

Knowledge and Perception of Faculty towards Competency Based Medical Education: A Cross-sectional Study

MANISHA UPADHYAY¹, SANDEEP SHRIVASTAVA², MOHAMAD ARSHAD³, ANKIT SRIVASTAVA⁴, ANAND BIHARI⁵

ABSTRACT

Introduction: Competency-Based Medical Education (CBME) is newly transformed education system in India to enhance five major qualities in doctors like, clinician, communicator, leader, life-long learner and professional. The CBME was launched in 2019 in all Medical Institution of India to uniform one's knowledge, skills and a new domain Affection but this newly reformed system need hike in manpower, infrastructure, budget and technology which is a dilemmatic thought.

Aim: To perceive the acceptance of the faculty participants about CBME system and also to explore various domains including the efficiency of training orientation/sensitisation, sufficiency of knowledge about CBME, infrastructure, manpower and finance required and strategies or implementation.

Materials and Methods: This cross-sectional study was conducted in Government Medical College, Azamgarh, Uttar Pradesh, India, from January 2020 to July 2020. Total 60 participants were included in the study. The study used a

validated set of questions about CBME. The assessed domains were competency definition, difference between traditional and new curriculum, merits and demerits of CBME, stages of competence and strategies to implement. Descriptive statistics were used to describe the data using Microsoft Excel.

Results: Total 60 (39 trained+21 untrained faculty) were included in the study, with maximum 28 (46.67%) were aged between 30-40 years {males were 38 (63.33%) and 22 (36.67%) were females}. Total 37 faculties knows "what is competency", 37 participants responded for difference between CBME and traditional Medical education, 22 participants responded for stages of competency, 22 responded on steps and strategy for its implementation, 38% answered on merits and demerit of current curriculum.

Conclusion: The sufficiency of knowledge of CBME can be easily judged by proportion of responses of open ended questions which was not more than 50% faculty for all questions. Closed ended questions have suggested that infrastructure, manpower and finance are not up to mark to implement CBME.

Keywords: Curriculum implementation, Outcome based approach, Revised medical education programme

INTRODUCTION

Competency-Based Medical Education (CBME) is newly transformed education system in India to enhance five major qualities in doctors like, clinician, communicator, leader, life-long learner and professional. The CBME is an outcome-based approach; the emphasis is given on the end product rather than the educational process. CBME focuses on "mastery learning" to help the learner acquire competencies needed for doing the professional tasks and duties in healthcare; hence it is better and more efficient from traditional education [1]. As the learning has changed likely assessment is also reframed in terms of robustness and multifaceted which facilitates a process that can synthesise the results of longitudinal and developmental assessment into a more comprehensive and holistic evaluation [2].

To change from traditional to new competency based curriculum it becomes very important to evaluate its perspectives from all the horizons. Inadequacy of faculty and acceptance of various component of CBME as reflective learning, early clinical exposure, elective posting integrating various Departments vertically and horizontally are varying [3]. Various Previous studies have been conducted on CBME and its change from Traditional curricula and merits with demerits [1,4] but few studies [5,6,7,8] are done on the survey of its acceptance, awareness and challenges e.g. infrastructure, manpower, finance etc. regionally. The Curriculum Implementation Support Program (CISP II): Second year report has clearly mentioned about number of regional and nodal centres with trained faculty which reflect the seriousness of health policy makers about launch CBME [9]. To explore about faculty perception about CBME, the present study was planned in Uttar Pradesh at various medical colleges and assess the knowledge of the participants about competency-based medical education and its various aspects.

The domains of perception were efficiency of training orientation/sensitisation, sufficiency of knowledge infrastructure, manpower and finance required for CBME implementation and assess their strategies to implement it.

MATERIALS AND METHODS

This cross-sectional study was planned at Government Medical College, Azamgarh and the duration was from January 2020 to July 2020. The study was conducted after approval from Institutional Ethical Committee (IEC number was 1664/GMCA/IEC/2019).

Inclusion criteria: Only faculties were included in the study were assistant professor, associate professor and professor.

Exclusion criteria: Junior residents, tutors/demonstrators and senior residents were excluded.

Study Procedure

A descriptive qualitative study of six months duration was conducted among the faculty members of the different Medical Colleges. Non probability purposive sampling was employed in the study. Free listing was done initially to elicit the views of faculty members to meet the intended objectives.

It was conducted on total 60 participants out of those 39 were trained with Revised Medical Education Technology (R-MET) and Curriculum Implementation Supporting Program (CISP) for implementation of new curriculum based teaching (CBME) and 21 were untrained. The study was conducted on medical faculty from seven medical Colleges of Uttar Pradesh.

The self-administered questionnaire which was validated by two faculties involved in Medical Education Unit (MEU) at Institutional

level after discussion with trained and untrained faculties and the questions were focusing on knowledge, merits and demerits of CBME, its implementation, rationale with expected outcome. The questions were distributed through email and responses were collected. The questionnaire includes 15 closed ended questions and five open ended questions which were devised by authors. While interpreting closed ended questionnaire, in question number 1 and 13, A,B,C are decoded along the questions only and in all other questions A,B,C are Yes, No, No idea respectively. The decoded data were entered in excel sheet and responses counted in tabular form.

STATISTICAL ANALYSIS

Descriptive statistics were used to describe the data, which were represented as graphs and frequency distributions using MS Excel. Qualitative data was analysed using qualitative approach.

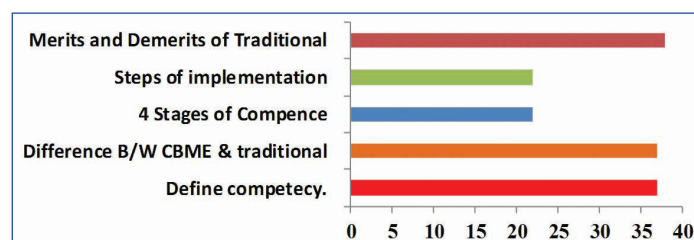
RESULTS

The maximum faculty 28 (46.67%) were aged between 30-40 years with male 38 (63.33%) and 22 (36.67%) were females. Total 45 faculty members were from Preclinical Department [Table/Fig-1].

Variables	Frequency (n)	Percentage (%)
Gender		
Male	38	63.33
Female	22	36.67
Age (years)		
30-40	28	46.67
41-50	17	28.33
51-60	15	25
Department		
Preclinical	45	75
Clinical	15	25
Total	60	100

[Table/Fig-1]: Demographic distribution of the participants.

Out of 60 cases, multiple responses for competency based medical education were given. It concluded that 37 (61.67%) faculties know what is competency, 37 (61.67) participants responded for difference between CBME and traditional medical education, 22 (36.67) Participants responded for stages of competency, 22 (36.67%) responded on steps and strategy for its implementation, 38 (63.33%) answered on merits and demerit of current curriculum [Table/Fig-2].



[Table/Fig-2]: Faculty responses of open ended questions.

Responses of open ended questions obtained from faculties:

1. "Define Competency". Competency is an expertise or skill of acceptable norms/standards developed through a predetermined process of learning and practice OR observable ability of a health professional, integrating multiple components such as knowledge, skills, values and attitudes OR competency is defined on the ability to do something successfully and efficiently.
2. How the CBME is different from traditional medical education. [Table/Fig-3].

Merits	Demerits
Tested and tried method of teaching	Faculty portion in medical college is also shaking, so there is shortage of staff in various departments.
It is highly manageable particularly when we are dealing with the large group of students.	Small group teaching required a lot of staff in medical college.
Daily clinical exposure.	Outdated information and same questions asked.
The implementation of traditional curriculum is familiar to the faculty.	No integration of teaching as well as in textbook is demerit of current curriculum.
Skill oriented	Lack of uniformity.

[Table/Fig-3]: Merits and demerits of new curriculum.

3. Explain four stages of competence (learning).
 - i. Unconscious incompetence: The individual does not understand or know how to do something and does not necessarily recognise the deficit.
 - ii. Conscious incompetence: Though the individual does not understand or know how to do something, he/she does recognise the deficit, as well as, the value of a new skill in addressing the deficit.
 - iii. Conscious competence: The individual understands or knows how to do something. However, demonstrating the skill or knowledge requires concentration.
 - iv. Unconscious competence: The individual has had so much practice with the skill that it has become 'second nature' and can be performed easily [10].
4. What are steps and strategies for implementation.

Identification of competences, identification of the content and program organisation, planning for assessment and program evaluation OR assessment program with emphasis on WPBA (Work Place Based Assessment) methods and an outcome evaluation program is required as the final step of CBME implementation.

5. View point on merits and demerits of current curriculum. [Table/Fig-4]

Traditional medical education	Competency-based medical education
Teacher drives the educational process.	Learner drives the process of education.
Teacher is responsible for the content of education	Both students and learner decide the content.
The school and instruction are designed to deliver a single curriculum to all students based on age.	Districts and school are organised with greater flexibility to provide instruction and learning opportunities to meet students where they are and take advantage of anytime, anywhere learning.
Typical assessment tool is single subjective measure.	Typical assessment tool is multiple objective measures (evaluation portfolio).
Traditional learning gives a course which tells them what they are expected to learn about.	CBME focus on outcome of learning, it tells what learners are expected.

[Table/Fig-4]: Difference between traditional and CBME.

Response of close ended questions: The results demonstrated, that, 36 (60%) faculty supported the combination of CBME and traditional curriculae with less interest to implement it and even they say that it overburden the faculty academically and the need of increment in infrastructure and finance to launch it. Out of 60, 51 (85%) faculties are aware about expected competencies on indian medical graduate and agreed that CBME will improve medical education but around 31 (51.6 %) faculty think, that they are not prepared for implementation but at the same time 45 (75%) have been noticed that CBME is

beneficial for students. About 53 (88%) faculties know their responsibility in CBME and support alignment and integration. About technology, many faculties don't know about netiquette and 50-50 responses for virtual class acceptance. In question 13, there are mixed opinion about teaching-learning methods, 30 (50%) faculty feels Power Point (PPT) presentation, 13 (21.6%) chalk and talk and 17 (28.3%) has given its depend upon topic [Table/Fig-5].

S. No.	Questions	A	B	C	Total (60)
1	Which method is better traditional or competency based or Hybrid (A,B,C respectively)?	6	18	36	60
2	Are you interested in CBME implementation?	50	10	0	60
3	Is there a need for CBME implementation in medical education in India?	48	7	5	60
4	Will CBME implementation increase academic workload over faculty?	43	9	8	60
5	Is there a need for increase in finance and infrastructure for CBME implementation?	54	2	4	60
6	Are you aware of expected competencies of an Indian medical graduate?	51	6	3	60
7	Is there any chance in improvement of medical education from CBME?	45	6	9	60
8	Are they fully prepared for implementation of CBME?	19	31	10	60
9	Is CBME fruitful for medical student?	45	6	9	60
10	Is CBME beneficial for teachers?	39	16	5	60
11	Do you know about your role as faculty in CBME curriculum?	53	5	2	60
12	Do you feel that integration and alignment will improve Medical Education?	53	4	3	60
13	Which traditional learning method will you prefer for teaching e.g. ppt presentation, Chalk and Talk or it depend on topic (A,B,C respectively)	30	13	17	60
14	Do you know about Netiquette?	32	26	2	60
15	Do you feel that Smart class/Virtual classes can replace the traditional teaching?	29	26	5	60

[Table/Fig-5]: Results for closed ended questions.

DISCUSSION

In the present study, it was observed that out of 60 cases, multiple responses for competency based medical education were given. For the open ended questions the number of responses were varies like 37 faculties knows "what is competency", 37 for difference between CBME and traditional medical education, 22 participants for stages of competency, 22 responded on steps and strategy for its implementation, 38% answered on merits and demerits of current curriculum. The knowledge on stages of competency and strategy to implement was lesser. Frank J et al., had proposed the significant implications for the planning of Medical curriculae to reshape it [4]. Modi J et al., emphasised to promote orientation and training for faculty regarding entrustment and assessment part of CBME which is actually crucial to make CBME strong [11]. The positive response regarding CBME is shown in study by Telang A et al., [12] whereas, the current article has shown less positive response to implement because of low manpower, infrastructure and finance. Rustogi S et al., reported the ratio of trained and untrained faculties and gathered various suggestions about small group teaching, topic of electives, mode of seminars etc. [6].

According to Teli A et al., coordination between the preclinical, para clinical and clinical departments and proper lesson plan are factors responsible for effective implementation whereas inadequate faculty training and unanticipated holidays are the challenges for implementation [7]. Study by Shrivastava S and Shrivastava P,

revealed about entrustable professional activities and their assessment tools are crucial areas in CBME [8]. To implement the CBME, the competency for faculty also need to be defined and they should progress from 'knows' level to 'does' level through longitudinal faculty development programm as mentioned by Nagarala M and Devi R in their study [13]. Study by Selva P and Rithikaa M, discussed a genuine view on its need at global and national level and concluded, that, gradual acceptance and this time taking process will evolved into robust change in quality of medical education [14]. To solve issues of CBME, there is lot to be done for faculties in the form of various Faculty Development Program (FDP) and motivate them.

Limitation(s)

Lesser number of participants and compilation of responses of open ended questions are two main limitations of the present study for which improvement is required.

CONCLUSION(S)

The above results showed that, still there is lack of knowledge and awareness about CBME which is alarming because until we are not thorough, we cannot implement it successfully. The training program as CISP or revised MET has definitely improved quality of faculty, but still there is much more to be done to motivate. The sufficiency of knowledge of CBME can be easily judged by proportion of responses of open ended questions which was not more than 50% faculty for all questions. Closed ended questions have suggested that infrastructure, manpower and finance are not up to mark to implement CBME. Keeping all above points in mind, faculty must assess their respective available set-up and start bridging the situation between "what we have and what we don't have".

Acknowledgement

Authors would like to thanks all faculty members who supported the present research, junior residents and non teaching staffs of Anatomy Department, Government Medical College, Azamgarh, Uttar Pradesh, India.

REFERENCES

- [1] Bhutani N, Arora D, Bhutani N. Competency-Based Medical Education in India: A Brief Review. *International Journal of Recent Innovations in Medicine and Clinical Research*. 2020;2(2):64-70.
- [2] Holmboe E, Sherbino J, Long D, Swing S, Frank J. The role of assessment in competency-based medical education. *Medical Teacher*. 2010;32:676-82.
- [3] Ramanathan R, Shanmugam J, Sridhar M, Palanisamy K, Narayanan S. Exploring faculty perspectives on competency-based medical education: A report from India. *Journal of Education and Health Promotion*. 2021;10:01-06.
- [4] Frank J, Snell L, Cate O, Holmboe E, Carraccio C, Swing S. Competency based Medical Education: Theory to practice. *Medical Teacher*. 2010;32(8):638-45.
- [5] Shah N, Desai C, Jorwekar G, Badyal D, Singh T. Competency Based Medical Education: An overview and application in Pharmacology. *Indian Journal of Pharmacology*. 2016;48:S05-09.
- [6] Rustogi S, Mohan C, Verma N, Nair B. Competency-based Medical Education: The Perceptions of Faculty. *Journal of Medical Academics*. 2019;2(1):01-05.
- [7] Teli A, Harakuni S, Kamat C. Quantitative and qualitative evaluation of perception of medical faculty toward competency-based medical education for undergraduate curriculum. *BLDE University Journal of Health Sciences*. 2021;6(2):143-49.
- [8] Shrivastava S, Shrivastava P. Qualitative study to identify the perception and challenges faced by the faculty of community medicine in the implementation of competency-based medical education for postgraduate students. *Family Medicine & Community Health*. 2019;7:01-06.
- [9] National Medical Commission. Curriculum Implementation Support Program (CISP II): Second Year Report, 2021 (pp. 1-53).
- [10] Flower J. four stages of competencies, in the mush: *Physician Exec*. 1999;25(1):64-66.
- [11] Modi J, Gupta P, Singh T. Competency-Based Medical Education, Entrustment And Assessment. *Indian Pediatr*. 2015;52:413-20.
- [12] Telang A, Ratho S, Supe A, Nebhinani N, Mathai S. Faculty views on competency-Based medical education during mentoring and learning web sessions: An observational study. *Journal of Education Technology in Health Sciences*. 2017;4(1):09-13.

[13] Nagarala M, Devi R. Faculty development programs for implementing competency based medical education in India: challenges and opportunities. International Journal of Community Medicine and Public Health. 2021;8(6):3163-66.

[14] Selva P, Rithikaa M. Perspectives of Students and Teaching Faculty Members towards the New MBBS Curriculum in a Tertiary Care Hospital in Chennai. International Journal of Current Research and Review. 2021;13(8):120-26.

PARTICULARS OF CONTRIBUTORS:

1. Professor and Head, Department of Anatomy, Government Medical College, Azamgarh, Uttar Pradesh, India.
2. Professor and Head, Department of Orthopaedics, Jawaharlal Nehru Medical College, Wardha, Maharashtra, India.
3. Associate Professor, Department of Ophthalmology, Government Medical College, Azamgarh, Uttar Pradesh, India.
4. Assistant Professor, Department of Anatomy, Government Medical College, Azamgarh, Uttar Pradesh, India.
5. Statistician Cum Assistant Professor, Department of Community Medicine, Government Medical College, Azamgarh, Uttar Pradesh, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Anand Bihari,
Flat No. F3, Type-III, Block-I, Government Medical College,
Azamgarh, Uttar Pradesh, India.
E-mail: anandbhu05@gmail.com

PLAGIARISM CHECKING METHODS: [Jain H et al.]

- Plagiarism X-checker: Jan 17, 2022
- Manual Googling: Feb 11, 2022
- iThenticate Software: Apr 23, 2022 (18%)

ETYMOLOGY: Author Origin

AUTHOR DECLARATION:

- Financial or Other Competing Interests: None
- Was Ethics Committee Approval obtained for this study? Yes
- Was informed consent obtained from the subjects involved in the study? Yes
- For any images presented appropriate consent has been obtained from the subjects. NA

Date of Submission: Jan 15, 2022

Date of Peer Review: Feb 21, 2022

Date of Acceptance: Apr 14, 2022

Date of Publishing: May 01, 2022