

## Evaluation of feedback from 2<sup>nd</sup> professional medical students on various teaching-learning and assessment methods in Pharmacology

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### Abstract

**Objectives:** This study was designed to obtain & evaluate feedback on teaching-learning and assessment methods.

**Material and Methods:** A structured questionnaire was designed and prevalidated. After obtaining permission from Institutional Ethics Committee questionnaire was given to students of 2017 batch who had completed their 5<sup>th</sup> semester teaching schedule of pharmacology. They were asked to fill the questionnaire honestly without any pressure and give their valuable feedback on various teaching-learning and evaluation methods used in our pharmacology department during their classes and exams.

**Results:** One hundred fifteen students participated in the study. Majority of students (58.3%) are in favor of teaching pharmacology bedside in hospital. Among second year subject pharmacology was favorite of 39.1% students. 68.7% recommended interaction during classes that helps them the most to concentrate during lecture. Greater number of students (74.8%) find combination of chalk and board, PPT and audio video are more effective method to learn pharmacology in lectures having duration of 45mins (53.9%). Written and viva test after completion of each system and their feedback within a week help them most to prepare pharmacology for university examination.

**Conclusion:** This states that the constant updating of teaching methods are required to keep students more focused, interested and to cop up with the newer generation of students. Regular assessment and their timely feedback helps them to find out their weaknesses and strengths which will help them to prepare for their university examinations.

**Keywords:** Evaluation, Teaching-learning, Feedback, Pharmacology.

### Introduction

Medical education helps students to obtain knowledge and application of this knowledge is utilized in their future clinical practice. So, method by which a topic is taught will influence them in understanding the subject and correlate the same with the clinical aspects. There are various challenges faced by the teachers like differences in learners, variation in the content taught and differences across learning settings.<sup>1</sup>

Pharmacology is an essential branch of medical science which keeps on changing and needs constant updating of knowledge. While educating second year MBBS students in pharmacology it is essential to teach them effective and safe drug therapy. Knowledge of clinical pharmacology is back bone for prescribing rational drug therapy. For making pharmacology lectures more engaging and understanding, we have to review the teaching methods regularly. It is agreed that the modifications in methodologies of providing basic knowledge about drugs and drug therapies is needed.<sup>2,3</sup>

Feedback is a frequent ongoing review of strength and area to improve, with the goal of enhancing performance. It is accepted that the feedback from students serves as an effective tool in developing teaching and evaluation methods in undergraduate teaching.<sup>4</sup> The best way to assess & improve the teaching methodology is through the students' feedback. The most expert teachers emerge from years of experience with a variety of teaching methods.<sup>1,2</sup>

Reviewing the teaching-learning and evaluation methods regularly and updating newer methods of teaching is must for improvement medical teaching. Feedback from students will help the teachers to identify their strengths and

weaknesses.<sup>5</sup> Feedback allows teachers to revise their methods of teaching so that students can understand easily what they are taught in the classes.

Feedback is considered to be the best method to bridge the communication gap between teachers and students<sup>(6)</sup>. It is an inexpensive and invaluable tool to improve the quality of teaching.

In recent times most, programs use student's feedback to assess their methodology.<sup>7</sup> The students are the only direct daily observers of a professor's teaching performance. Students are thus a potentially valuable source of information about their professors' teaching. This stimulated us to undertake this study.

### Objectives

This study was designed to

1. Obtain feedback on teaching-learning & assessment methods
2. Evaluate feedback obtained from the students.

### Materials and Methods

A structured questionnaire on teaching-learning & assessment methods was designed with the help of staff members in GMERS Medical College JUNAGADH and prevalidated. After obtaining permission from Institutional Ethics Committee questionnaire was given to students of 2017 batch who had completed their 5<sup>th</sup> semester teaching schedule of pharmacology and going to appear for their preliminary examination within few days. First of all the participants in the study were briefed about the study we are going to conduct. Students were instructed to fill the form after giving informed consent. One hundred fifteen (115)

students participated in the study out of one thirty two (132) students. They were asked to fill the questionnaire honestly without any pressure and give their valuable feedback on various teaching-learning and evaluation methods used in our pharmacology department during their classes and exams. First six questions were based on five-point likert scale with five was strongly agree and one was strongly disagree. Ten questions were multiple choice, one question was check list type and one was yes or no type. Students were free to give suggestion/remarks if any to improve teaching-learning methods.

Statistical Analysis was done after obtaining data in Microsoft office excel worksheet.

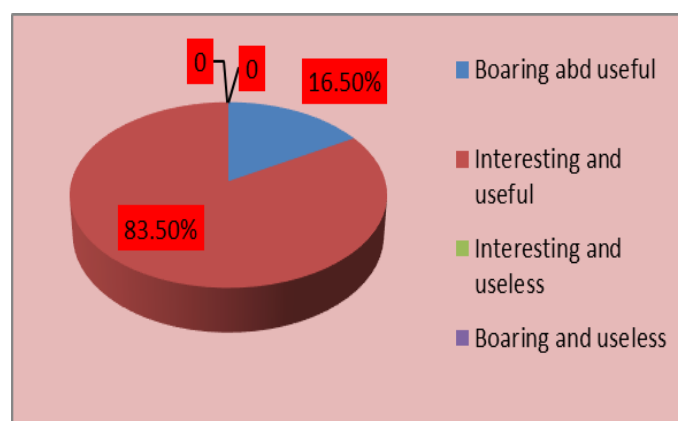
## Results

One hundred fifteen students participated in the study. Questions based on likert scale are expressed in numbers and percentages (Table 1). Greater number of students 67 (58.3%) believe that they have better correlation of drugs with diseases if pharmacology is taught bedside in hospitals. 34 (29.6%) students were not sure whether pharmacology should be taught in 3<sup>rd</sup> MBBS or not. Pharmacology was the favorite subject of 45 (39.1%) students among other 2<sup>nd</sup> year MBBS subjects. Majority of students 79 (68.7%) are in favor that interaction during classes helps them to increase attention span during lectures. A large number of students that is 88 (76.5%) students think pharmacology will help them in future practice for prescribing drugs rationally. Most of the students (38.3% strongly agree and 28.7% agree) were of opinion that one and half year time duration for pharmacology subject is enough for learning.

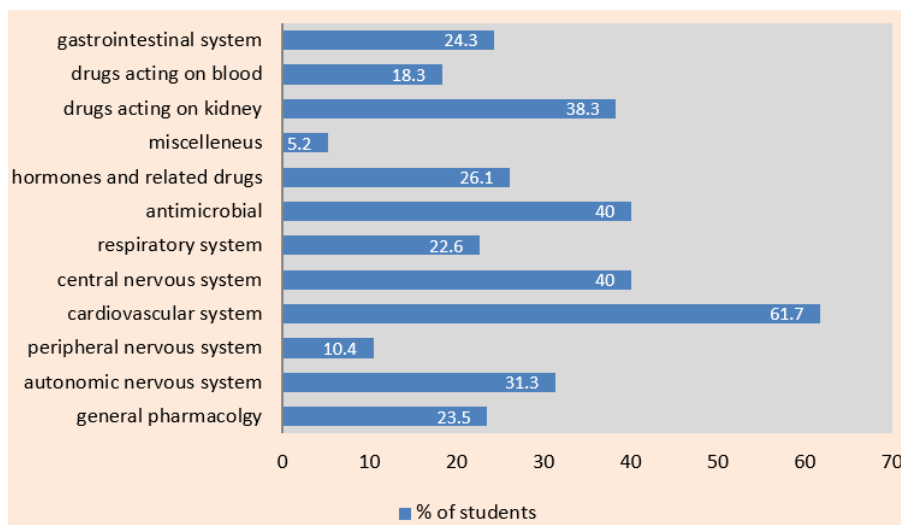
**Table 1:** Showing responses on questions asked based on likert scale

Questions	N (%)				
	Strongly agree	Agree	Not sure	Disagree	Strongly disagree
Pharmacology should also be taught bed side in hospital for better correlation of drugs with disease	67 (58.3)	25 (21.7)	19 (16.5)	2 (1.7)	2 (1.7)
Pharmacology should be taught in 3rd M.B.B.S as well	29 (25.2)	23 (20)	34 (29.6)	21 (18.3)	8 (7)
In Future, studying Pharmacology will help me in prescribing medicine rationally	88 (76.5)	16 (13.9)	9 (7.8)	1 (0.9)	1 (0.9)
In 2nd M.B.B.S, Pharmacology is my favorite Subject	45 (39.1)	37 (32.2)	23 (20)	5 (4.3)	5 (4.3)
Interactions during lectures helps to maintain attention throughout classes	79 (68.7)	22 (19.1)	14 (12.2)	0	0
One and half year time is adequate for pharmacology learning	44 (38.3)	33 (28.7)	17 (14.8)	12 (10.4)	9 (7.8)

According to feedback, 96 (83.5%) students are of opinion that pharmacology is interesting and useful subject (Fig. 1) and 19 (16.5%) students thinks that it is boring but useful (Fig. 1). As per responses cardiovascular system (61.7%) is the most interesting topic in pharmacology followed by antimicrobial (40%), central nervous system (40%), drugs acting on kidney (38.3%), autonomic nervous system (31.3%), hormones and related drugs (26.1%), gastrointestinal system (24.3%), general pharmacology (23.5%), respiratory system (22.6%), drug acting on blood (18.3%). Peripheral nervous system (10.4%) and other miscellaneous topics (5.2%) were least interested according to response by students (Fig. 2).



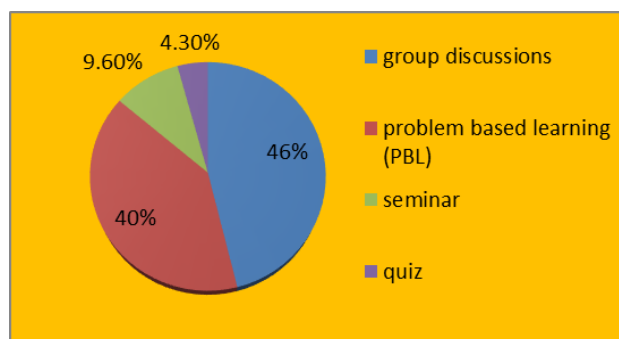
**Fig. 1:** Perception of students on pharmacology as a whole



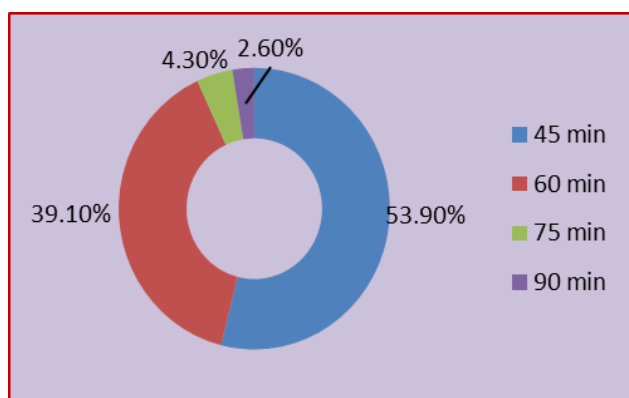
**Fig. 2:** Topics of interest in pharmacology

Standard textbooks (82.6%) are major source to study pharmacology followed by self-notes (7%), e-material available online (7%) and teacher’s notes (3.4%). Pharmacology is the most favorite subject (60%) among all other second year MBBS subjects and microbiology was least favorite subject (6%).

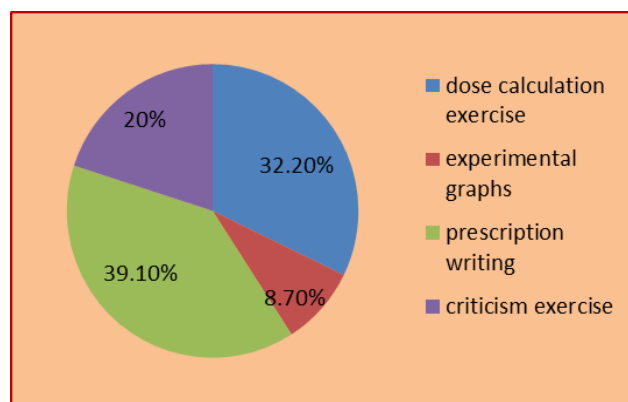
53.9% of the students preferred 45 mins lecture as compared to 60 mins, 75 mins, 90 mins lecture for better concentration during classes (Fig. 3). Group discussion (46.1%) is the most helpful method to remember various topics in pharmacology followed by problem based learning (40%), student seminar (9.6%) and quiz (4.3%) respectively (Fig. 4). Prescription writing (39.1%) is most interesting and useful part and experimental graphs (8.7%) are least useful among other options in pharmacology practical according to student’s feedback. Other options were dose calculation exercise (32.2%) and criticism exercise (20%) (Fig. 5).



**Fig. 4:** Useful method to remember topics in pharmacology

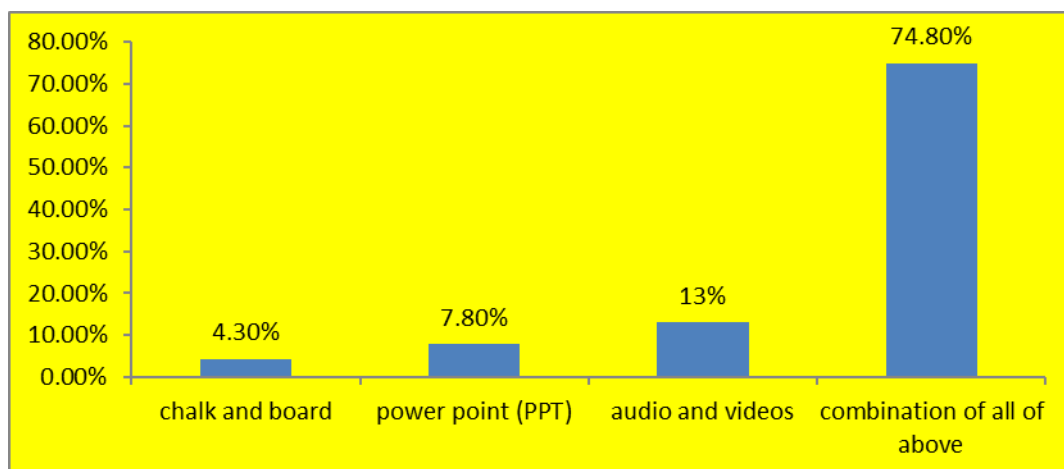


**Fig. 3:** Time duration for pharmacology lecture



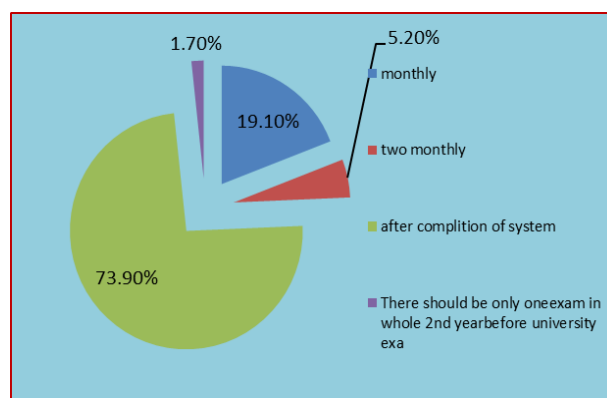
**Fig. 5:** Practical topics more interesting and useful

According to 74.8% students most effective method for learning pharmacology is combination of traditional ‘chalk and board’, PowerPoint presentations and use of audio-visual aids (Fig. 6). They prefer chalk and board method for explanation and summary of topic initially and whenever necessary use power point and audio visual aids for explaining diagrams, charts, drug classifications, mechanism of actions etc. Only chalk and board method used in lectures is least preferred by students (4.3%).

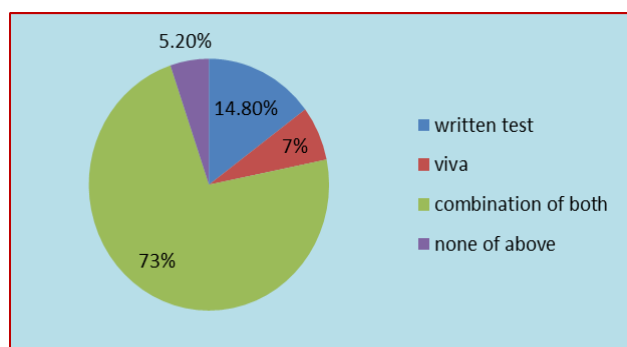


**Fig. 6:** Most interesting method for learning pharmacology in lectures

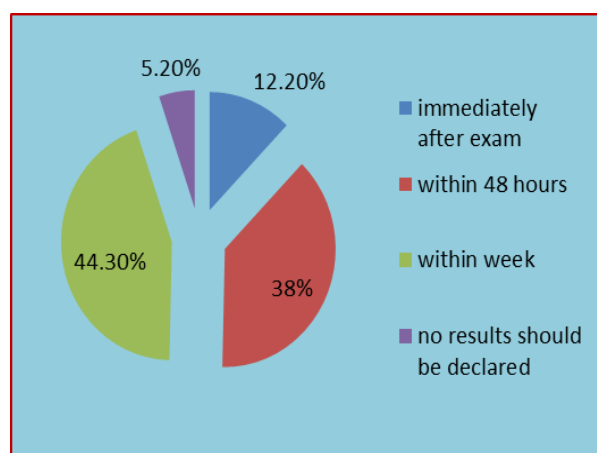
According to majority of students (73%) combination of written and viva test is most helpful for them for preparing for university examination held at the end (Fig. 7). Greater number of students (73.9%) believe that after completion of each system assessment exams should be taken for pharmacology only two students are in favor of taking only one exam in whole second year before university examination (Fig. 8). 44.3% students are in general censes that if result is declared within a week after exam help them most followed by 38.3% within 48 hours, 12.2% immediately after exam respectively. 5.2% students also recommended that no results should be declared after exams (Fig. 9). 81.7% students said that after each assessment, feedback on their performance is given by the facilitator in the department of Pharmacology.



**Fig. 8:** Frequency for taking assessment exam for Pharmacology



**Fig. 7:** Evaluation methods most helpful in preparing university examinations



**Fig. 9:** After exam in how much time results should be declared to help you most

According to them qualities for good pharmacology teachers should be like they are more interactive during lectures so that boring class becomes interesting, there concepts must be clear, teaching in easy languages and mnemonics should be given so that drugs and their classification should be remembered easily for long time

and this will make pharmacology lectures and practical more interesting and useful for them.

### Discussion

It is necessary to review the teaching-learning methods from time to time and doing adequate changes to compete with ongoing progress in the subjects. Results have shown many interesting things and students have given many ideas to make teaching learning and evaluation methods more interesting and useful so they can understand subject more comfortably. Feedback from students was in general as expected to some extent but at some places it has revealed some important information also.

Feedback revealed that 58% of students are in favor of teaching pharmacology bedside in hospital setting. Studies conducted by A Garg et al. in 2004 and Kela AK et al. also showed greater numbers of students are in favor of bedside teaching.<sup>3,8</sup>

The importance of the pharmacology is well-acknowledged by majority of the participants who consider pharmacology as their favorite subject in the second year MBBS and admit that knowledge of pharmacology is necessary in future practice for prescribing drugs rationally. Some other studies done by Sawhney V et al. and Ruckmani A et al. also have the same results and opinion in their study.<sup>9-11</sup>

Majority of students found cardiovascular system as an interesting topic in pharmacology, followed by antimicrobials, central nervous system. Miscellaneous topics and peripheral vascular system were least interesting. A study conducted in Smt. Kashibai navale medical college (Pune) by Bhosle UA et al. also showed similar results. The efforts should be made to make this least interesting topics more interesting.<sup>12</sup>

Students are in opinion that prescription writing and dose calculations are the most interesting and most useful part in practical and increase their clinical skills which will help them in future. This result is supported by another study done by Tikoo D et al.<sup>13</sup>

Group discussions and problem-based learning are the most useful methods to remember pharmacology according to the students. They do not prefer seminars as a useful method to remember & recollect pharmacology. One of the reasons for that may be the students have to put more efforts to prepare topic for seminar and they also feel nervous to present the topic in front of their batch mates and teachers. Deo SK also found similar result in his study conducted in institute of medicine Nepal.<sup>14</sup> Combination of written and viva test, assessment after completion of each system and its feedback within in week will help students the most to remember and prepare pharmacology for university exam at the end. Significant number of students mentioned one and half year duration is enough for learning and teaching pharmacology.<sup>12</sup> According to the students teacher should be interactive and have good communication, concepts regarding topic should be clear before lecture, teach in language which should be understandable to most of the

students, neither very strict nor liberal and make mnemonics to remember classification of drugs.

### Conclusion

In this study we found that, according to data analysis of student's feedback the best method for teaching is combination of chalk and board, PowerPoint presentations and audio visual. Constant updating of teaching methods are required to keep students more focused, interested and to cop up with the newer generation of students. Regular assessment and their timely feedback help the students to find out their weakness and strengths which will help them most for preparing their university exams.

### Source of funding

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### Conflict of interest

None.

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