

# Perception of teachers towards performance of undergraduate medical students in Physiology practical & syllabus content

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## Abstract:

Students' performance in physiology practical examination is a matter of concern. Therefore it was felt necessary to assess teachers impression on performance of students in various sections of physiology practicals and towards syllabus content of physiology practical to suggest modifications. A questionnaire based study was designed involving physiology teachers of the medical colleges of Vidarbha & Chhatisgarh region of Central India. It was observed that students' performance was not satisfactory according to 70% teachers.

Weak areas identified were clinical Physiology (71%) and animal Experiments 26%. Reinforcement was found to be necessary by 65% teachers, and it should be in the form of Video Clips (70%), Early Clinical Exposure (58%) & Objective Structured Practical Examination (78%). The Reasons for the poor performance were found to be time crunch, less faculty, no small group teaching, no integration between theory & clinical application, no clinical exposure & apathy of students. About the syllabus content, practicals that can be replaced were found to be animal experiments, Stethography, Ergography and the practical that can be included Cardio Pulmonary Resuscitation, Nerve Conduction Studies, Electro myography (EMG), Computerised Pulmonary Function Tests PFT, Autonomic Function Tests, evoked potentials, ELISA, Diffusion Capacity of lungs by Carbon Monoxide (DLCO).

Measures suggested to improve students' performance were to restore duration of I MBBS to one and half year, Early Clinical exposure (compulsory ward visits), small group teaching, interpretation of laboratory reports through group discussion and simulation lab for clinical experiments. We conclude that revision of the syllabus is the need of the hour but the same syllabus can be made interesting & motivating for the learners by applying new strategies.

**Keywords:** Teachers' perception, Students' performance, Syllabus content.

## Introduction:

Physiology is one of the basic science subjects in medical curriculum. It is the science of mechanical, physical and biochemical functions of humans in good health, their organs and the cells of which they are composed of (1). In the conventional system of medical education basic subjects Anatomy, Physiology and Biochemistry are taught in the 1<sup>st</sup> year of 4.5 years of medical course. In most of the medical colleges it is mainly taught by didactic lectures, practicals and tutorials which are mostly teacher centred. Medical students build their clinical knowledge on the grounds of previously obtained basic knowledge(2). There is growing concern among medical educators that traditional program of teaching medical students have not provided better outcome of learning(3). Physiology like any other branch of medicine is progressing and for the improvement in undergraduate medical course, teaching and evaluation methods need to be modified at regular intervals. For his modification of methodologies is a must (4,5).

The syllabus of Physiology practical is divided into four sections Haematology, Human physiology, Clinical Physiology and Animal experiments. Students' performance in physiology

practical examination is a matter of concern. The teachers of NKP Salve Institute of Medical Sciences & Research Centre (NKPSIMS & RC) Nagpur India feel that the students' performance varies in these sections & many times it is consistent in one particular section. Therefore it was felt necessary to assess the perception of Physiology teachers of other institutes on the performance of students in various sections of physiology practicals and towards the syllabus content of physiology practical & suggest modifications

It was also felt necessary to know whether some modification either in the form of Teaching Learning Method or assessment needs to be implemented for the betterment of students. The recent advances in Physiology also advocate a revision of the syllabus. With this background this educational project has been undertaken with the following objectives.

## Objectives:

1. To evaluate physiology teachers' perception on overall performance of 1st MBBS students in physiology practicals.
2. To assess the adequacy of syllabus of physiology practical & suggest modifications.

- To suggest measures to improve the performance of 1<sup>st</sup> MBBS students in physiology practicals.

We believe that results from this study would help preclinical teachers to improve upon the delivery of course contents that stimulates students interest in the subject.

### Material & Methods:

A questionnaire based study was designed involving physiology teachers of the medical colleges of Vidarbha & Chhatisgarh Region of Central India based on the performance of undergraduate medical students in practical examination & the syllabus content. Ethical approval was obtained from the institutional Ethics Committee. 50 medical teachers from 11 medical colleges of Central India were involved in the study. Amongst them 11 were professors, 18 associate professors and 21 assistant professors. The participants were assured of confidentiality.

The instrument for data collection was a questionnaire. Based on the objectives a questionnaire was designed with the help of departmental teachers and got validated from the MET unit faculty of NKPSIMS & RC Nagpur. The questionnaire was made of 11 questions and comprised of 4 open ended questions and few structured questions of multiple choice type. The questionnaire was made up of 3parts. Part A was based on demographical questions related to designation and total teaching experience. Part B had 2 themes related to students' performance and syllabus content. 5 questions were based on students' performance, probable causes and remedial measures and 6 questions were related to syllabus content and its revision. The questionnaire was administered to 50 physiology teachers of 11 medical colleges in Vidarbha & Chhattisgarh.

### Results:

We categorised the results into 3 parts.

**A. Students' performance:** According to 70% teachers students' performance in the practical examination was not satisfactory (Fig 1). When probed further the weaker areas were clinical Physiology according to 71% teachers and animal experiments according to 26% teachers (Fig 2). Many teachers (65%) agreed that reinforcement is necessary, and it should be in the form of Video Clips (70%), Early Clinical Exposure (58%) & Objective Structured Practical Examination (78%) (Fig 3). Replying to an open ended question on the reasons for poor performance the answers were time crunch, fewer faculties, no small group teaching, no integration between theory & clinical application, no clinical exposure & apathy of students.

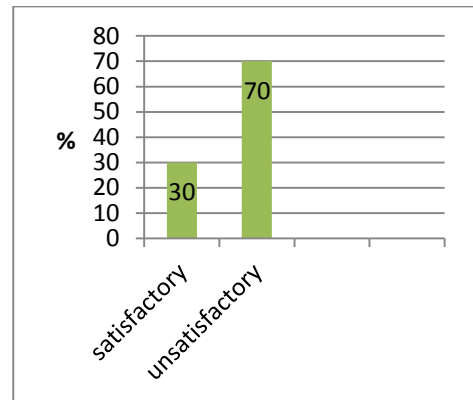


Fig 1: Performance of the students in practical examination

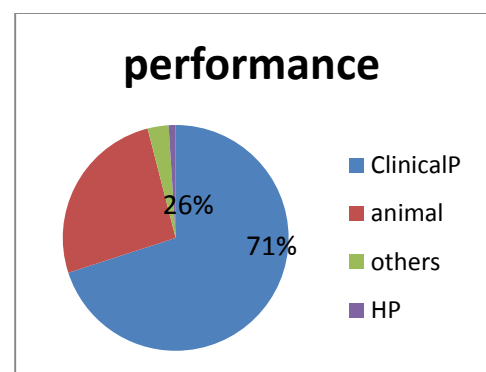


Fig 2: Weaker section of physiology practicals

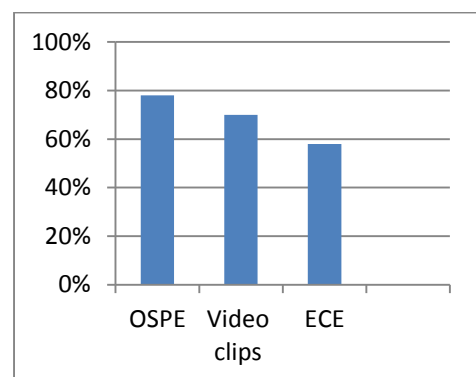


Fig 3: Remedial Measures as suggested by the teachers

**B. Syllabus Content:** In a reply to an open ended question on the practical syllabus the teachers were in favour of replacing some practicals like animal experiments, stethography, ergography and inclusion of some new practical like Cardio Pulmonary Rescuicitation, Nerve Conduction Studies, Electo myography (EMG), Computerised Pulmonary Function Tests PFT, Autonomic Function Tests, evoked potentials, ELISA, Diffusion Capacity of lungs by Carbon Monoxide (DLCO).

**C. Measures to improve students' performance:** The measures suggested to improve students' performance were to restore duration of I MBBS to one and half year, Early Clinical exposure (compulsory ward visits), small group teaching, Interpretation of laboratory reports through group discussion and Simulation lab for clinical experiments.

#### **Discussion:**

There are many flaws in the present teaching system. The institutes are producing students who are passive learners as teaching is purely teacher centred, there is one way communication, students are not actively involved in the teaching learning process. This basically discourages students from learning, they have lot of confusion in their mind & therefore the subject on the whole is never grasped. According to Edinburg Declaration(6) there is tremendous responsibility on institutions providing medical education for bringing about required innovations in existing system so as to meet the defined needs of the society.

A study has been carried out in Nigeria to know preclinical students' perception of their courses and preclinical speciality choice where majority of the respondents felt that Anatomy and physiology were the most relevant and biochemistry as the least relevant subject to medical curriculum. But the students were satisfied with the Quality of teaching in physiology (7). A similar kind of study has been carried out in Punjab India to know medical students attitude and perception towards basic science subjects where 50% of the students considered Anatomy as the most important basic science subject and 90.6% felt that problem based learning (PBL) would have helped in better understanding of the subject (8).

In one of the studies for Integrated teaching a module has been developed on endocrine physiology which was found to be more effective over other teaching method, improve the cognitive psychomotor domain of students, enhances students' skills to correlate clinically improve diagnosis skills and benefit the society (1).

A review of the available literature revealed that there is a dearth of studies that deal with teachers' perception about the students' performance, syllabus content and their perception about the desired changes in the curriculum. In one of the study in South Africa, educators perception was obtained regarding the impact of curricular change in the knowledge and understanding of physiology by medical students and the study highlights the challenges faced by both physiology educators and curriculum designers, particularly in case of PBL curricula (9).

Majority of the medical colleges included in this study follow traditional curriculum in teaching. This is discipline based, teachers centred and learners are taught all the subjects in isolation. In today's world there are many advances in scientific knowledge and innovations in educational field that necessitates constant changes in medical school curricula.

Since last couple of years the duration of I MBBS has been reduced to merely one year making it even more difficult for the medical students to grasp the subject. Teachers of I MBBS subjects also are required to complete the syllabus hurriedly without getting any chance to introduce any innovation either in the teaching learning process or assessment and evaluation. Medical Council of India New Delhi in its Vision 2015 document has strongly recommended ECE, Integrated teaching, Problem Based Learning (10). Majority of the teachers are aware of this but they find it difficult to imply because of time crunch and poor student teacher ratio.

Through this study we wish to highlight the concerns about the students' declining performance and the challenges faced by the physiology teachers. We need to ensure that students should gain in depth knowledge of the subject so that they will be able to integrate this basic knowledge with the clinical disciplines in future. Because most of the time preclinical courses are considered as stepping stones to the main courses whereas the fact is these subjects are the framework on which medical career would be built. We strongly recommend a communication between curriculum designers and the educators about the course content and its implementation.

#### **Conclusion:**

Revision of the syllabus is the need of the hour but the same syllabus can be made interesting & motivating for the learners by applying new strategies.

It is recommended that there is an urgent need to implement new teaching learning methods & new strategy to assess the students as assessment drives learning and for this to achieve there is a strong suggestion of restoration of I MBBS duration to one and half year and a healthy teacher student ratio.

#### **Acknowledgement:**

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#### **References:**

1. Dandannvar Vijaya S. curriculum Development for Integrated Teaching (Moduel) – MBBS Phase I students. Asian J.EXP. BIOL. SCI. VOL 2(3) 2011:474-481.
2. ElBabMF, SheikhB, ShalabyS, AwadyM, Allama. Evaluation of basic medical sciences knowledge retention

- among medical students. *Ibnosina J Med BS* 2011;3:45-52.
3. Khalid BA. The current status of medical education in the Gulf Cooperation Council countries. *AnnSaudiMed*2008; 28:83-8.
  4. Ruth, N.(2000)Communicating student evaluation of teaching results. Rating interpretation guides (RIG's). 121-34.
  5. Richardson, B. K. (2004). Feedback. *Academic Emergency Medicine* 11: 1-5
  6. The Edinburgh Declaration. (1988) World congress on the Medical Education of the world Federation of Medical Education. 481-2 ↕
  7. Ebomoyi MI, Agoreyo F D. Preclinical students' perception of their courses and preclinical speciality choice. *Journal of medicine and Biomeidcal Research*, December 2007 Vol 6;No1,2:47-58.
  8. Gupta Shailni. Gupta ashwani K., Verma Minni, Harpreet Kaur,Kaur Amandeep, Singh Kamaljit. The attitudes and perceptions of medical students towards basic science subjects during the ie clinical years: A cross –sectional survey. *Int. J.Appl Basic Med Res* 2014 Jan-June ; 4 ( 1): 16-19.
  9. Tuft Mark, Higgins –Optiz Susan. Medical Physiology education in South Africa: what are educators perspective? *AJHPE* 2012;4(1):15-21.
  10. [www.mciindia.org/tools/announcement/MCI\\_booklet.pdf](http://www.mciindia.org/tools/announcement/MCI_booklet.pdf). Visited on 20<sup>th</sup> April 2015.