Original Research Paper

Students' perspective of the MBBS Physiology curriculum

Omna Chawla[1], Manasi Bhattacharjee[2], Naveen K. Kansal [3]

Abstract

Introduction: Rapid technological advances and information overload in the medical field calls for a redesigning of the medical curriculum especially in basic sciences. To incorpate change in the curriculum would require experts' opinion in the area. At the same time, students' opinion also forms an important basis for any modification. The present study is small one but it is an important step for this field. We have addressed this issue by evaluating students' perspective of the physiology curriculum with the help of a semi-structured questionnaire.

Aims & Objectives: This study was designed to

- Obtain the views of students regarding the curriculum of physiology.
- Invite suggestions for improvements.

Materials & Methods: The study was conducted at Gian Sagar Medical College, Ram Nagar, Patiala, India using a semi-structured questionnaire. The questionnaire was given to 2nd professional MBBS students, were exposed to of basic science for further training.

Results & Discussion: Our study has revealed students' opinion about certain aspects of the existing physiology curriculum. The students emphasized that they wanted to learn only the clinical application oriented subject content and they the preferred interactive teaching methods. Most students felt the need to reemphasize these subjects in later clinical years. Their assessment is the crucial factor on how they would organize their learning. There is a need for modification in the existing curriculum though similar studies over longer duration of time should be conducted in other medical colleges to recommend changes.

Keywords: curriculum, questionnaire, physiology

Introduction

The emergence of new techniques and availability of extensive information in the field of medicine calls for a fresh look at the MBBS curriculum, especially that of the basic sciences (Drake, 1998; Siddiqui, 2006). Any revision in the curriculum requires assessment of its input, process, outcome and impact by experts in this field (Prideaux, 2003; Gitanjali & Shashindran, 2006). Student opinion forms a useful basis for modifying and improving the quality of the existing curriculum (Valle et al., 2004; Tufts & Higgins-Opitz, 2009). Since the students are at the receiving end of the educational process, the importance of obtaining their perception about the existing system before advocating any change needs no further emphasis (Lata H. et al., 2008).

Many students informally indicate that the contents of basic sciences do not seem relevant to their later clinical work. It is time to ponder upon this information. This probably calls for an application based teaching method and course content (Lujan & DiCarlo, 2006; Garg et al., 2004; Sathishkumar S, 2007; Shankar & Roopa, 2009). In view of this need, students' feedback about the physiology curriculum in terms of content, time frame and assessment methods were obtained.

[1]*Associate Professor, Department of Physiology, Gian Sagar Medical College and Hospital, Ramnagar, Patiala-140601, India*

[2]*Assistant Professor, Department of Physiology, Vardhman Mahavir Medical College and Safdarjung Hospital, New Delhi-110029, India*

[3]*Senior Resident, Department of Dermatology and Venereology, Gian Sagar Medical College and Hospital, Ramnagar, Patiala-140601, India*

Corresponding author:
Dr. Omna Chawla, MBBS, MD
Department of Physiology,
G. S. Medical College and Hospital,
Ramnagar, Patiala-140601, India.

E-mail: omnachawla@gmail.com

Materials and Methods

The study was conducted at Gian Sagar Medical College and Hospital, Ramnagar, Patiala, India. The study protocol was cleared by the ethical committee of the college.

A short note about the teaching of the Bachelor of Medicine & Bachelor of Surgery (MBBS) courses in India would be at this point. The total duration of MBBS course is 5 ½ years, which includes a compulsory rotating internship of one year. The first year teaching consists of anatomy, physiology and biochemistry – the preclinical/basic subjects. The second year teaching consists of paraclinical subjects – pharmacology, pathology, microbiology and forensic medicine & toxicology. Simultaneously, clinical postings is 3 ½ years starting from the second year – internal medicine, surgery, obstetrics & gynecology, pediatrics, ophthalmology, ENT, preventive & social medicine etc. After passing the theory and practical parts of the final professional examination, students undergo the rotating of internship in various clinical subjects for first year in order to be eligible for the MBBS degree. Further medical education in India consists of postgraduate courses in specialties (MD/MS/Diplomas), postdoctoral courses (DM/MCH) in super specialties and fellowships.

The semi structured questionnaire was developed keeping this design of medical teaching in mind as well as the fact that this medical school was new and responses of students were unlikely to be biased from seniors. The questionnaire questions were related to practical training, students were required to choose from four options relating to their particulars practical. Practicals were listed under the following headings: hematology, cardiovascular system, respiratory system, nervous system and special senses. There were a total of seven questions with four to five options each, addressing the issues of time frame of the course and assessment methods. Provision was also there for additional comments and suggestions.

The questionnaire was given to second professional MBBS students, who were exposed to application of their basic science knowledge in clinical training. Students were briefed about the purpose for which the feedback was required and assuring them of anonymity.

Results

The questionnaire was answered by 92 out of 100 students. On analysis of questions dealing with practical training in physiology, most of the students preferred that only observing the practicals that require technical skills with ability for interpreting the findings. They insisted on performing the clinical practicals and felt more time should be spent on mastering the clinical skills. This trend is evident from the choice of options A to D for various questions (Figure 1).

Most of students (66.2%) were satisfied with the existing time frame for the first professional session. They also felt the need for re-emphasis of the subject during the second and third professional sessions

There were 80.4% who felt that internal assessment examinations were required, while, 50% suggested a monthly evaluation. Regarding the type of questions in assessment, 47.8% preferred a combination of questions for evaluating theoretical principles, 32.6% wanted only analytical questions, 71.9% chose voted for a combination of types of question for evaluating practical skills.

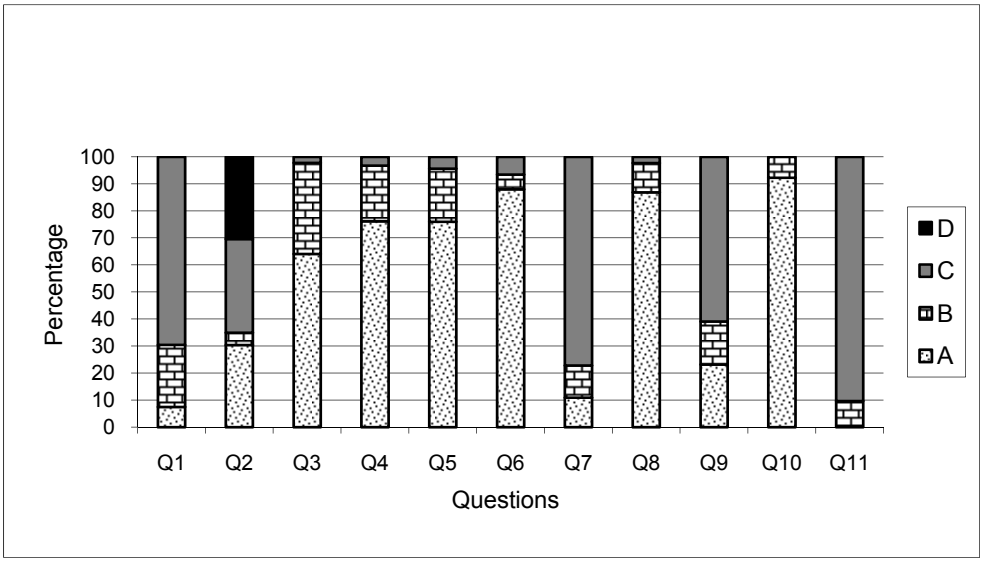
Most of the students had additional comments and suggestions. It emerged from these suggestions that 76% preferred tutorials and interactive small group teachings and almost all insisted that lectures should be less exhausting but more interactive and informative.

Discussion

It is evident that with technological advance and information overload in medical specialties, can cause a curriculum to be outdated within a few years. This, probably requires a redesigning of the basic science training method.

The curriculum is the basic framework on which an educational system is based. In addition to innovations in teaching learning methodology adopted by teachers, students' perception of the existing system must be obtained from time to time (Das et al., 2006). Our study has revealed students' opinion about certain aspects of the existing medical physiology curriculum.

Figure 1: Percentage distribution of options A to D in physiology practical question



The figure depicts percentage distribution of options A to D for physiology practical questions. Each bar represents one question (Q.1- Q.11). Questions 1, 2, 7, 9 & 11 are questions requiring technical skills. The other questions are related to clinical skills.

Details of options:

A. Medical students must be able to perform and interpret the skill independently.
B. Medical students must be able to interpret the skill independently
C. Medical students must have observed the skill only
D. Medical students need not know the skill as not required in practice

Q.1 Manual RBC & WBC counting using Neubauer's chamber
Q.2 Preparation and staining of peripheral blood film.
Q.3 Examination of CVS.
Q.4 Auscultation of heart sounds.
Q.5 Clinical examination of respiratory system.
Q.6 Perform spirometry using students spirometer & interpret.
Q.7 Examination of sensory system.
Q.8 Examination of motor system, record EEG.
Q.9 Record EMG.
Q.10 Field of vision using student's perimeter.
Q.11 Acuity of vision using Snellen's & Jaeger's charts.

A large number of students emphasized that they wanted to learn only those skills which will be useful for clinical practice. Students' opinion of this nature is probably not new; however, there are mainly two reasons why this finding is relevant. Firstly, the set of questions given to the students was based on the ongoing practical exercises. Secondly the participants had already passed the first professional examination and were exposed to clinics and were more likely to appreciate the merits and demerits of the present curriculum. A lot of time is spent in teaching material which may not be essential for medical graduates to practice medicine (Vogel, 1993). There is a need to include applied and patient subject oriented content. Contextual teaching learning helps students connect to the learning process. As they strive to attain learning goals, they draw upon their previous experiences and build upon existing knowledge (Kanungo, 2003).

As pointed earlier in a study by Costa et al., in 2007, our students also preferred interactive teaching as the preferred mode of learning. The lecture is often acknowledged as the least 'engaging' method of teaching if the student is

not actively involved. Discussion-based methods are superior in many ways with regard to the desirable end-points of instruction, including improved problem-solving skills and increased student retention of information after the course has ended (The Interactive Lecture: An Instructor's Manual).

In India theory classes use the lecture method. It is a live personal method for motivating, sensitizing and stimulating students. It can save the learner's time by providing an up-to-date summary of the topic from several sources (Shankar & Roopa, 2009). In the Indian context, it is not possible to implement full-fledged small group teaching, a modified approach to traditional didactic lecture teaching may be useful.

A study conducted by D'Eon found that there was considerable knowledge loss among medical students in the three basic science subjects (D'Eon, 2006). In similar lines, it is generally observed that students' retention of basic science concepts after the preclinical years is generally poor and thus many authors have suggested the need to fully integrate basic science teaching throughout all four years of the medical student curriculum (Spencer et al., 2008). At the same time, the students who learn basic science explanations may actually retain clinical information about the relation between features and diseases better than students who attempt to learn the clinical correlates directly (Woods et al., 2006). We therefore suggest a concise recapitulation of the basic sciences as part of the curriculum during the later years of medical school.

Assessment is recognized as probably the most influential factor related to how students learn. Students organize their learning according to cues from assessment. For this reason, using assessment strategically can lead to enhanced student learning (Vu & Dall'Alba, 2008). The content, format and frequency of assessment, as well as the timing and format of feedback, should follow from the specific goals of the medical education program (Epstein, 2007). Our students also favoured regular assessment tests but they suggested that internal assessment exams should not be too frequent. This observation is in accordance with other studies that suggest assessment as an essential part of teaching learning process but very frequent assessments reduce the time for self-preparation by the students (Ahmed et al., 2007).

Conclusion

It should be recognized that present day the medical students cannot be expected to learn as much physiology as was the case in the past but it should also be recognized that knowledge of physiology as a core discipline is fundamental to health and disease (Ahmed et al., 2007). Our study reveals that students are interested in learning the subject from a clinical application. There is definitely a need to modify the course content and teaching learning methods; however, it is also possible that few students may be interested to pursue a career in basic research. Therefore, a balanced approach would be appropriate. A lot of responsibility lies on the medical teacher. It is for him/her to identify the interests of individual students and provide information in an appropriate manner within the limits of the designed curriculum. It is also his/her duty to convey students' perspective to other medical faculty staff.

Practical Points

- The emergence of new techniques in medical specialties does not diminish, rather it increases the need for basic science training.
- Students are interested in learning the subject from a clinical application.
- The teachings should be learner-centered and more clinically oriented.

Acknowledgements

The authors would like to thank the faculty and the fellows of CMCL-FAIMER for providing a stimulating environment to facilitate this educational project. We also thank the students for their valuable feedback.

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