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Perspectives of undergraduate medical students regarding competency-based curriculum

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ABSTRACT

Background. The competency-based undergraduate medical curriculum has a number of new elements. Few authors have attempted to understand the students' viewpoints on the curriculum. We assessed undergraduate students perspectives and ratings about various elements after 2 years of implementation of the curriculum.

Methods. We included 240 students (2019 and 2020 admission). An invitation letter-cum-information sheet was sent to all the students by email informing them about the study, keeping their identity confidential and the implied consent. A validated questionnaire based on a 5-point Likert scale including 35 closed-ended questions eliciting the students' perception on various elements of the new curriculum and a rating scale from 1 to 5 was designed. Data collection was done using Google forms.

Results. Of the 240 respondents, 192 (80%) had positive perceptions for the Foundation Course, Attitude, Ethics and Communication skills, Early Clinical Exposure and Community Health Visits. Integrated Teaching, Small Group Teaching and Assessments were viewed less positively (62.9%–75%) and Self-directed Learning received the lowest positive responses (57%–58%). For training as a doctor, the elements considered most valuable were Early Clinical Exposure (70.4%) and Community Health Visits (70.4%) while the least were Logbooks (35.5%) and Reflections (34.2%).

Conclusions. Students found Early Clinical Exposure and Community Health Visits the most valuable elements whereas Self-directed Learning, Logbooks and Reflections were rated as the least useful.

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INTRODUCTION

The new undergraduate competency-based curriculum (CBC) was introduced in 2019.[1] It has a number of new elements, implementation of which can be challenging for teachers as well as students. The CBC is student-centred and they are expected to be the primary beneficiaries. The students are anticipated to be more responsible for their own learning and acquisition of competencies rather than being passive receptacles of knowledge. Many of the new elements of the CBC relate to making students active learners, e.g. Self-directed Learning, Logbooks and Reflection writing.[2]

The erstwhile Medical Council of India (MCI), and the present National Medical Commission (NMC) have been preparing faculty for the CBC over the past few years by conducting Revised Basic Course Workshops as well as Curriculum Implementation Support Programmes. There have been a number of reports on the views and perceptions of the faculty towards CBC and its elements.[3–6] However, few studies have attempted to assess or understand the students' perspectives to the new curriculum. Ramanathan *et al*. surveyed 987 students of 74 medical colleges and reported that 80% of students felt that the 1st year curriculum is too stressful.[7] Bell *et al*. assessed students' reactions to CBC. They highlighted the importance of student feedback on curricular change at all stages of the process.[8] As little work has been done on this aspect in India, we attempted to understand the students' perspectives on CBC of the initial 2 years of the undergraduate medical curriculum.

METHODS

We did a cross-sectional study using a survey-based approach at the Kalpana Chawla Government Medical College, Karnal, Haryana, India which has an annual intake of 120 students.

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Sample size and selection of participants

A sample size of 196 was obtained with a confidence margin of 95% and a margin of error of 3%. All MBBS students of the 2019 and 2020 admission batches, comprising a total of 240 were included.

Data collection and processing

A self-designed questionnaire including closed-ended questions, eliciting the students' perceptions on various elements of the new curriculum was used. Elements such as electives, student doctor training, and skill laboratory were not included as the students had not been exposed to these yet. The questions were framed on a 5-point Likert scale from strongly disagree as 1 to strongly agree as 5. The questionnaire was checked for internal consistency or reliability and a Cronbach alpha value of 0.815 was obtained. A pilot study was done on 30 students to validate the questionnaire. Data collection was done through Google forms online survey platform. An invitation letter-cum-information sheet was sent to all the students by email. This informed students about their identity being kept confidential and that a response to the questionnaire will be considered as implied consent. The students' name or any other identity was kept confidential.

In case of no response, two more attempts were made to obtain a response. There were no non-responders.

Statistics and ethical clearance

Responses obtained were analysed using Statistical Package for Social Sciences (SPSS) software. Ethical approval for this study was obtained from the Institutional Ethics Committee (KCGMC/IEC/2021/18).

RESULTS

A total of 240 students participated in the study. A large majority of students (80.4%–81.7%) either strongly agreed or agreed that early clinical exposure (ECE) stimulated interest in basic sciences, helped in understanding concepts as well as principles relevant to clinical application and aided in developing sensitivity towards patients' problems (Table I). A slightly lower but large percentage (72.9%–73.3%) of students agreed that integrated teaching (IT) helped in better retention of the subject and in bringing clarity to the concepts. Nearly three-fourths (73.7%) of the students viewed formative assessment as helpful in driving learning but at the same time the load of assessments was considered excessive. For small group teaching (SGT), 73.7% agreed that it induces active learner participation. Fewer students (62.9%–69.1%) agreed to SGT generating free communication, clarifying difficult concepts and giving more individual attention. In contrast, for self-directed learning (SDL) a lower number of students (57.1%–58%) accepted that it was effective in generating interest and deeper learning of a given topic.

Most students (80.8%–82.1%) agreed that community health visits (CHV) gave them a good exposure of primary level healthcare and also helped them to understand the health needs of the community. Attitude, Ethics and Communication (AETCOM) teaching was well received by the students as a majority felt that teaching of medical ethics influenced their thinking and would be helpful in their clinical studies. Similarly, for communication skills (CS) 80.8%–82.5% students agreed that these teaching sessions helped them in understanding the importance of good CS and motivated them to learn more about doctor–patient communication. The foundation course was acknowledged as useful for new knowledge and practices by 78.3%–87.1% of students (Table II).

About 58.3%–61.6% of students felt that reflection improved their learning and escalated their attention to thoughts and process. Feedback was considered useful by 60% of students while 25.8% felt it was a waste of time and

TABLE I. Elements of competency-based curriculum (CBC)*

Element	Strongly agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly disagree (%)
Early clinical exposure (ECE)					
Stimulated my interest in basic sciences	69 (28.7)	127 (52.9)	34 (14.2)	7 (2.9)	3 (1.3)
Helped me to understand concepts and principles relevant to clinical application	65 (27.1)	131 (54.6)	35 (14.6)	5 (2.1)	4 (1.7)
Helped me in developing sensitivity towards patients' problems	66 (27.5)	127 (52.9)	40 (16.7)	3 (1.3)	4 (1.7)
Integrated teaching (IT)					
Helped me in better retention of the subject	49 (20.4)	127 (52.9)	50 (20.8)	12 (5)	2 (0.8)
Was helpful in bringing clarity to the concepts	47 (19.6)	128 (53.3)	52 (22.1)	8 (3.3)	4 (1.7)
Did not enhance my learning in any way	15 (6.3)	56 (23.3)	44 (18.3)	106 (44.2)	19 (7.9)
Assessment					
The in-course assessment (formative) is helpful in driving learning	32 (13.3)	145 (60.4)	50 (20.8)	8 (3.3)	5 (2.1)
The present load of assessments is excessive	91 (37.9)	90 (37.5)	50 (20.8)	4 (1.7)	5 (2.1)
Self-directed learning (SDL)					
Was more effective in generating an interest in the given topic	27 (11.3)	110 (45.8)	65 (27.1)	27 (11.3)	11 (4.6)
Involved me in deeper learning of the given topic at my own pace	28 (11.7)	111 (46.3)	66 (27.5)	27 (11.3)	8 (3.3)
Small group teaching (SGT)					
Generates free communication	32 (13.3)	134 (55.8)	57 (23.8)	11 (4.6)	6 (2.5)
Induces active learner participation	38 (15.8)	139 (57.9)	45 (18.8)	11 (4.6)	7 (2.9)
Helps clarify difficult concepts	28 (11.7)	123 (51.2)	63 (26.3)	17 (7.1)	9 (3.8)
Gives more individual attention	34 (14.2)	129 (53.8)	47 (19.6)	25 (10.4)	5 (2.1)

* $p<0.001$ on Chi-square test

TABLE II. Elements of competency-based curriculum

Element	Strongly agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly disagree (%)
Community health visits (CHVs)					
Gave me a good exposure of primary level healthcare	51 (21.3)	146 (60.8)	34 (14.2)	3 (1.3)	6 (2.5)
Did not provide any learning	12 (5)	32 (13.3)	43 (17.9)	120 (50)	33 (13.8)
Helped me to understand the health needs of the community	48 (20)	146 (60.8)	39 (16.3)	4 (1.7)	3 (1.3)
Attitude, ethics and communication (AETCOM)					
The teaching on medical ethics influenced my thinking	62 (25.8)	139 (57.9)	33 (13.8)	2 (0.8)	4 (1.7)
The teaching of medical ethics will be helpful in clinical studies	60 (25)	145 (60.4)	27 (11.3)	4 (1.7)	4 (1.7)
Medical ethics subject is not relevant or useful for me	19 (7.9)	32 (13.3)	32 (13.3)	125 (52.1)	32 (13.3)
Communication skills teaching sessions helped me in understanding the importance of good communication skills	48 (20)	150 (62.5)	33 (13.8)	31 (1.3)	6 (2.5)
Teaching communication skills is a waste of time	15 (6.3)	35 (14.6)	47 (19.6)	103 (42.9)	40 (16.7)
Communication skills sessions motivated me to learn more about doctor–patient communication	43 (17.9)	151 (62.9)	40 (16.7)	3 (1.3)	3 (1.3)
Foundation course					
Exposed me to new knowledge and practices	55 (22.9)	146 (60.8)	33 (13.8)	2 (0.8)	4 (1.7)
I felt confident to embark into the MBBS curriculum after attending the foundation course	37 (15.4)	151 (62.9)	44 (18.3)	5 (2.1)	3 (1.3)
Increased my awareness about different aspects of medical profession	58 (24.2)	151 (62.9)	26 (10.8)	3 (1.3)	2 (0.8)
Reflection					
The process of writing reflection improves my ability to learn from experience	31 (12.9)	109 (45.4)	61 (25.4)	32 (13.3)	7 (2.9)
Increases my attention to the thoughts and processes	32 (13.3)	116 (48.3)	53 (22.1)	29 (12.1)	10 (4.2)
Feedback					
Guides and improves my future learning	30 (12.5)	114 (47.5)	69 (28.7)	22 (9.2)	5 (2.1)
It is a waste of time and not helpful	18 (7.5)	44 (18.3)	68 (28.3)	87 (36.3)	23 (9.6)
Sports and extracurricular activities					
Helped in improving my teamwork skills	46 (19.2)	112 (46.7)	62 (25.8)	11 (4.6)	9 (3.8)
Are stressful due to lack of time	26 (10.8)	66 (27.5)	54 (22.5)	64 (26.7)	30 (12.5)
Enhance my academic performance	35 (14.6)	101 (42.1)	69 (28.7)	25 (10.4)	10 (4.2)
Logbooks					
Maintaining it is a tedious task	74 (30.8)	90 (37.5)	53 (22.1)	17 (7.1)	6 (2.5)
Helped me in keeping a track of my learning activities	19 (7.9)	95 (39.6)	79 (32.9)	22 (9.2)	25 (10.4)

* $p<0.001$ on Chi-square test

not helpful. Sports and extracurricular activities were acknowledged to be helpful in improving teamwork (65.9%) and enhancing academic performance (56.7%), but was regarded as stressful by 38.3% of students due to lack of time. More than two-thirds of the students concurred that maintaining logbooks was a tedious task (Table II).

Overall, the students rated CHV (70.4%) and ECE (70.4%) as the most valuable to their training followed by elements of AETCOM (67.1%) and IT (59.6%). The least valuable were SDL (46.5%), logbooks (35.5%) and reflections (34.2%).

DISCUSSION

The MCI/NMC envisage a competent Indian medical graduate as the end result of the CBC, which has been especially developed with this vision and hence they are an important stakeholder. Yet, their views or voice are rarely considered for any changes in their education. Bland *et al*. commented that students can be an important base of support during curricular change and their feedback as well as enthusiasm can help to sustain the changes.[9] In India, the CBC has been implemented for approximately 2 years and very few studies have been done to elicit students' views in a comprehensive manner. We assessed the perspectives of two batches of MBBS students on the salient elements of the CBC.

ECE helps preclinical students to correlate and better understand the concepts of basic sciences as applied to the clinical specialties.[10] In our study, ECE was perceived to be a useful strategy by a majority of students and was highly valued. Other authors also concluded that ECE was an effective educational intervention and students had a positive attitude towards it with 89.2% of students accepting ECE. Similar views were reported in a study from Iran.[11]

Visits to community health centres can sensitize students to the health problems of the communities and managing them at that level. Most of the students (82.2%) strongly agreed or agreed that CHVs gave them good exposure of primary level healthcare and helped in understanding the health needs of the community. It was rated as the most valuable element. High positive responses were noted by others as well.[7] Chandran and George also reported that their 1st year students appreciated the community oriented modules.[12] The community visits were perceived as helpful in becoming more empathetic by connecting personal problems with social causes, understanding rural health issues and increasing their awareness about common health problems.[13,14] Students' positive perception of community health at the beginning of their professional studies indicates that this spirit should be harnessed and encouraged for greater community involvement in their future medical training.

Ethics and CS are an essential component of medical practice but are often overlooked during undergraduate training. MCI/NMC introduced the AETCOM module for undergraduate students to inculcate appropriate attitudes and skills in relation to ethics and communication. More than 80% of students responded positively to the statements on teaching of medical ethics and CS. Both ethics as well as CS teaching were rated as valuable. Ramanathan *et al*. found that three-fourths of their respondents agreed that AETCOM training should start from 1st year.[7] In an earlier study from UK, Johnston and Haughton found most (94%) of their students were interested in the subject and 87% considered it very important for professional practice.[15] Similarly, Varma *et al*. investigated the perceived need and attitudes towards CS training among 1st year students and found 72% considered it important and 68% felt the need.[16] A decline in attitudes for CS was noted by Ruiz-Moral *et al*. among undergraduate students from the 1st to 4th year.[17] Wright *et al*. observed that attitudes of medical students towards CS training were informed by their perception of the importance of CS. It was concerning to note that nearly one-fifth of the students agreed with the statement that this teaching was not relevant or useful.[18]

Reflective practice is a process that encourages the learner to think or reflect on the learning experience leading to a better understanding and knowledge gain. Reflection writing is used in training of healthcare professionals for an improved learning from their practical/clinical experiences. Our study respondents perceived that writing reflections improved their ability to learn (58.3%) and focused on their thoughts and processes (61.6%). But at the same time, they rated it at the lowest level in the value for their learning. Acceptance for reflective learning was seen to be 48.2% by Ramanathan *et al*. also.[7] Similarly, King *et al*. found that only 42% of their pharmacy students felt that reflective writing had a significant impact.[19] Savitha *et al*. reported that their 1st year medical students expressed that writing reflective narrative made them more empathic and sensitive but they also found it monotonous, and had time as well as language constraints.[20] Morgan *et al*., who were medical students themselves, commented that the teaching of reflective process requires careful consideration for students to learn how to reflect and the need for training for both, the facilitators as well as the students is necessary for effective reflection writing.[21]

Logbooks are used in medical education for various purposes ranging from a record of activity to feedback and assessments. Our students found maintaining logbooks a tedious task and not very helpful in learning. Students from Iran also expressed that logbooks were time-consuming, stressful and an invalid assessment tool.[22]

SDL in particular was rated low and only a little over half the students had positive responses. Similar to our finding, Imran *et al*. also found mixed perceptions but the faculty role was noted to be crucial.[23] SDL is a valuable strategy as it prepares students to be lifelong learners, a role specified by NMC. The rapid turnover of knowledge and skills in medical sciences require a doctor to be a lifelong learner. Liu and Sullivan observed that SDL needs to be supported by an educational orientation of faculty and residents, both, and an environment that promotes psychological safety and invites student engagement.[24]

Good teaching practices such as IT and SGT generated positive responses on the Likert scale but were not rated as valuable on the rating scale. It was interesting to note that formative assessment was considered helpful but at the same time the assessment load was thought to be excessive and not rated as very valuable. The foundation course and extracurricular activities were liked by the students but not considered valuable for their training. In our study, the elements requiring major teacher involvement, viz. IT, SDL, SGT, assessments and feedback, were perceived positively but were not highly valued as possibly the faculty/facilitators were not efficacious in utilizing these strategies effectively. Nayak *et al*. also highlighted that though there were positive perceptions for learning and teamwork in SGT but tutors' role was very important.[25]

Our students expressed their perceptions very well about various important aspects of the new curriculum. The benefits of obtaining and including the student's perspective of any curricular changes have been highlighted by Yengo–Khan *et al*.[26] McLean commented that the first cohort of students in a new curriculum provide experiences and feedback to improve the programme content and delivery.[27]

The limitation of our study is that it involved undergraduate medical students from a single institution of a state and may not be representative of the whole country's medical student population. Hence, a larger and multi-institutional study would provide a wider perspective and deeper insight regarding medical students' opinions for guiding future developments in the evolving new curriculum.

Conclusions

Most of the newer elements in the CBC were well received by students with the exception of SDL, logbook and reflection writing. The need for training of both, the students as well as the faculty is essential to implement the curriculum effectively. Increasing awareness and exposure of both will be helpful in utilizing the good teaching practices more efficiently. Our findings reinforce the conclusions by Mahajan *et al*. highlighting the need for continued handholding of the faculty for implementation of CBC.[28]

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