



## Original Research Article

## Perspective of post graduate students regarding the medical physiology curriculum

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### ABSTRACT

**Introduction:** With the scientific advancements and novelty in the field of medical education, there is an evident requirement for constant changes in its educational curriculum, basic sciences in particular. Latest innovations need to be updated in the educational curriculum of modern health sciences. As a part of curriculum evolution, studies need to be done to explore the lacunae in the existing traditional curriculum. The present study was carried out to determine the Postgraduate students' perspective of the Physiology curriculum with the help of a questionnaire.

**Aims and Objectives:** The study was done to find out the views of the postgraduate students with regards to the physiology curriculum and also to invite suggestions for improvement.

**Materials and Methods:** The study was conducted at MVJ Medical College, Bangalore using a questionnaire. The questionnaire was given to all Postgraduate students who require applying their basic science knowledge in their broad specialties.

**Results and Discussion:** The results revealed that the majority of the students wanted to independently perform and interpret the clinical skills. With regards to the technical skills, students wanted to independently interpret or only observe the skill. Majority of them wanted small group teaching, interactive teaching and more of integrated teaching. Most of them felt that traditional curriculum needs to be reformed.

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### 1. Introduction

Basic sciences are very much important for students to build their clinical knowledge.<sup>1</sup> The basic science dealing with normal bodily functions in humans is human physiology. Physiology helps the students in knowing the functions of different systems regulated by genes and also its role in maintaining normal homeostasis.<sup>2</sup>

We follow traditional method which is teacher centred. Teaching learning methods in Physiology includes didactic lectures, practical sessions, tutorials and student seminars under the guidance of teachers. So this involves minimal participation from students.<sup>3</sup> These traditional methods of teaching have not provided any better results in student. Earlier studies have shown that the students feel that the content of the basic sciences is not relevant to their later clinical work.<sup>1</sup> Learning physiology is important

for students in understanding clinical case scenarios. Applied physiology motivates students to study more of physiology.<sup>2</sup>

Recent advances in medical field have brought in the necessity to revise the MBBS curriculum especially, basic sciences. The main sources of feedback regarding the medical curriculum are the students.<sup>4</sup> Feedback is very instrumental in making any modification. In this view, post graduate students' feedback about the physiology curriculum in terms of content and assessment methods were obtained because they have finished MBBS and are applying their physiology knowledge in their respective specialty. So, Post graduate students will be in a better position to give feedback.

### 2. Objectives

1. To evaluate perspective of PG students on physiology curriculum

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2. To encourage suggestions for improvement

### 3. Materials and Methods

Involving a cross sectional study design, all the available 91 postgraduate students of paraclinical and clinical subjects at MVJ Medical College, Hoskote, Bangalore during the period of July to August 2019 were selected. All postgraduate students of paraclinical and clinical subjects were included. Preclinical postgraduate students were excluded from the study since the study was to understand application of preclinical subject – Physiology in clinical disciplines. The questionnaire used was a multiple choice feedback type based on the traditional Physiology curriculum. The Questionnaire was pretested and finalized. The students had to choose one option from the four options (A-D). Questions were pertaining to hematology, respiratory system, central nervous system, special senses and cardiovascular system. There were ten questions with four options each regarding methods of assessments. There was also option for suggestions and comments.

Informed consent was taken from the students and they were explained briefly about the questionnaire and the study. Institutional ethical clearance has been obtained.

### 4. Results

Questions regarding practical showed that most of them should independently perform and interpret the clinical skills (Q1, Q2, Q3, Q4, Q5, Q8 and Q10). For technical skills (Q6, Q7 and Q9) most of them felt interpretation of skills would be enough.

**Table 1:** Showing the percentages of Postgraduate students selecting each of the options

	A (%)	B (%)	C (%)	D (%)
<b>Q1</b>	62	18	15	5
<b>Q2</b>	75	14	10	1
<b>Q3</b>	96	4		
<b>Q4</b>	93	5	1	1
<b>Q5</b>	97	2	1	
<b>Q6</b>	37	52	10	1
<b>Q7</b>	38	62		
<b>Q8</b>	73	13	12	2
<b>Q9</b>	33	35	29	3
<b>Q10</b>	63	26	10	1

A. MBBS students should independently perform and interpret the skill.

B. MBBS students should independently interpret the skill.

C. MBBS students should only observe the skill.

D. As not a requisite in practice MBBS students need not know the skill.

Q1: Determination of blood groups

Q2: Clinical examination of Jugular venous pulse

Q3: Clinical Examination of Reflexes.

Q4: Auscultation of breath sounds.

Q5: Recording Blood pressure and effect of posture on Blood pressure.

Q6: Record Heart Rate Variability

Q7: Record evoked potentials.

Q8: Clinical examination of cranial nerves I to XII.

Q9: Work done by Mosso's ergography.

Q10: Clinical examination of apical impulse.

Quite a few of them felt, it would be better if students know physiology for their clinical practice and also focus should be on NEET PG pattern questions in classes. Few of them opined that Physiology forms and plays a very important role in all years of MBBS. More clinically important aspects of physiology should be included.

Many more felt that Physiology is definitely an important part of medical profession. They found that mastering the skills in Cardiovascular System, Respiratory system, Central Nervous System, Gastro Intestinal clinical examination was very important in first year. Few commented that if these topics are learnt well during MBBS period they can work independently during their PG period.

Knowledge of physiology will help the medical students to perform and interpret most of the basic medical procedures and also to have a practical orientation to all subjects at an early stage.

Few also felt that the class should be more interactive. Importance of each practice should be stressed and its use in daily life should be explained. Physiology could be made more interesting with video sessions.

85.6% of them felt that internal assessment examinations were necessary, 40% also wanted part completion tests. 80% preferred tutorials and interactive small group teachings.

### 5. Discussion

The present traditional teaching system has quite a few limitations. As the traditional teaching system involves didactic lectures, there is no active involvement of students. The students will not be motivated to learn and will not fully understand the subject. To produce a better doctor to serve the society, it is institution's responsibility to bring about changes in the traditional system. This is in accordance with Edinburg Declaration.<sup>5</sup>

In the present study, most of the students wanted to independently do and interpret clinical skill and independently interpret the skill or should only observe the technical skills. Most of them wanted interactive teaching than didactic lecture and students remembered clinical aspects better. This is in accordance with the earlier study done by Dr. Omna Chawla.<sup>6</sup>

It is shown that knowledge of basic science with clinical relevance is understood better and applied by students without any difficulty. The fact that basic science

knowledge is a requisite to be a competent clinician is borne in the minds of the students. Most of the medical educators and physicians believe that an ample part of the basic science information studied in the traditional first MBBS year in medical college is lost during the final MBBS year.

In a study, paraclinical and clinical students were asked questions related to basic science and clinical questions and established that the students answered clinical questions correctly when compared with the basic questions. These conclusions showed that the clinical facts and basic science knowledge are learnt and recalled separately. The clinical facts are not remembered by correlating with basic science. One of the reasons for low basic science knowledge in clinical years is that the basic concepts are not examined and so they are forgotten over a period of time. This fact is supported by numerous studies. Miller concluded in 1961 that students usually remember about 10% of anatomy or biochemistry taught in conventional preclinical year of the course.<sup>1</sup> This emphasizes the need for more and more vertical integrated teaching which will help the students to correlate the basic concepts with clinical concepts.

The purpose of medical education is to educate graduates to meet the health needs of the society professionally. The traditional curriculum is subject-centered and time-based. Most assessments are summative. This curriculum mainly focuses on knowledge than on attitude and skills. Thus, graduates may have astonishing knowledge, but may be deficient in the basic clinical skills required in practice. Also, they may be deficient in communication skills, doctor–patient relationship, professionalism and ethics.<sup>7</sup>

The most important goal of the MBBS course is to enable students to explain, comprehend the concepts, elucidate the functions of organ systems of the human body. The purpose of medical education should be student-centred in which there is continuous active learning and teachers will play the role of a facilitator and help the students to develop knowledge, skills, and attitude.<sup>8</sup>

Competency-based medical education (CBME) is the need of the hour to deal with these issues. Competency is the capacity to do a skill productively and competently and CBME is a step to make sure that the graduates develop the skills required to accomplish the patients' health care needs in the society. It emphasizes flexibility and learner-centeredness. Here, the emphasis is on learning the competencies and would carry on till the preferred competency is performed independently by the student. The student would be trained until the standard of preferred competency is achieved. There would be frequent formative assessments and feedback in the course of training. The assessment is objective wherein each student is assessed by a measurable standard and does not consider the other students' performance.<sup>7</sup>

The present reformed curriculum is an integrated, student-centered curriculum that includes small group sessions in which problem-based learning, self directed

learning is introduced. It emphasizes the involvement of student in the curriculum and their self directed learning. Students have the liberty to choose the topic to study, their speed of study, and the way of study in student-centered curriculum. A study concluded that 45.4% of the students wanted problem-solving in curriculum. The current curriculum was improved to include problem based learning, in which students obtain their knowledge and skills through solving problems themselves.<sup>4</sup>

Thus, CBME mainly focuses on training the student, so that he or she may function appropriately and effectively as a physician of first contact of the community while being globally relevant.

## 6. Conclusion

As students are mainly interested in clinically oriented aspects and skills, the traditional system needs to be changed and CBME is a welcome step to develop the clinically relevant skills in a better way in students, right from preclinical year.

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## 9. Conflict of interest

None.

## References

- Gupta S, Gupta AK, Verma M, Kaur H, Kaur A, Singh K. The attitudes and perceptions of medical students towards basic science subjects during their clinical years: A cross-sectional survey. *Int J App Basic Med Res.* 2014;4:16–19.
- Ali Z, Shakoor Q, Khalid S, Nazir S, Zaman S. Perceptions of undergraduate medical students towards the subject of physiology and level of Integration with clinical subjects. *Pak J Physiol.* 2016;12(2):43–46.
- Ambade R, Sagdeo M, Gade S. Medical Students Perception about Various Methods of Learning Physiology in a Medical College in Central India. *Indian J Physiol Pharmacol.* 2019;63(1):49–53.
- Soliman MM, Al-Swat K, Alsaif F, Al-Nassar S, Bayoumi N, Leheta O. Medical students perception of the reformed medical curriculum at King Saud University. *J Health Spec.* 2016;4:46–51.
- Gade S, Chari S. Perception of teachers towards performance of undergraduate medical students in Physiology practical & syllabus content. *J Edu Tech Health Sci.* 2015;2(1):28–31.
- Chawla O, Bhattacharjee M, Kansal NK. MBBS Physiology curriculum. *South-East Asian J Med Educ.* 2012;6(2):29–33.
- Salvi SR, Prasad N. Learning strategies in medical school: A holistic approach to physiology. *Natl J Physiol Pharm Pharmacol.* 2018;8:1070–1073.
- Shah N, Desai C, Jorwekar G, Badyal D, Singh T. Competency-based medical education: An overview and application in pharmacology. *Indian J Pharmacol.* 2016;48(1):5–9. Suppl.

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