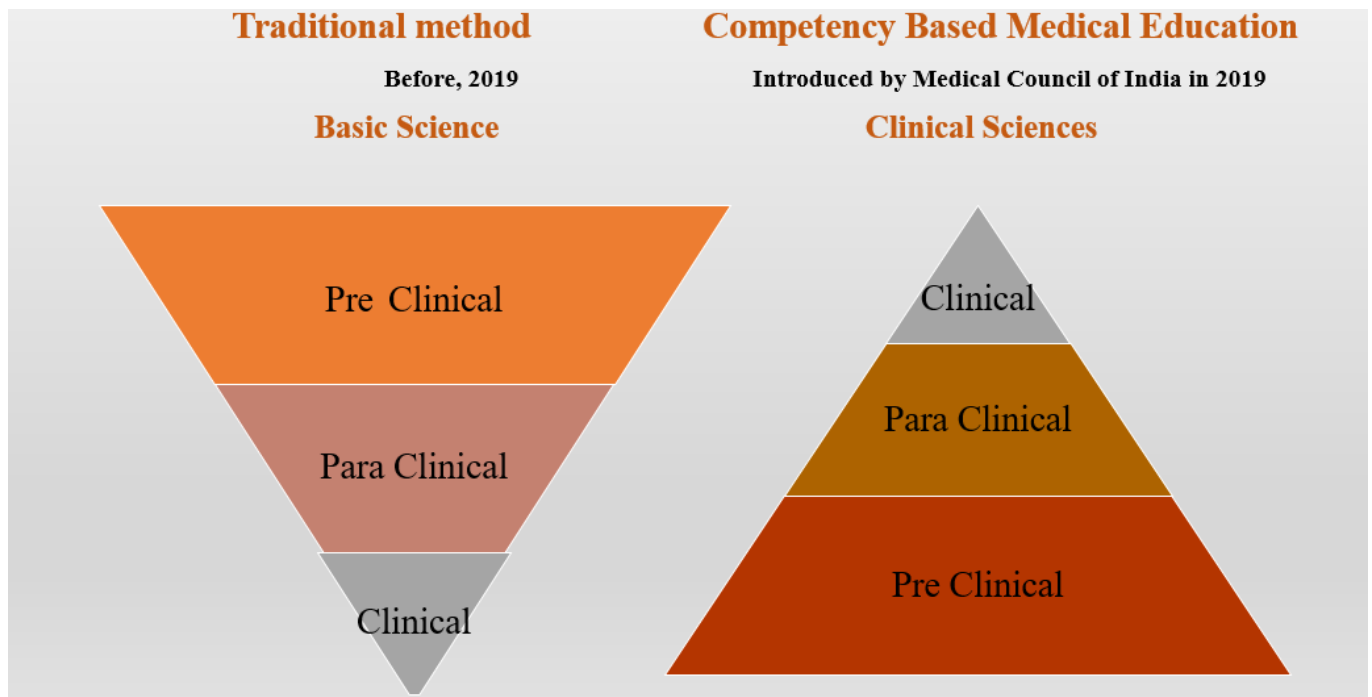


unskilled teaching faculties, posing a solid need to substantially rethink and revalue all aspects of its programs (Solanki, 2014). Now, the CBME amendment from 2019 to 2020 onwards introduced a revised Undergraduate Medical education curriculum, which is Competency-Based Medical Education. CBME prioritises scope beyond basic medical knowledge to exceptional clinical skills, development of communication, professionalism, with a direct focus on health systems as a national goal of 'Health for All.' It develops the core competencies required for a quality medical Graduate, such as exceptional clinical skills with empathy, professionalism, altruism, communication skills, ethics, and humanities. The curriculum also facilitates the development and training of faculty members who are teaching undergraduate courses. The curriculum planning, implementation and monitoring phased out through the coordination of three essential committees, viz. 1. Departmental Curriculum Committee (DCC), 2. College Curriculum Committee (CCC) and 3. Expert Group (EG) (The National Medical Commission Act, 2019).

Under CBME, a foundation course of one-month duration had introduced by MCI in August 2019. It was introduced as a compulsory module at the beginning of the MBBS course to prepare students for the complete learning module throughout the Indian Medical Graduate training (Foundation Course for the Undergraduate Medical Education Program, 2019). Moreover, CBME introduced introductory course workshops on educational technologies for all the teachers in the medical colleges and advanced courses for the selected faculty. These courses empower faculty with adequate knowledge and skills toward designing the curriculum; bring innovations in teaching-learning methods and assessment techniques (Kulkarni et al., 2019).

Some studies have rated the overall experience of CBME by the students about the foundation course. The majority of the observations on foundation courses bring positive outcomes. Students received qualitative experiences with empathy, attitude, communication, and well developed interactive sessions as required in MBBS. Students acquiring clinical medical skills and research activities gave positive responses (Dabas et al., 2020). Khilani, 2019 showed that foundation courses in competency-based medical education curriculum received positive feedback from students. Students felt CPR and Basic Life Support (BLS) training were the most important topics for developing clinical skills (Khilnani, 2019). A study revealed mixed responses of faculty who had undergone a Foundation for advancement in international medical education and research (FAIMER) fellowship program. Responses of participants for competency-based medical education were favourable for its formative assessment and evaluation methods. However, faculties were highly unaware of the new curriculum and its effective management (Telang et al., 2017). Another study conducted on faculty development workshops at the regional centres showed confidence in knowledge enhancements. CBME design, its applications, and a better understanding of its implementation to the curriculum were seen after successfully attending two days' workshop (Khan et al., 2020). A study conducted for comprehending undergraduate medical students and faculty experience with CBME at VIMS Medical College, Nalanda, India, and revealed positive feedback. Both the teachers and students liked the new UG curriculum as it covers many disciplines required for a quality graduates education, which did not exist, or was less effective in the earlier pattern of the UG curriculum (Kumar, 2019).

Figure 1. The overall concept of the Medical education system



Implementing such a curriculum across the medical schools in India is itself a significant challenge. Further, just after implementing CBME uniformly nationwide, the challenge of the Covid-19 pandemic emerged unexpectedly. The medical institutes all over India were closed, and the regular classrooms transformed into digital classrooms, which have created another challenge (Solanky, P. and Shah H., 2020; Patel, M. and Shah, H.D., 2020). It is crucial to sensitise and prepare the students and faculty for the change. Further, efficient management, intensive monitoring, and program evaluation and subsequent modification are the need of the hour (Supe, (2019). Depicting a big picture of the current status and issues of CBME Implementation" could be a shared meaningful experience for all the committees. This study is analysing the "students and faculty" perceptions on CBME, which will help us as a tool for quality assurance in Competency-based medical education. Based on responses, the effectiveness of CBME implementation will be highlighted, and the importance of Clinical and Professional development and the use of digital technology in medical education. This research will propose the ongoing challenges and solutions that require strategic planning and improvement for the graduate program concerned.

2. Method

Medical schools have gained significant experience now to know the actual status of CBME post-implementation. A mind mapping process through a survey was actualised targeting two focussed groups at various medical colleges (MBBS), 1. Medical graduate students, and 2. Faculties. The students and faculty who took part in the process were already practising the "Competency-based medical curriculum. The research is based on a primary survey through a questionnaire prepared to determine the perceptions of students and faculty for this curricular design and implementation at medical institutions. Student and faculty perceptions on CBME were gathered with the help of two structured validated questionnaires. The questionnaire was designed to measure students'

perception, using 5-point Likert-scale questions that touched upon its implementation, teaching and learning methods, challenges, and difficulties faced when instituting the model.

2.1 Data collection

Data has been collected using an online survey tool administered in the English language via an online link emailed to the medical colleges. The majority of the sample was administered, and the survey was completed. Data were entered in an MS Excel spreadsheet.

2.2 Data analysis

Descriptive statistics was done to analyse the responses on CBME implementation. Python and Tableau were used for quantitative data analysis and visualisation. The results are presented in the form of Box plots (medians with interquartile ranges and proportions). Non-parametric tests of significance were used to compare the quantitative data. For paired data, the Spearman rank correlation test was applied to compare two groups that helped estimate the association between two variables. P values less than 0.05 were considered significant. Qualitative analysis was done by doing a content analysis of the responses obtained from close-ended questions to determine the important parameters. *Based on the CBME model, we have created a hypothesis based on three major objectives:*

- 1) CBME implementation "an advantage or not",
- 2) Implements CBME result in the Clinical and Professional development of undergraduate medical students, and last,
- 3) Importance of use of digital technology with CBME Implementation in the MBBS curriculum.

H₀ = there is an association between the two above mentioned variables

H₁ = there is no association between the two above two variables.

3. Results

With the help of descriptive data analysis, we were able to analyse that comprehensive data is not following the Gaussian distribution; most of the responses are pretty skewed. One of the main limitation for this is that responses we get from the students and faculty are majorly from the country's Western region compared to other parts. The table below shows that 70.72% of students from the western region have actively participated in the survey. Approximately 52.56% of the faculty from the western part have eagerly participated in the survey.

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970

The number of students who completed the survey



291

The number of faculty who completed the survey

Survey Response rate



92%



>90% student and faculty satisfaction

Student Perception

In a 5-point scoring system, students were asked to express their perception of CBME implementation. The performance of their institute in implementing the competencies in

Region	Count of Region for Faculties
Centre	4.44%
East	4.10%
North	11.60%
South	27.30%
West	52.56%

Region	Count for Region for Students
Centre	3.20%
East	1.24%
North	5.26%
South	19.59%
West	70.72%

the education process (pre-Covid and during the lockdown period (Table 1.) The descriptive analysis shows problems in using digital technologies, difficulty in infrastructure and equipment procurement, student satisfaction to online sessions, etc.

Among all the regions, South and Western region data is skewed because more responses were observed from both regions. For both students and faculty in the south region, data is right-skewed as more values are concentrated towards the lower side of the data, and quite wide variations can be seen towards the right side of the data. On the other hand, for the west region, data is left-skewed data, which indicates that most opinions are concentrated towards the right side, and more considerable variations are observed towards the left side of the data. Higher the responses mean higher the variation we have observed in the opinions. Thus, these observations were analysed with the help of boxplots. It helps describe the distribution of data for all the regions and provide information about the dispersion measures in the data. The Box plot technique splits the dataset into quartiles to find the median, upper quartile, lower quartile. It can remove the outliers. Median=summation of all values/n Upper quartile, UQ=median of the upper set; Lower quartile, LQ =median of the lower set; Box length, BL=UQ-LQ. Results from a coefficient analysis of non-parametric Spearman's rank correlation (Table 2.) indicate that significant factors positively

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influencing student satisfaction include adjustment, training, student-teacher interaction and competency development ($P < 0.05$).

Table 1. Perception of student and faculty on implementation of Competency-based medical education.

Statements	Students perception	Faculty perception
Foundation course/ faculty development programme	Helpful	Good enough, important
Clinical and professional development; problem-solving capabilities.	Extremely important/hard to achieve during the pandemic	Extremely important, highly influence a career of a medical graduate
Satisfaction level of resources available in the institute	Difficulty in adequate Infrastructure and equipment procurement	Difficulty in adequate Infrastructure and equipment procurement
Competencies such as certification of skills and use of digital instruments, clinical, interdisciplinary teamwork and system and problem-solving, etc.	Competent enough/ Overlapping in competencies	Trained enough/ Curricular contents are not vertically and horizontally aligned, therefore the competencies overlap.
Virtual sessions using simulations, videos and podcasts	Very Useful	Useful, satisfied with teaching tools and learning resources
Competency-Based Medical Education has some advantages over traditional learning - CBME can highly influence an Indian Medical Graduate).	Better than the older one	Advantageous They feel confident that CBME can highly influence an IMG.
NEXT exam for PG and licence to practice.	Very important, can be a tool for quality assurance	-
Adjustment to CBME	Agreed on they are adjusting to CBME	Somewhat adjusted but some felt unprepared
Give justice to the variation in disease burden of each state	-	Yes
CBME did justice during the COVID-19 pandemic.	Students learned through dictated teaching but the clinical and professional practices were hard to be achieved through online platforms.	No, lack of technical reach and infrastructural requirements hindered the online sessions.

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Box Plot below comparing two variables, (i.e. CBME model and Clinical and professional development; and CBME model and Use of digital technologies). The horizontal borders of each box represent the 1st and third quartiles of student and faculty satisfaction. Upper and lower whiskers represent the highest and lowest satisfaction for each cohort, respectively. Outliers were identified using the interquartile range (IQR) rule. Mean and median values are relatively close, thus indicating normal distribution. Using a Spearman rank correlation test, the perception of students and faculties for CBME implementation is significant ($p < 0.05$). The Spearman rank correlation coefficient is applied to find the strength of the link between two sets of variables.

Explanation 1. : Boxplots 1 and 2 shows that the median (IQR) of clinical and professional development with competency-based module for medical undergraduates was skewed. Spearman rank correlation test from student's opinions showed a negative correlation between these two variables, which is considerable. The negative correlation arises because of the inverse ranking of both variables. The p-value is $1.1532077124096975e-28$; which is significant as less than 0.05.

(Spearman Result (correlation=-0.3460126961282285, p-value=1.1532077124096975e-28). Therefore, we fail to reject the null hypothesis.

On the other side, there was a positive correlation with the value of 0.29, which clearly shows an association between the two variables, and the p-value is $7.381279773660598e-07$, which is far less than 0.05. Therefore, we can conclude that Clinical and Professional development is enhanced after implementing the CBME model. Again, we fail to reject the null hypothesis. When the retrospective respondent's scores were compared, there was a significant self-reported improvement in students' clinical and professional development after a competency-based curriculum.

(Spearman Result (correlation=0.29804495742803094, pvalue=7.381279773660598e-07

Both (students and faculty) the count of opinions is most likely following the normal distribution with which we can say that most of the students and teachers have the same reviews for this particular parameter. Boxplots 1 and 2 show that 95% of the student respondents admit that the CBME model is helping in enhancing their clinical and professional skills; even 98% of the faculty, mainly professors, feel that the CBME model is effectively strengthening the skills of the student.

Explanation 2.: Boxplots 3 and 4 show the median IQR for the use of Digital technology and the CBME model where a correlation coefficient value from the student's opinion is -0.24, which is considered. Furthermore, the p-value is $3.557828616200902e-14$ which is less than 0.05; thus, we can say that yes, there is an association between the two variables. However, the scope of improvement has also been observed. Thus, we fail to reject the null hypothesis.

Spearman Result (correlation=-0.24000301623065728, pvalue=3.557828616200902e-14)

In the same way, there is a high association between the two variables as per faculty's opinion, which is 0.30, and the p-value is $4.931423589445501e-07$, which is again less than 0.05. Hence, we conclude a considerable association between the two variables, failing to reject the null hypothesis.

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SpearmanrResult(correlation=0.30251511660712327, pvalue=4.931423589445501e-07)

Boxplots 3 and 4 conclude that 86% of the students think that there is scope for advancement in the use of digital technology with the implementation of the CBME whereas 95% of the teachers feel that the use of digital technology has been enhanced with this model.

According to the boxplots, we were able to find out that 95% of the students and 81% of the teachers felt that the CBME model has advantages over the traditional model.

Table 2. The boxplot shows the “count of opinions from each region of India for CBME model implementation as per “Students and Faculties”.

Figure 1 Boxplot for Student Opinion on Clinical and Professional Development

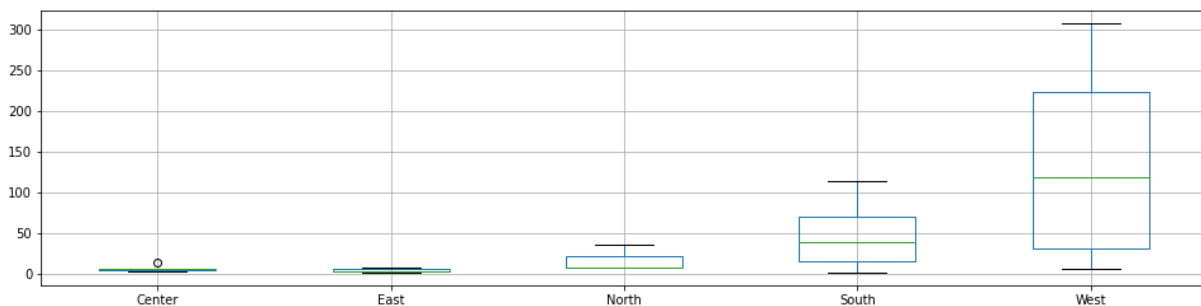


Figure 2 Boxplot for faculty Opinion on Clinical and Professional Development

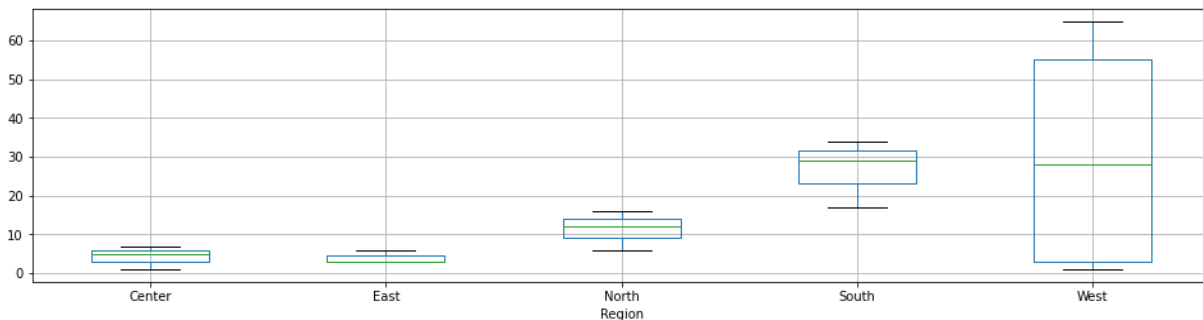


Figure 3 Boxplot for Students' Opinion on Use of Digital Technology

Figure 4 Boxplot for faculty Opinion on Use of Digital Technology

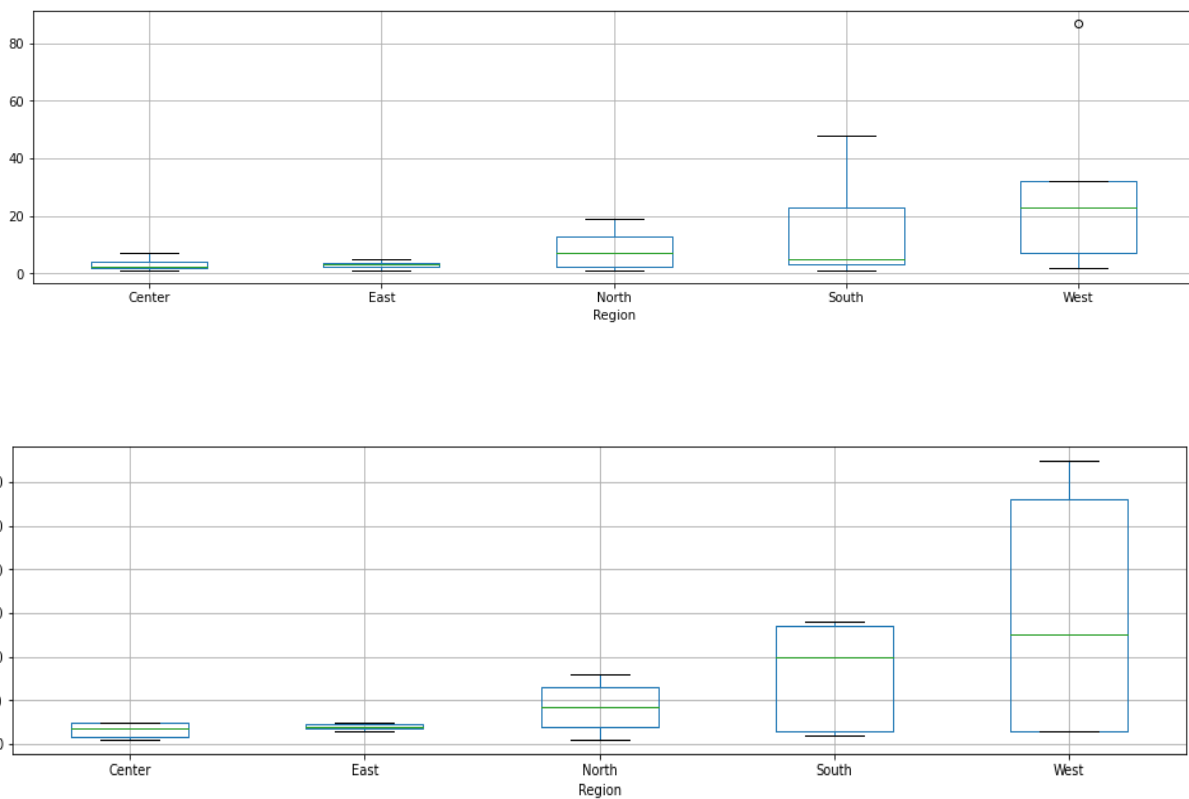


Figure 5 Boxplot for Student Opinion on CBME model implementation

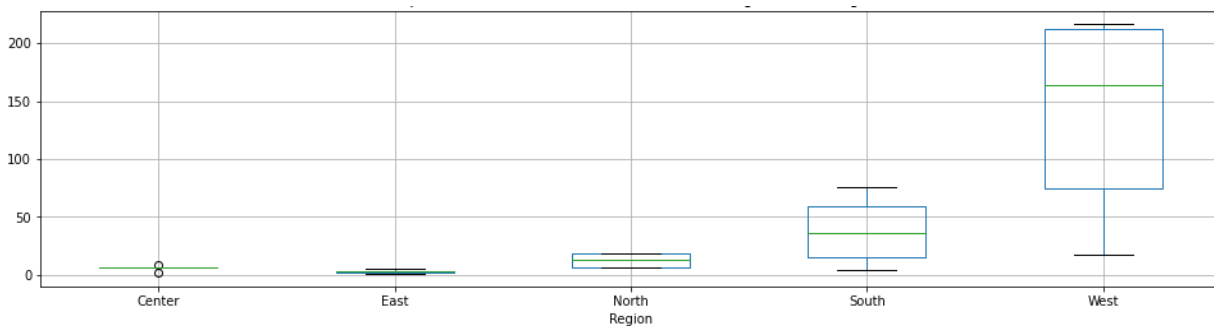
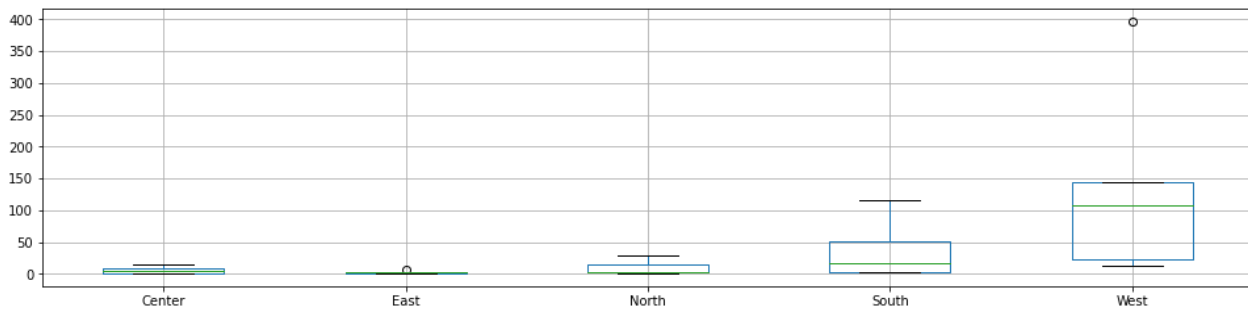


Figure 6 Boxplot of faculty Opinion for CBME model implementation

3.1 Major Challenges

Implementation challenges included achieving support and consent from students and faculty to integrate competency-based activities into courses. It was critical to train faculty and students in multiple sessions to accomplish this task. The tipping point occurred after the second year of CBME implementation after faculty and students had had a chance to witness the learning activities in class and give positive feedback for this implementation.

For students and faculty members to fully utilise the CBME model, they must overcome the challenge posed that digital learning, evaluation, clinical and professional training, and personal development were earlier not the cornerstone in medical education. The research has established that the barriers to medical education are due to time management, poor infrastructure and equipment requirement, overlapping of competencies, lack of planning and institutional strategies,

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a general uncooperative attitude towards the shift in education method and lack of clinical and professional development.

1. Time Management

Proper coordination is needed for interactive sessions with time management. Results show that students and faculty reported time management issues. Integration is challenging due to different weightage, time allotments of various subjects, maintaining a timetable. During the pandemic, a sudden transition from classroom learning to online teaching required much time and work from faculty. Teachers had to find time to plan lesson plans, write content suitable for clinical practice to fit online sessions, overcome technical problems and find ways to keep the students engaged in online lectures and adequately manage to understaff. All these required much paperwork and was time-consuming. In the same way, students also found it challenging to manage continuous lectures without rest and focus.

2. Infrastructural and equipment difficulties

In CBME, self-directed learning and skill training is emphasised. Active learning, resources and equipment are required for student engagement. These include problem-based studies, simulators for real-life training, simple virtual reality sessions, lecture theatres, group discussion and tutorials, libraries, laboratories, etc. However, the research highlighted the lack of infrastructure/resources in medical schools in India. Both the students and faculties face difficulties due to the lack of infrastructure and equipment difficulties at their institutes. Apart from that, during Covid 19 pandemic, limited availability of digital resources for students and faculties, such as the limited capacity to develop online teaching material, poor technical reach, and lack of digital devices such as laptops or mobiles and poor internet connections were highlighted. Therefore, there may be certain hurdles in setting up an appropriate infrastructure for its implementation.

3. Lack of Clinical and professional development and student engagement

Many students faced the problem of Clinical and professional development during the pandemic. Lack of interactive sessions with their faculties made them lose focus; even the excitement from clinical practice in the medical field had also diminished. Interactive sessions or community posting was another challenge during the pandemic. During the online classes, both students and faculty faced technical glitches and students got unsatisfactory development of competencies, majorly clinical skills. Thus, lack of interactive sessions, lack of professional development lead to students' disengagement.

4. Overlapping of competencies caused problems

Lack of proper interdisciplinary coordination leads to difficulty in framing a timetable for integrated teaching sessions. Multiple subject sessions fall simultaneously due to different weightage. Overlapping of time allotted to each subject create redundancy. Apart from that, integration methods between various departments in online teaching were not effective, also creating overlapping competencies.

3.2 Solutions and Recommendations

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1. A capacity-building program should be introduced to train all the faculties for the implementation of digital learning. Digital learning is found to be the most helpful competency in CBME. The program should effectively help the faculty to meet the online teaching requirements.
2. Pre-recorded sessions and the study material prepared in advance and uploaded online could be a time saver and require less paperwork. In addition, the study material is communicated to students in advance, which may help students during technical dropout. Students from financially disadvantaged groups should access mobile devices and the internet to overcome the lack of technical reach.
3. Students require resources to improve their performance and to make them more self-directed. It should be a peer responsibility of institutions to provide students and faculties with the resources prioritised for digitalisation and the CBME model.
4. There should be interactive online classroom sessions, which allow learners to interact with the faculty and other classmates during a clinical discussion. Group discussions, e-labs, virtual reality sessions through video games, virtual chat rooms can be used for better interactive clinical training.
5. Proper evaluation and monitoring by the institutes thorough mini assignments after each lecture may increase the student engagement, such as assignments to prepare a diagnosis and treatment for a virtual patient. This feedback might enhance their thought process of prompt response, problem-solving, and analytical skills.
6. Medical institutions must provide transportation and social distancing facilities for students for Community Medicine wherever feasible. Further, a virtual tour could be provided to the students for the time being.
7. Strategic planning by the institutions is the need of the hour; this, in turn, would promote the model's sustainability. Further, scope of research is to collect feedback on tools used for the teaching and learning, availability of resources/equipment and resources at the institutes, challenges in digital classrooms, and how to overcome the overlapping of competencies. Timely feedback from the students and faculty and analysis of the feedback will improve the effectiveness of the CBME model.

3.3 Discussion

CBME concentrates on many aspects of a medical graduate, covering roles such as a clinician, leader and member of the healthcare system, communicator, lifelong learner and professional. The primary purpose of CBME is to make competent medical graduates with quality assurance. Since the implementation is new that students and faculty may not be competent enough to evaluate CBME. However, in terms of the quality of the delivery, resources, adjustment, knowledge enhancement and development in competencies, they can provide good feedback. Therefore, we needed to take the implementation challenges and solutions into account when analysing CBME. Our study shows that a Foundation course or faculty development program is worthwhile. Students and faculty are adjusted to CBME as they agree that they are technically sound and can use them. However, some feel unprepared for CBME core areas such as medical knowledge, clinical skills, professionalism, evidence-based practice, interdisciplinary teamwork and systems. Virtual reality sessions in the institute are the best to handle real-life situations. They firmly believe that Competencies made are not difficult to adopt in the learning environment. The point of view on

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NEXT UG exams can be a tool for quality assurance of doctors as a method for continual medical education. Based on our findings, clinical and professional development and problem-solving capabilities in learning are extremely important. Both the students and faculty felt that CBME implementation focuses on an essential parameter, "use of digital technology", especially during the covid19 pandemic. This is because; education system was hampered during the lockdown. The use of digital technology has helped a lot in keeping up the education system in all medical institutes.

On the other hand, there are some complexities such as adopting teaching methods that emphasise skills development and reference testing and evaluation. Clinical practices were severely affected during the period of the pandemic. One of the reasons was the lack of infrastructure and equipment availability, and the other was that the curricular contents which were not vertically and horizontally aligned and integrated. Therefore, the competencies overlapped. Apart from that, issues such as time management, paperwork, and understaffing were observed during the pandemic.

Positive outcomes were noticed with some recent advancements in education and technology. On the other hand, there were also varied opinions of students and faculty. All the regions appreciate digital technologies except in the West, where there were broad opinions. However, it was identified that there is a scope for improvement in clinical development and its functioning. Yes, CBME gives justice to an Indian medical graduate to become a competent doctor. However, there is a scope for further improvement to planning and strategies for CBME at the institutes.

In total, the survey results suggest that CBME is an effective pedagogy; however, there is a lack of empirical investigation in the current literature quantifying the effects of CBME implementation on student/ faculty outcomes and program success reliably and validly. Through this research, student perception and faculty perception are essential for improving CBME operations and functions. This review summarised the key findings, challenges in the medical, educational system while offering solutions to solve these challenges. Despite these barriers, it can be clearly stated that CBME is advantageous over traditional education methods. Institutions should encourage their faculty to undertake skills training and motivate students to actively participate in sessions and develop competencies to become successful Indian medical doctors. Yes, it is challenging, but in long term will help in maintaining the sustainability of this new model.

4. Conclusion

This sudden transition of medical education curriculum from basic medical knowledge to core competencies such as better clinical skills, empathy, professionalism, altruism, communication skills, ethics, and humanities and a focus on health systems presents unique challenges for the faculty and the student. The research highlighted that CBME implementation in medical institutions put massive pressure on faculty to deliver better learning than traditional learning. The current most prominent challenge is the transformation of offline classrooms to the online and delivering the same content on digital platforms. However, time management, interactive classrooms and clinical and professional development were problematic during the pandemic. Barriers to implementation such as lack of technical reach, infrastructure and equipment needs, overlapping competencies, and use of the digital platform can be improved with solutions detailed in this article. Indian medical education is currently facing many advantages as well as challenges in the system. Faculty and students can gradually become highly competent Indian health care professionals; however, it is achievable if the institutes start proper planning and strategies for implementation. Despite all the

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challenges, CBME is gaining momentum in the Indian pandemic, helping in giving insight into the role and advantage of digital technology in medical education.

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Appendix

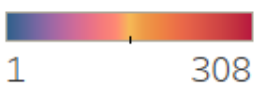
Table 1. For a clear understanding, cross-tables were made to see the variations in the data.

Table 1. Count of opinions of students for CBME model Implementation (1 Disagree strongly, 2 Disagree, 3 Neither Agree nor Disagree, 4 Agree and 5 Strongly Agree)

Region	1	2	3	4	5
Center	1	1	10	15	4
East		1	2	7	2
North	1	2	16	29	3
South	2	2	18	116	52
West	14	23	145	397	107

Region	1	2	3	4	5	6	7
Center	3	7	1	2		1	87
East	3	5	3	1			
North	11	19	3	1			
South	23	48	5	3	1		
West	32	87	23	7	2		


Table 2. Count of opinions of Teachers for CBME model Implementation (1 Strongly Agree, 2 Agree, 3 Neither Agree nor Disagree, 4 Disagree and 5 Strongly Disagree)

Region	Clinical and professional develop..					Count of Clinic..
	1	2	3	4	5	
Center	13	6	5	4	3	
East	1	8	3			
North	36	8	7			
South	113	56	20		1	
West	308	223	119	30	6	

Note: Satisfaction level, across the regions, was high; the median (IQR) satisfaction scores are 2 (1, 2 and 3).

Table 3 Students' opinion for Clinical and Professional Development (1 Extremely Important, 2 Very Important, 3 Important, 4 Somewhat Important and 5 Not Important)

Table 4 Teachers' opinion for Clinical and Professional Development (1 Extremely Important, 2 Very Important, 3 Important, 4 Somewhat Important and 5 Not Important)

Region	Clinical and professional develop..					Count of Clinic..
	1	2	3	4	5	
Center	7	5	1			
East	6	3	3			
North	16	12	6			
South	34	29	17			
West	65	55	28	3	1	

Note: Satisfaction level, across all regions, was high; the median (IQR) satisfaction scores are 2 (1, 2 and 3).

Region	Use of digital technologies					Count of Use of..	
	1	2	3	4	5		
Center	5	5	2	1		1	65
East	3	4	5				
North	12	16	5	1			
South	28	27	20	3	2		
West	65	56	25	3	3		

Table 5 Students opinion for Use of Digital Technology(1 Extremely Important, 2 Very Important, 3 Important, 4 Somewhat Important and 5 Not Important

Region	Use of digital technologies					Count of Use of..	
	1	2	3	4	5		
Center	7	7	9	6	2	1	217
East	3	3	5	1			
North	19	19	6	7			
South	76	59	36	15	4		
West	217	212	164	75	18		

Table 6 Faculty opinion for Use of Digital Technology (1 Extremely Important, 2 Very Important, 3 Important, 4 Somewhat Important and 5 Not Important