

## Original Article

# Perception of Undergraduate Medical Students about the Current Medical Curriculum in India

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**Introduction :** Indian Medical Education System is currently on the verge of a transformation after the National Medical Commission (NMC) Bill was passed in August 2019. Objective of this study was to assess the perception of undergraduate Students about the current medical curriculum and their knowledge about NMC suggestions.

**Material and Methods :** A web-based cross-sectional Google forms questionnaire was distributed to medical students across India and the data gathered was analyzed.

**Results :** Only 54.5% of students were aware of NMC suggestions like Problem-Based Learning (PBL) and Team-Based Learning (TBL). Majority of the students felt that the present curriculum is more teacher-centric and relies on memorizing rather than concept building. They feel that traditional curriculum provides only knowledge-based learning, but not competency-based learning and should be supplemented with problem-based learning simulation technology, and research methodology. Majority of respondents prefer a combination of formative and summative assessment and want a more supervised and structured internship.

**Conclusions :** The NMC suggestions are welcomed as being more student-centric with inclusion of PBL/TBL, simulation training, research methodology, and a competency-based module for learning. Students also indicated their preference for a combination of formative plus summative assessments.

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**Key words :** Curriculum, Education, Medical, Undergraduate, Evaluation, Problem-solving, Teaching methods, Problem-based learning, Team-based learning.

The Indian Medical Education System is one of the largest in the world and is currently on the verge of transformation after the National Medical Commission (NMC) Bill was passed in August 2019. Traditionally, medical education has been a combination of didactic lectures in the classroom and hands-on training in the clinical/lab setting. This was widely perceived as the teacher-centric teaching with students acquiring knowledge passively without using their inquisitiveness and doesn't translate into empathetic practical application in the health care delivery system of India<sup>1,2</sup>. Currently Undergraduate Medical Students tend to devote lots of time for preparation of Postgraduate Entrance Examinations which is completely multiple

### Editor's Comment :

- Majority of the students felt that the present Curriculum is more teacher-centric, and relies on memorizing rather than concept building.
- They feel that traditional curriculum provides only knowledge-based learning, but not competency-based learning and should be supplemented with problem-based learning, simulation technology, and research methodology.
- Students also indicated their preference for a combination of formative plus summative assessments, better structured and supervised Internship and uniformity amongst different Medical Colleges.

choice question based and doesn't sync at all with the Undergraduate teaching and examination pattern<sup>3</sup>. Additionally, a widening gap was perceived between the societal health needs and the Medical Education provided. All these combined led to major reforms in the NMC bill in the form of Competency Based Undergraduate Medical Curriculum/ Education (CBMC/E)<sup>4,5</sup>. Objective of this study was to assess the perception of Undergraduate students about the current medical curriculum and their knowledge about NMC suggestions.

### MATERIAL AND METHODS

A web-based cross-sectional Google forms questionnaire was sent *via* WhatsApp and Email to Identified Medical Students across India. The

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questionnaire was kept open for responses from 1st February 2021 to 30th April 2021. The term 'Medical Student' here included – 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> Professional MBBS students and Interns. Each student was allowed to complete the questionnaire only once. All respondents were informed about the objectives of the study and consent was obtained. The questionnaire included demographic questions, qualitative questions and multiple-choice questions (Table 1). The questions featured the ability to select only one answer based on Likert's Scale (1-3, strongly disagree to strongly agree). Apart from demographics, the questionnaire focused on student's perception about the current curriculum, impact of learning methods and evaluation of students about the Internship with an intersection of background of their awareness about reforms made by NMC recently.

It was a prospective observational study without any intervention; therefore Institutional Ethics Committee waiver was not required.

The study responses were collected and managed using the Google forms electronic tool. The data analysis was done using SPSS® version 16. The categorical variables were expressed as numbers and percentages.

### RESULTS

The questionnaire was sent to 700 Medical Students across India; 362 completed it, a response rate of 51.71%. The male to female ratio was 1: 1.1. The majority of the responders (56%) were in the age group of 18-20 years. The highest numbers of the respondents (51.93%) were First Professional Medical Students followed by Second Professional Students (16.57%) and the least number of responses was from the Final Year Students (12.15%). The ratio of Private and Government Medical College students was 1:1.2. Responses to questionnaire are shown in Table 1.

Awareness of NMC Guidelines, PBL and TBL was found in just over half of the respondents; and even smaller numbers felt that Current Curriculum is well framed for PBL (43%) and TBL (46%).

Only half of the students felt that the Curriculum is more teacher-centric rather than student-centric; updated as per the current needs and Medical Ethics and Behavioral Sciences are touched upon adequately. 60.22% of students feel that the curriculum encourages memorizing rather than concept building and a majority of the students (87.29%) feel that the Curriculum should be Hybrid including both didactic lectures and PBL. The majority of the students (85.64%) think that research methodology and simulation technology

should be a part of the Medical Curriculum. Only one-third of students think the Current Curriculum provides enough opportunity for competency-based learning over knowledge-based learning and there is not enough opportunity for emergency learning.

The majority of the students (61.87%) want a change in the current evaluation system used in the examination and felt that the evaluation system should be more objective. Almost half of the students (54.14%) prefer assessment by both formative and summative methods.

The majority of the students (80.66%) felt that disparities amongst colleges like infrastructure, availability of clinical material, etc affect the learning opportunities. Around 60% of students think that the Internship is poorly supervised/ structured, and adversely affects their preparation for National Eligibility-cum-Entrance Test (NEET) (Table 1).

### DISCUSSION

*"I never try to teach my students anything. I only try to create an environment where they can learn".*

— **Albert Einstein**

Our survey revealed Undergraduate Medical Students' perceptions about their Current Curriculum and NMC bill's suggestions. Only half of them were aware of the NMC bill but majority were in favor of student-centric educational reforms like inclusion of PBL, TBL, research methodology, simulation technology and competency-based learning in their Curriculum. Similar reforms were favored by the majority for current evaluation system used in the examination (preference for more objective type questions) and Internship (preference for better structure and more supervision).

Traditional Curriculum's stagnation and dependence on 'teacher-centric' didactic teaching does not allow students to develop their personal critical decisional framework. This has resulted in majority of our respondents' dissatisfaction with the current curriculum and its inability to effectively use student-centric techniques of learning, like PBL and TBL. More structured and also more interactive teaching is the need of the hour for the current generation of medical Students<sup>6</sup>. It is now well-known that student-centric learning encourages better retention of knowledge, critical thinking, concept building, metacognition and collaboration and leadership skills in addition to self-evaluation and peer feedback<sup>7-9</sup>. However, majority of respondents agreed that tutors' didactic teachings remain important for initial knowledge-based learning and a hybrid model combining it with PBL/ TBL would

Table 1 — The summary of the responses of the questionnaire

Question	Unaware(1)		Unaware(2)		Aware (3)	
	n	%	n	%	n	%
Are you aware of new NMC guidelines? (Inclusion of foundation course, increased clinical exposure, introduction of case scenarios for classroom discussion/case-based learning, mandatory list of skills, objective assessment?)	36	9.94	132	36.46	194	53.59
Are you aware of problem-based learning (PBL, eg Case and scenario discussion)?	56	15.46	104	28.72	202	55.80
Are you aware of team based learning (TBL)? (Small group teaching methods, goal oriented, self-directed learning where teacher is a facilitator)	54	14.91	108	29.83	200	55.24
		Strongly disagree (1)		Strongly disagree (2)		Strongly agree (3)
Is UG curriculum updated as per current needs? (with respect to theoretical content, practical training and integrated teaching)	68	18.78	110	30.39	184	50.83
Is the curriculum more teacher-centric rather than student-centric?	90	24.86	92	25.41	180	49.72
Are medical ethics and behavioural sciences (soft skills) touched upon adequately?	88	24.31	80	22.10	194	53.59
Is the curriculum more for memorizing rather than concept building?	58	16.02	86	23.76	218	60.22
Is it well framed for group learning (group discussion and activities)?	106	29.28	88	24.31	168	46.41
Is the current curriculum well framed for problem-based learning?	98	27.07	108	29.83	156	43.09
Does the current curriculum provide enough opportunity for competency-based learning over knowledge-based learning?	112	30.94	114	31.49	136	37.57
Does the current curriculum provide enough opportunity for emergency learning?	160	44.20	90	24.86	110	30.39
Do you think simulated patients and simulation technology should be a part of the medical curriculum?	8	2.21	44	12.15	310	85.64
Do you think research methodology should be included in the curriculum for teaching and application?	20	5.52	72	19.89	270	74.59
Are you satisfied with the current evaluation system used in examination (Theory, internal assessment, external assessment (long, short cases, table viva)?	108	29.83	116	32.04	138	38.12
Is there a need to restructure the current evaluation system with reference to CBT, objective assessment, OSCE-objective structured clinical exams?	40	11.05	98	27.09	224	61.88
Do you think disparities amongst colleges like infrastructure, communication opportunities, public dealing, availability of clinical material, etc affect the learning opportunities?	14	3.87	56	15.47	292	80.66
Do you think internship is poorly supervised and structured, and need reforms?	20	5.52	118	32.60	224	61.88
Do you think involvement in internship adversely affect your preparation for NEET?	60	16.57	84	23.20	218	60.22
How do you think the curriculum should be?		Didactic lecture-based		Problem-based learning		Hybrid
	4	1.10	42	11.60	316	87.29
Which form of assessment you would prefer?		Formative		Summative		Both
	92	25.41	74	20.44	196	54.14

give the best results for competency-based learning<sup>10</sup>. Similarly, combining the best of PBL and TBL can optimize student learning; as both are complimentary<sup>11,12</sup>.

The importance of sowing the seeds of Ethics in Undergraduate Medical Education to create 'Good Virtuous Doctors' is well known. NMC's suggestions on teaching students how to apply ethical knowledge and critical thinking to real cases in clinical practice and shaping future doctors' right character is a great idea and ~ 50% of respondents favored more focus on this issue<sup>13</sup>. Similarly, importance of including Behavioral Sciences in their curriculum is appreciated by the respondents. Medicine was, is and will remain a 'Social' Science and pride of place of applied Social Science in Medicine is now axiomatic<sup>14</sup>.

Incorporation of research methodology in curriculum, as desired by ~86% respondents, is known to have positive learning experiences. These include Ethics, Evidence Based Medicine; Protocol Writing; Data Processing; Dissemination of findings and Results; and their use in informing a health promotion intervention<sup>15</sup>. A similar number favored the use of simulation in their curriculum. Simulation bridges the gap between theory and practice, provides realistic standardized experiences

to learners in a controlled environment without exposing patients to harm and technological advances can enhance traditional basic science content<sup>16</sup>. Several low-cost solutions are available or can be improvised and these can open up an entirely new World of Learning to the Medical Student of the 21st century<sup>17</sup>.

Evaluation system used in the examination is a matter of concern and ~62% students are in favor of more objective system. Evidence shows that multiple choice questions and short answer questions correlate better with the clinical performance of students than multiple essay questions<sup>18-20</sup>. However, a middle path of a combination of formative and summative evaluation was preferred by ~54% students.

Students are aware that the Internship period, if not used productively, is a missed opportunity; hence a majority of them want a better structured and Supervised Internship. This sentiment is in sync with evidence showing that clear objectives, self-directed learning and regular feedback will have a positive impact on this transition of Medical Student to a Full-Fledged Doctor with better understanding of tackling Emergency Situations<sup>21-24</sup>.

Every teaching technique, ideally, incorporates a feedback but having sought this feedback now the onus of changing according to NMC's reforms and these feedbacks is on the teachers. It must be remembered that all benefits of reforms like PBL, TBL, multiple choice questions etc. will depend upon developing and implementing appropriate user-friendly coursework and questions; a task which has been effectively performed by the teachers<sup>25-27</sup>. Additionally, NMC has to ensure mitigation of disparities amongst different medical colleges like infrastructure, availability of clinical material etc. which affect the quality of learning opportunities.

Limitations of our study include a relatively small number of responses and a majority of respondents being students from the first professional. The later might be the reason of relatively low awareness of NMC's reforms. The other limitation of the study is that assessors were not sure about students were familiar with the pedagogic terms such as Formative", "Summative", "Simulation Technology", and "research methodology. More senior students and interns were, apparently, preoccupied with busier schedule of online teachings and COVID duties respectively. Another shortcoming is absence of questions on two examinations: the current National Eligibility-cum-Entrance Test for Postgraduation and the proposed National Exit Test, common final year undergraduate

Medical Examination. Both these questions were excluded because of inherent difficulties in analyzing qualitative responses to open ended questions like these in an online survey. However, ours is the first study of its kind which has sought such a feedback form undergraduate Medical Students on two important topics like current Curriculum and NMC's suggested reforms. It shows the way forward to realize the full potential of Undergraduate Medical Curriculum in India.

### CONCLUSIONS

More student-centric approach with inclusion of PBL/TBL, simulation training, research methodology, and a competency-based module for learning should be applied. Students also indicated their preference for a combination of formative plus summative assessments.

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**Conflicts of interest :** The authors declare that they have no conflict of interest.

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