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A questionnaire based study of pharmacology curriculum in undergraduate students

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ABSTRACT

Pharmacology, a branch of medicine is progressing by leaps and bounds, but medical students decry the way it is taught, its examinations, its usefulness when they practice. Hence to assess the students attitude, perception and feedback on teaching – second year mbbs students (127 in number) were included. They were administered a pre-validated questionnaire containing – questions based on internationally accepted "Likert Scale". Analysis was based on median score, and percentage wise distribution of the various parameters used in the questionnaire. Students were in favour of many changes in pharmacology like learning pharmacology simultaneously with clinical condition to correlate drug with diseases and teaching some topics during prefinal or final year to achieve the said objective, preferring case studies and treatment as part of regular teaching schedule, incorporation of clinically oriented lectures, preferring partial handouts before lectures and incorporation of MCQS in rating evaluation methods for examination.

Keywords: Pharmacology, Likert Scale, questionnaire, paraclinical subjects, handouts.

INTRODUCTION

Pharmacology forms the backbone of rational therapeutics, being both a basic and applied science. The primary objective of teaching pharmacology is to enable undergraduate medical students to take rational therapeutic decisions in clinical practice[1]. In India, it is introduced in third semester to the medical students and is horizontally integrated with other paraclinical subjects like microbiology, pathology and forensic medicine. The training in pharmacology takes place by way of didactic lectures, audiovisual aids, problem based learning methods using various clinical problems and practical curriculum including animal experiments, prescription writing, and solving the clinical problems. Learning pharmacology to choose and prescribe drugs is a major challenge encountered by students[2].

Curriculum development is a scholarly process[3]. It integrates the theory and methodology to evaluate its impact. The curriculum needs to be assessed for its merit, which is done by evaluation methods based on the goals of the curriculum. The aim is student should

develop transferable skills, which would help not only for undergraduate education but to learn throughout the medical career[4]. It is accepted that reviewing the teaching and evaluation methods by feedback from students and modification of methodologies accordingly is very important for the undergraduate medical teaching[5,6,7]. The course assessment instruments like feedback may help to know about the pros and cons of teaching and assessment methods. Currently student feedback represents the primary means used by most programs to assess their methodology[7,8]. Considering all these facts, it was decided to get a general feedback from the students about the subject with respect to:

1. The students attitude towards teaching and learning pharmacology at Govt. Medical College, Srinagar.
2. Student feedback on the assessment process of pharmacology.
3. Suggestions to improve the teaching and learning of pharmacology.

MATERIAL AND METHODS

This cross-sectional involved – second year medical students from IV and V semester studying in G.M.C, Srinagar who were surveyed with pre-validated questionnaire designed for them after approval from Institutional ethical committee. Oral consent was

taken from the students prior to the start of the study. The questionnaire was adapted from the previous studies that assessed feedback of second year medical students on teaching-learning methodology and evaluation methods in pharmacology[9,10,11,12].

The questionnaire consisted of thirteen questions. First eight questions were designed based on the, internationally accepted Likert Scale (SA – Strongly agree, A – agree, NS – not sure, D – disagree, SD – strongly disagree) and validated by senior staff of the department. The other five questions were based on choosing the options using tick ($\checkmark$) which in some questions students could choose more than one option. A few modifications were done in the questionnaire to best fit with reference to university syllabus. Sufficient time was given to the students to complete questionnaire. Participation in the study was voluntary. They were also asked to give suggestions to improve pharmacology teaching. The questionnaire is showing the appendix.

RESULTS

A total of 127 students participated in the study and all of them completed the questionnaire. Analysis was based on the median score, and percentage wise distribution of the various parameters used in the questionnaire.

Percentage Wise Distribution and Median Score of Various Parameters

S. No.	Percentage wise distribution	Median Score
1	SA - 16.5%; A - 37.3%; NS - 21.25; DA - 21.25; SDA - 5.51	5
2	SA - 48.8%; A - 37.0%; NS - 6.2; DA - 6.2; SDA - 3.14	4
3	SA – 32.28%; A - 48.8%; NS - 12.5; DA - 2.36; SDA - 3.93	4
4	SA - 45.6%; A - 39.3%; NS - 7.8; DA - 7.0; SDA - 0.0	4
5	SA – 56.6%; A - 36.2%; NS - 3.93; DA - 2.36; SDA - 0.7	5
6	SA - 51.18%; A - 40.44%; NS - 6.2; DA - 0.0; SDA - 3.1	5
7	SA - 59.8%; A - 34.6%; NS - 2.36; DA - 2.36; SDA - 0.7	5
8	SA - 22.8%; A - 38.5%; NS - 18.11; DA - 14.9; SDA - 5.51	4

APPENDIX

5 → Strongly agree (SA); 4 → Agree (A); 3 → Not sure (NS); 2 → Disagree (DA);
1 → Strongly disagree (SDA)

Gender	Residence	Median Score 1-5
		(From question No. 1 to 8)

1. Pharmacology is my favourite subject in the basic sciences.
2. Studying pharmacology in second year of M.B.B.S. will help me in choosing drugs rationally in my future practice.
3. I would like horizontal integration of pharmacology with other paraclinical subjects.
4. There should be more emphasis on problem solving exercises rather than on didactic (teaching) lectures.
5. There should be distribution of handouts giving the outline of the topic before the lecture classes.
6. Problem based learning and prescriptions are extremely useful in clinics.
7. Unless pharmacology is simultaneously learnt along with clinical conditions, it would be difficult to correlate the drugs with the disease.
8. It would be appropriate if some topics are taught during the prefinal or final year to achieve objective number 10.
9. Rating evaluation methods for examinations: Choose only one option using tick (✔)
    MCQ test only ☐
    Written examination only ☐
    Viva voce only ☐
    Combination of above ☐
    Persisting type ☐

10. Study material to learn pharmacology: Can choose more than one option using tick (✔)
    Textbooks only ☐
    Teachers class notes ☐
    Self prepared notes ☐
    Combination ☐

11. Pharmacology learning methods: Can choose more than one option using tick (✔)
    Cramming / Mugging ☐
    Understanding ☐
    Grasping thing ☐
    Combination ☐

12. Status of pharmacology teacher as compared to other.
    Choose only one option using tick (✔)
    All good and knowledgeable ☐
    Most good, few average ☐
    Most average, few good ☐
    All average ☐
    All below average ☐

13. Wish to be a pharmacologist: Choose only one option using tick (✔)
    Don't know ☐
    May be ☐
    No ☐
    Yes ☐

Any added comments you want to add to improve pharmacology teaching.

DISCUSSION

Pharmacology is a subject which has to be learned thoroughly in order to treat the patients. It serves as a foundation stone for clinical practice. Majority of the students endorsed of pharmacology being their favourite subject in basic sciences and that the knowledge of the subject would help them in choosing drugs rationally in future practice as suggested by Theo[13] that undergraduate training should lay the foundation for choosing and prescribing drugs rationally. Students were positive to have horizontal integration of pharmacology with other paraclinical subjects. A survey of Italian doctors had considered the pharmacology teaching they received to be mainly theoretical and opined that more time and attention should be devoted to issues more closely related to clinical practice[14]. According to a study conducted by Garg et al (2004)[15], 80% of the students preferred case studies and treatment as part of the regular teaching schedule. This has been confirmed in our study as well wherein majority of students feel that problem based learning and prescriptions are extremely useful in clinics. As per a study by Advani et al (2006)[16] more than 50% want clinically oriented lectures as reteirated by students in our study in which a whooping 59.8% strongly agree and 34.6% agree. Some students mentioned about the inability of doctors in writing rational prescription and it is suggested that there should be incorporation of some training of clinical pharmacology in the internship. Ruckmani A (2006)[17] also suggested that there should be a continuous interaction between clinicians and the pharmacologists at the level of teaching of pharmacotherapy, and pharmacology should be taught along with the clinical teaching.

According to one study, students preferred lecture notes to be provided in the form of partial or complete handouts. (Mclennan MW and Isasc G, 2002)[18]. This method is very common in the western medical schools (Gene Prescott, Fart Cacolina University, personal communication). Students get oriented to the topic in advance, can study the topic and come to the class with some important questions. This can definitely convert the one sided lecture class into two sided lecture with active interaction between two. Thus the teacher will also get an enthusiasm to prepare well before going to the lecture class. This understanding has been well accepted by the students in which 50.6% and 46.6% strongly agree and agree respectively with this concept. Majority of the students favoured that MCQ's be included in rating evaluation methods for examination, since it helps them to prepare for postgraduate exams and also help them in reasoning out rather than memorizing long paragraphs. Conducting MCQ tests and viva sessions at the end of every topic may be useful to serve that purpose. MCQ's may also be provided as home assignment from time to time. Students unanimously accepted all pharmacology teachers as good and knowledgeable. Some also suggested that teachers should come up with good presentation, clarity in speech and expressivity which according to them are qualities of good pharmacology teacher. The preference for pharmacology as a subject in post graduation was very less probably because of inadequate knowledge of the booming careers in clinical research in pharmaceutical industries[19].

CONCLUSION

Pharmacology in medical science, is an ever changing medical subject. It is accepted that reviewing the teaching and evaluation methods by feedback from students and modifications of methodologies accordingly is very important for the undergraduate medical teaching. Attempts have been made all over India to make the teaching of pharmacology more interesting and relevant and students feedback represents the primary means used by most programs to assess their methodology. This study has helped in knowing the student preferences regarding pharmacology teaching and its outcomes and would be helpful in modifying undergraduate pharmacology teaching pattern.

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