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Exploring the learners' perspectives on competency-based medical education

Rashmi Ramanathan, Jeevithan Shanmugam¹, Sridhar Magadi Gopalakrishna², Kalaniti Palanisami³, Seetharaman Narayanan¹

Abstract:

BACKGROUND: A novel innovation in medical education was initiated by the Medical Council of India after 21 years. Competency-based medical education (CBME) is an effective outcome-based strategy, which requires integration of knowledge, attitude, skills, values, and responsiveness. The aim was to assess the students' perspectives on competency-based medical curriculum.

MATERIALS AND METHODS: This cross-sectional descriptive study was conducted among 1st year MBBS students (2019–2020 batch). A validated questionnaire was administered through Google link among phase I medical students of various medical colleges across India by multistage sampling.

RESULTS: A total of 987 students from 74 medical colleges in India responded. Nearly three-fourths opined that foundation course (FC), attitude ethics communication module, and early clinical exposure were necessary. Horizontal integration was more appreciated to vertical integration. Maintaining log books was perceived as time-consuming and cumbersome.

CONCLUSION: The CBME when meticulously adopted will inspire student enthusiasm for learning. Few reforms such as curtailing the duration of FC, diffuse sessions on stress and time management, better synchronized vertical integration, and an exemplary implementation of adult learning techniques can be undertaken.

Keywords:

Alignment, attitude ethics communication, competency-based medical education, early clinical exposure, integration

Department of Physiology,
KMCH Institute of Health
Science and Researches,
Coimbatore, Tamil Nadu,
India, ¹Department of
Community Medicine,
KMCH Institute of Health
Sciences and Research,
Coimbatore, Tamil Nadu,
India, ²Department of
Biochemistry, KMCH
Institute of Health
Sciences and Research,
Coimbatore, Tamil Nadu,
India, ³Department
of General Medicine,
KMCH Institute of Health
Sciences and Research,
Coimbatore, Tamil Nadu,
India

Address for correspondence:

Dr. Jeevithan
Shanmugam,
Department of Community
Medicine, KMCH Institute
of Health Sciences and
Research, Coimbatore,
Tamil Nadu, India.
E-mail: dr.jeevithan@gmail.com

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Introduction

The Medical Council of India (MCI) is the apex statutory body for establishing standards of medical education. In alignment with the global movement toward competency-based learning, the MCI had undertaken a comprehensive revision of the undergraduate medical curriculum, after the last amendment done in 1998. The new curriculum titled "Competency Based Undergraduate Curriculum for the Indian Medical Graduate" is being implemented across the country, from the academic year 2019 to 2020.^[1]

Competency-based medical education (CBME) is an approach to ensure that the

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graduates attain the competencies required to discharge their professional duties as health-care personnel. It de-emphasizes time-based training and promises greater accountability, flexibility, and learner-centeredness.^[2] This innovative curriculum has introduced many new curricular elements to the existing undergraduate medical training.

The Indian Medical Graduate (IMG) is envisaged as a "five star doctor" who should perform the roles of clinician, communicator, leader and team member, lifelong learner, and a professional.^[3]

The CBME curriculum document lists 2949 outcomes (competencies) to be mastered by the undergraduates along with suitable

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teaching–learning (TL) and assessment methods. The shift from knowledge accumulation to skill acquisition is considered as the pivot of the new undergraduate curriculum. Alignment and integration among different disciplines is one of the core strategies in implementing the new curriculum.^[4-6] New curricular elements include the foundation course (FC), early clinical exposure (ECE), attitudes, ethics and communication (AETCOM), elective postings (EP), alignment and integration, clinical clerkships, and more. Incorporation of structured feedback, maintenance of log books are other notable features of the CBME.^[4-9]

Faculty preparedness and internalization of the new initiative have been heterogeneous. In spite of multiple rounds of curriculum implementation support programs, the rollout has reportedly not been uniform across the nation.^[3,10] The current batch of medical students are the very first to undergo training as per the revised curriculum.

New educational roles of the young medical aspirants: instead of passive listening, students must take personal responsibility for learning by adopting self-directed learning (SDL) methods (library/on-line access), performing under observation in skills laboratory and, encountering real and simulated patients. The learner must demonstrate and document the evidence of acquisition of competency.^[11]

Readers may find it more confounding to envisage, despite these much hyped efforts, whether the new guidelines fulfill the societal and patient needs. The upcoming change in medical education motivated us to get cumulative feedback from students with the aims to assess the learners' perspectives and opinions regarding the new curriculum, discuss its advantages, limitations, and suggest future directions to make undergraduate medical education more relevant and learner-centric.

Materials and Methods

This cross-sectional study was conducted among 1st year MBBS students (2019–2020 batch), between February and March 2020 after obtaining the Institutional Ethics Committee clearance. A semi-structured questionnaire (including both open- and closed-ended questions), eliciting the learners' perception on various facets of new curriculum was developed. The questionnaire was validated for its feasibility of content, construction, and language by three experts in the field of medical education. A pilot study was conducted to validate the questionnaire and eliminate all ambiguous words. Majority of the questions were framed on a 5-point agree-disagree Likert's scale. Data collection was done through Google forms online survey platform. Multistage random sampling method was adopted.

Initially, of the total 542 medical colleges in India, excluding standalone PG institutes and those who have applied for recognition, around 420 were listed. In the next stage, 74 medical colleges were selected by simple random sampling using lottery method. In the last stage, the questionnaire was mailed to all the 1st-year students of these 74 medical colleges and universal sampling (all those who responded to the invitation and filled the questionnaire) was adopted. Thus, responses of a total of 987 students were included in the study for the compilation and final analysis.

A scoring system was developed based on the responses. The maximum score for the positive response was given five points and the next better response was given a score of four and so on. The overall total score was calculated for each respondent and also for each of the subcomponents such as FC, adult learning, integration, assessment, and AETCOM.

An arbitrary scale was developed to categorize the responses obtained from the students, namely negative attitude (total score in each category <40%), neutral attitude (41%–60% of the total score), and positive attitude (>60% of the total score) toward the concept.

Responses obtained in Google forms were exported and analyzed in Microsoft Excel[®]. Responses to the questions were expressed as percentages and tabulated.

Results

Among the total 987 respondents, 514 (52.1%) were from government medical colleges and 446 (45.2%) were from private medical colleges, while 27 (2.7%) did not mention their institutions' affiliation.

Overall, three-fourth (75.4%) of the participants agreed that the FC was necessary at the start of the MBBS course. Among the different components of the FC, basic life support training and field visits evoked very high positive responses (93.6% and 89.9%), while IT/computer skills sessions evoked the least (43.1%) positive response among the students. The responses of the participants for the different components of the FC, on a five-point Likert's scale are depicted in Table 1.

The newer curricular elements such as ECE (89.2%), small group teaching (73.1), SDL (58.3%), and reflective learning (48.2%) evoked differing levels of acceptance among the participants as detailed in Figure 1.

Figure 2 shows three-fourths of the participants agreed that attitude, ethics, and communication (AETCOM) training must start from Phase I MBBS itself. Though the participants have not experienced EP, 62.6% felt that it would be a good initiative.

Table 2 reveals that less than half (47.1%) claimed to have a clear understanding of the assessment schemes. Around four-fifth (81.2%) welcomed the addition of multiple choice questions (MCQs) and 86.6% were apprehensive about the 100 marks for each theory paper in new assessment scheme.

Overall, 78.3% of the students appreciated the concept of integrating different subjects and specialties as a good way to learn medical concepts. Around 73.8% of the first MBBS students felt that horizontal integration was more appealing than vertical integration (64.4%). However, nearly 60% of the participants felt that integrated learning sessions were time-consuming, considering the quantum of 1st year portions. Less than half (46%) of the participants agreed that it is desirable to learn concepts from Phase II and III in phase I, in the absence of assessments in these portions [Figure 3].

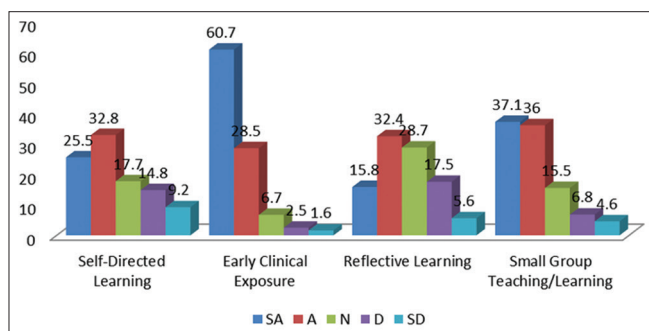


Figure 1: Students' perceptions on newer curricular elements

Majority (83.6%) felt that Phase I MBBS is academically very stressful and a similar percentage (85%) opined that more time should be allotted for sports and physical activity. Nearly one-third (36.6%) of the students reported that they have actually read the CBME curricular documents from MCI. Around one-third (33.6%) of the students felt confident that they can satisfactorily maintain multiple logbooks/record books for each subject [Table 3].

Nearly four-fifths had a positive attitude toward all the components except for adult learning principles (<40%) [Table 4].

Discussion

This study was conducted to assess the perspectives of 1st year MBBS students on the newly implemented CBME

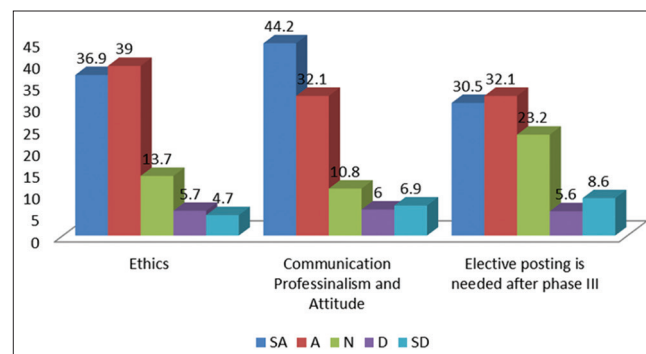


Figure 2: Learners insight on AETCOM and electives

Table 1: Students' perceptions on framework of foundation course

Components	SA	A	N	D	SD
Basic life support training	607 (61.5)	317 (32.1)	46 (4.7)	6 (0.6)	11 (1.1)
Field/health center visits	516 (52.3)	371 (37.6)	72 (7.3)	14 (1.4)	14 (1.4)
Time management	289 (29.3)	376 (38.1)	225 (22.7)	51 (5.2)	46 (4.7)
Stress management	317 (32.1)	335 (33.9)	217 (22)	65 (6.6)	53 (5.4)
Language and communication skills	330 (33.4)	332 (33.6)	158 (16.1)	84 (8.5)	83 (8.4)
Professionalism and ethics	369 (37.3)	358 (36.3)	135 (13.7)	62 (6.3)	63 (6.4)
Biomedical waste management	369 (37.4)	356 (36.1)	117 (11.8)	67 (6.8)	78 (7.9)
IT/computer skills	168 (17)	258 (26.1)	256 (25.9)	150 (15.2)	155 (15.8)

Values within parenthesis are percentages. SA=Strongly agree, A=Agree, N=Neutral, D=Disagree, SD=Strongly disagree

Table 2: Innovations in assessment methods

Components	SA	A	N	D	SD
As a student I have understood the assessment and feedback schemes	128 (13)	337 (34.1)	277 (28.1)	139 (14.1)	106 (10.7)
Inclusion of multiple choice questions in the new curriculum is acceptable	512 (51.9)	289 (29.3)	106 (10.7)	53 (5.4)	27 (2.7)
100 marks for each paper in the theory exam would be difficult to complete on time	666 (67.5)	188 (19.1)	89 (9)	25 (2.5)	19 (1.9)

Values within parenthesis are percentages. SA=Strongly agree, A=Agree, N=Neutral, D=Disagree, SD=Strongly disagree

Table 3: Other aspects of competency-based medical education

Components	SA	A	N	D	SD
Phase I in medical college is academically very stressful	531 (53.8)	294 (29.8)	126 (12.8)	20 (2.0)	16 (1.6)
I have downloaded and read the CBME document	116 (11.8)	245 (24.8)	275 (27.9)	196 (19.8)	155 (15.7)
It is possible to maintain separate log books for each department	119 (12.1)	212 (21.5)	214 (21.7)	190 (19.2)	252 (25.5)
There should be some time for sports activities during week days also	612 (62)	227 (23)	92 (9.3)	36 (3.6)	20 (2.1)

Values within parenthesis are percentages. SA=Strongly agree, A=Agree, N=Neutral, D=Disagree, SD=Strongly disagree

Table 4: Overall attitude scores of study population for different components of competency-based medical education

Component	Negative attitude, n (%)	Neutral attitude, n (%)	Positive attitude, n (%)
Overall view on CBME	3 (0.3)	103 (10.4)	881 (89.3)
Foundation course	26 (2.6)	126 (12.8)	835 (84.6)
Adult learning principles	186 (18.8)	408 (41.4)	393 (39.8)
Integration	25 (2.5)	173 (17.5)	789 (80)
AETCOM	89 (9)	118 (12)	780 (79)
Assessment	6 (0.6)	117 (11.9)	864 (87.5)

CBME=Competency-based medical education, AETCOM=Attitude ethics communication

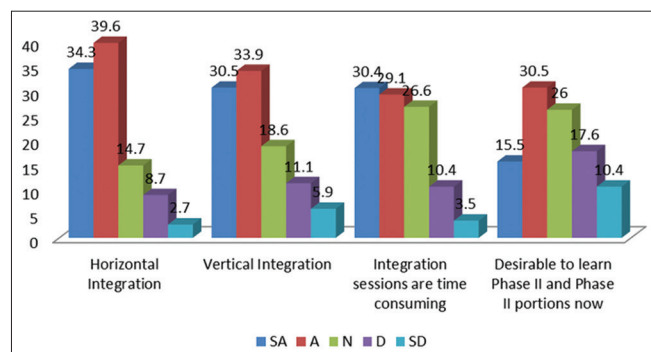


Figure 3: Learners' perspective on alignment and integration

curriculum. Responses were obtained from medical students through an online survey nationwide.

Indian medical student unlike western counterparts starts their medical course at the age of 17 or 18 years. The students come from diverse social, economic, and linguistic backgrounds with different levels of understanding. It would be desirable to ensure smooth transition to a new role through some sort of an orientation. Hence, a proper orientation immediately after admission into medical school enables students to sensitize themselves to the medical course and its requirements.^[12,13] This could be the motive for formulating 1 month FC before the commencement of the MBBS course.

Suman *et al.* in 2007^[14] and Srimathi in 2014^[13] after conducting FC in their respective institutions emphasized that it rightly tuned the students thinking to develop proper attitude and aptitude for the MBBS course. More than three-fourth of the respondents in the current study welcomed the introduction of the FC at the start of the MBBS course. We believe that a well-conducted FC would be appealing to students.

Though the FC has gained the stardom of the fresher's, the suggestions to lessen its duration from 30 days to 2 weeks cannot be ignored. Many students were of the opinion that field visit at the start would be very useful to understand the functioning of the health sector in India.

Medical students suffer stress, which is inextricably linked to anxiety, academic workload, financial pressure,

and depression. Similarly, majority of our study participants experienced psychological morbidity in medical education due to several examinations, and our findings are in line with the previous studies.^[15-20] As a part of stress management sessions, preventive mental health strategies to reinforce optimistic behaviors are worth implementing throughout the course.^[21] More than two-thirds of the participants welcomed time and stress management sessions conducted during the FC and many felt that stress management sessions could be considered throughout the duration of the course. Few students suggested having a counselor in the college premises to help them combat stress.

Though computer technology is being increasingly used in all aspects of medicine, sessions to nurture computer skills in FC were not considered prime by the students, probably because they have acquainted basic computer skills in their schools and additional skills can be self-learned in due course

SDL is a vital educational principle in higher education that has been promoted by various institutions due to its value in developing professionals to become lifelong learners. In an emerging medical field, SDL trains the medical students to develop independent learning, assertiveness, accountability, and be more responsible. Medical educators similarly seek to adopt SDL with the primary aim of producing learners who can manage their own learning and have a continuous quest for knowledge through critical thinking. It enhances retention and recall of information to promote better decision-making.^[21] The importance of extrinsic motivation and reflective practice in adult learning are highlighted in many researches all over the world.^[3] The readiness for SDL practices appeared to be low among medical students in India and the need to find ways to build SDL skills among them is of paramount importance.^[21-23] Similarly, in our study, the adult learning principles (SDL and reflective learning) were not much appreciated by the students. Many felt that these principles were time-consuming and a few have also reported that these were not followed in their colleges. Lack of proper sensitization might have made students perceive that adult learning techniques were not so useful.

Attitude, ethics, and communication are addressed in the roles of an IMG in order to make him responsible and accountable to patients, community, and profession. Previous studies done in India have explained the need for formal training of communication skills and few pilot projects have been successful.^[24-29] There was an average response for AETCOM sessions throughout phase I. Proper sensitization and faculty training programs will help to tide over this issue.

Didactic lectures and small group teaching were the most commonly used media of learning and favored by the students. The new curriculum limits lectures to only one-third of the total teaching hours allotted to a particular subject and small group TL would now account for two-thirds of the total teaching hours. Allotting only one-third for lecture classes will be met with greater resistance.^[3,30] Few suggested to stream up the number of lecture hours.

ECE can make basic science curricula more relevant and it helps students socialize to medicine and strengthen skill acquisition. ECE has been found to improve the learning skills among first MBBS students.^[31-33] These experiences frequently take the form of community-based preceptorships.^[34] Around 95% of the students preferred to have ECE in phase I as it develops problem-solving skills and better patient interaction. ECE intends to provide basic science correlation, basic clinical skills, and makes learning relevant and contextual.

Integration of TL across the phases in medical education can break departmental silos. It is now recommended that at least 80% of the topics can be "temporally aligned," signifying the exposure of students to similar topics in anatomy, physiology, and biochemistry at the same time, to prevent redundancy in curriculum implementation and to save time.^[12] Though the students felt that horizontal integration helps in holistic learning in first MBBS, they felt that vertical integration may be carried out from second MBBS, probably due to insufficiencies in implementation of vertical integration and voluminous 1st year syllabus.

Electives, another novel component of the competency-based curriculum, might allow students to explore areas of their interest at the end of the 3rd year of the course providing a great insight into potential avenues they may consider during postgraduation.^[10]

More than 80% felt that the 1st year curriculum is too stressful. Few have even proposed to extend the phase I duration to 1½ years. Few students have represented to provide more dissection hours and opted for cadaver-based learning, as it serves an alternative scope for memorization. Similarly, many suggest 3D videos of

biochemistry, an ideal technique to understand molecular concepts better. Though MCI's new curriculum has given directions for sports activities, we find no such sports hours allotted in a majority of colleges.

In the pursuit of attaining predefined milestones, there is a possibility that learners may stop striving for excellence. The de-emphasis on time-based learning may create a chaotic situation wherein the students proceed at their own pace and may end up in academic lacunae in low achievers.^[10] The ideal step in the making of a holistic doctor is to make the students realize their roles and responsibilities on their own.

Conclusion

Only a competent student can become a competent medical practitioner. Few reforms like reducing the duration of FC and curtailing few sessions like computer skills, diffuse sessions on stress and time management, more coordinated vertical integration, and regular sports activity can be undertaken. SDL and reflection on practice are explicitly expected for continuing professional development.

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Conflicts of interest

There are no conflicts of interest.

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