

## ASSESSMENT OF TEACHING METHODOLOGY AND EVALUATION METHODS IN PHARMACOLOGY IN A PRIVATE MEDICAL COLLEGE

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### INTRODUCTION

With the turn of the century, modern pharmacology has emerged as an increasingly distinct discipline with a recognized career training pathway. Teaching and learning are active processes occurring simultaneously on a continuous basis<sup>1</sup>. Interactive teaching involves interchange of ideas between teachers, students and the lecture content. It refers to increased discussion among the participants and their active involvement. As pharmacology teachers in medical colleges our aim should be to produce "rational prescribers rather than churn out confused practitioners in the therapeutic jungle". The old concept of

teaching "know all" has to change to "know how and why" with emphasis on active learning. In recent years undergraduate training in pharmacology has been revolutionized with adoptions of new methods of teaching that focus on supportive learning through novel teaching approaches like small group discussions, role plays, computer assisted learning, using audio-visual aids, clinical and community pharmacology studies. It has to be acknowledged that attention should be given to the teaching of thinking skills, such as reasoning, creative thinking, and problem solving; as thinking is essential to knowledge and knowledge is essential to thinking<sup>2</sup>. A number of initiatives have been carried out to improve the teaching of Pharmacology and Therapeutics. In China the present day pharmacology course consists of a combination of lectures, problem-based learning sessions, clinic-correlated lectures, and small group discussions<sup>3</sup>. In Malaysia, the teaching-learning of pharmacology has gradually moved from factual regurgitation to more clinical reasoning, from lab-based to more patient-oriented approach<sup>4</sup>. Few studies are conducted in Indian setting related to feedback of teaching methodologies and evaluation methods from 2<sup>nd</sup> yr

medical students<sup>5</sup> so we have designed this study to get feedback regarding teaching methods and evaluation methods from 2<sup>nd</sup> year medical students in NIMS medical college, Jaipur Rajasthan. The course assessment instruments like feedback may help to know about the pros and cons of teaching and assessment methods. Currently, student's feedback represents the primary means used by most programs to assess their methodology<sup>6</sup>. Though a lot of verbal and non-verbal feedback is conveyed to the faculty in pharmacology, most of it is not published. This inspired us to undertake this study to evaluate the teaching and assessment in pharmacology for undergraduate medical students.

## **MATERIALS AND METHODS**

This study was an anonymous, questionnaire-based survey for fifth semester medical students (2011 batch) due to appear for II<sup>nd</sup> MBBS examination in National Institute of Medical Sciences, Jaipur, Rajasthan from June 2013 to July 2013. All the students who were willing to participate in the study were enrolled. A structured validated questionnaire (Annexure 1) consisting of 19 questions with 3–9 options was given to each of them and they were asked to tick the option/s which they felt was/were the best. A briefing was given about the nature of the study, and the procedure of completing the questionnaire was explained. Consenting participants anonymously completed the questionnaire in the classroom. Students were allowed to offer their own suggestions for certain important items in addition to the available options. Suggestions were asked about the qualities of good pharmacology teacher, modifications in pharmacology teaching methodology and scope of pharmacology. Questionnaire was based on a previous study undertaken for undergraduate medical students<sup>7</sup> and were suitably modified for the students. The survey was descriptive & after completion of data collection it was reviewed, organized and data was summarized as counts and percentages. Some of the questions had multiple options to choose from therefore the sum total of percentage is not always 100%.

## **OBSERVATION AND RESULTS**

A total of 138 students were present at the time the questionnaire was administered. All the students responded to questionnaire but 11 students were excluded due to submission of incomplete questionnaire. Thus, 127 students (n=127) were eligible for the study. The nationality of the subjects was Indian. Of these 72(56.6%) were male & 55(43.3%) were females. Their age ranged from 20-25 years. The most interesting method to teach pharmacology to 2<sup>nd</sup> year medical students was audiovisual lectures 73(57%) while 52(47%)

also thought that tutorials were interesting. Males preferred audiovisual lectures 47(65%) while females found both audiovisual lectures 26(47%) and tutorials 26(47%) interesting. Among the special topics that needed to be discussed was drug administration procedure 81(63%) followed by pediatric pharmacology and geriatric pharmacology. 78(61.5%) thought that there was no need to change the order in which the subject is taught while 49(38.5%) thought that it was necessary to change the order may be because systemic and chemotherapy are more easy to understand than general Pharmacology.

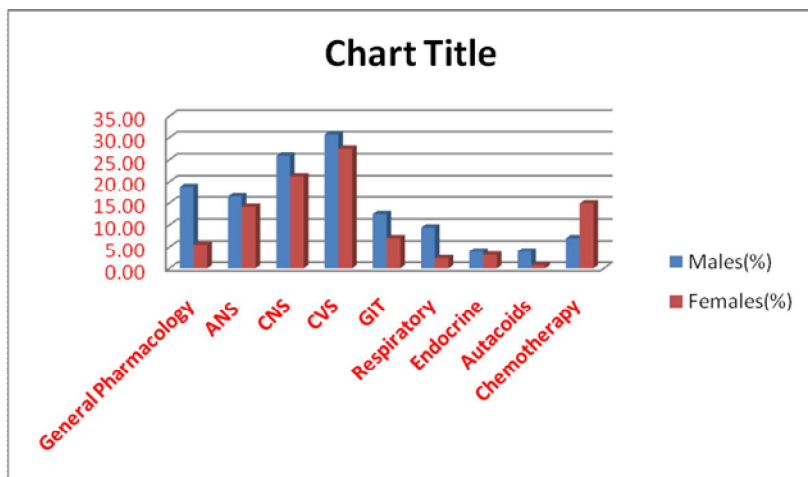


Figure 1

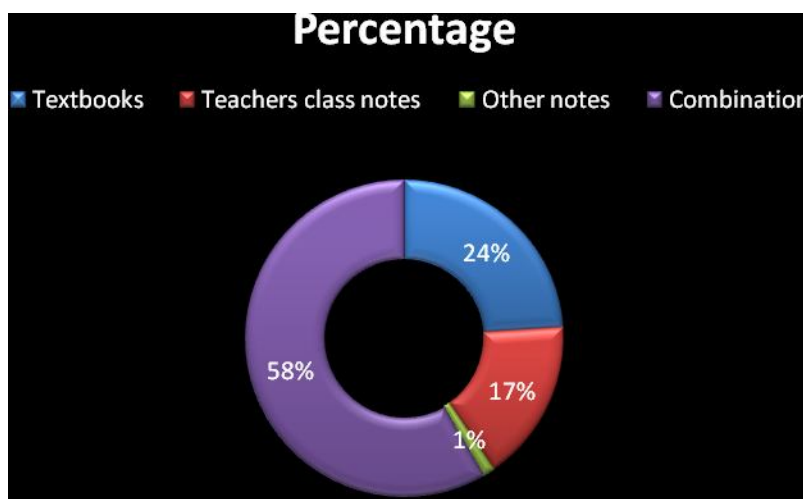


Figure 2

Most of the students 68(53.5%) rated terminal exam as the most preferred evaluatory method and viva voce 42(33%) was rated better than preliminary exam 39(30%). Interesting topics in Pharmacology as found by students has been depicted in figure1. Central nervous system(CNS) and Cardio vascular system(CVS) were the most useful topics for internship according to students followed by general Pharmacology GIT and chemotherapy. Study

material used by our students to learn Pharmacology has been shown in figure 2. Regular studying to gain knowledge was the pattern by 67(52.7%) of while 39(30.7%) studied because of interest, while others study only for tests and final exam. 78(61.4%) learned Pharmacology by the combination of mugging and understanding, while 12(9.4%) learned by mugging only and rest by understanding the topic. Prescription writing and fixed dose combinations were among the important practical topic useful in future. To our surprise many students had knowledge of pharmacology from before this may be because of having clinical background while majority 66(51.9%) had some knowledge and 40 (31.4%) had none. According to 73(57.4%) students the seniors opinion of pharmacology is useful but boring may be because pharmacology is a very difficult as well as volatile subject but in the opinion of present batch about pharmacology is that it is a very useful and interesting subject. That means more number of students 103(81.1%) shows growing interest in the subsequent batches for Pharmacology. 76(59.8%) rated Pharmacology above all subjects and 49(38.5%) students thought it was same as other. 75(59%) of students thought that only recent advances should be taught after 2<sup>nd</sup> year while 42(33%) also wanted regular lectures in 3<sup>rd</sup> year and 10(7.8%) were satisfied with the time given for pharmacology. 96(75.5%) thought that the teachers were good and knowledgeable and this is a very proud thing for the department.

## DISCUSSION

The overall participant feedback about the 2<sup>nd</sup> year pharmacology teaching was positive. In our study of the total 127 M.B.B.S students of all the 2<sup>nd</sup> year were studied of which 56.6% were male & 43.3% were females, out of these 57% students preferred audiovisual lectures while in other studies it ranged from 9.43%<sup>7</sup> to 44%<sup>8</sup>. In our study drug administration procedure was the most important special topic to be discussed among the students while in others studies pediatric, geriatric drugs in pregnancy lactation<sup>8</sup>, while in another study 52% favoured the topics like drugs used in liver, kidney, sexual dysfunction, emergency drugs in lectures<sup>7</sup>. Terminal exam was the most useful assessment methodology in our study, tutorials<sup>7</sup>, preuniversity tests<sup>9</sup> in other studies. CVS was the most interesting topic among students in pharmacology which was same in other studies also<sup>7,8</sup>. Majority of students used combination studies as the most important way of learning pharmacology<sup>7,8</sup> which was reinforced by our study. Pattern of studying in our students in majority was regular because of gaining knowledge while in another study they were regular because of tests/viva and interactive classes<sup>7,8</sup>. Majority of students learned Pharmacology by the combination of mugging and understanding which was reinforced by other study<sup>7</sup>. Students thought that

prescription writing is the most useful part of practical pharmacology and helpful in future also which was also according to other studies<sup>7</sup>. 51.9% of students had some knowledge of pharmacology before 2<sup>nd</sup> year, while it was 62.26%<sup>7</sup> and 65%<sup>8</sup>. The seniors opinion about Pharmacology was useful but boring(73%) but 81.1% of the students found it useful and interesting which showed a major trend towards growing interest in Pharmacology with the use of audiovisual aids and computer assisted technology. 59.8% students rated Pharmacology above other subjects and 75.5% of them found the department teachers as very good and knowledgeable which is a proud thing for our department. 59% of students thought that classes of only recent advances are required after 2<sup>nd</sup> year, while in others studies<sup>7,8</sup> most of the students mentioned that pharmacology should be taught in or after 3<sup>rd</sup> year which shows the importance of pharmacology and recent advances throughout the course and even after that also. Most thought one and half year was adequate for learning pharmacology and they also didn't want to be pharmacologists inspite of the ever growing nature of subject and this may be mainly because of their clinical orientation and their need of respect in society.

Students suggested that they need more of microteaching sessions, revisions, regular tests after completion of topics. There should be an emphasis on more of tutorials, personal student interaction in smaller groups.

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#### **CONFLICTS OF INTEREST**

The authors declare that they have no competing interests

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#### ANNEXURE 1

Questionnaire used for assessing teaching methodology and evaluation methods in pharmacology for 2<sup>nd</sup> MBBS students:

Age:

Sex:

1. Most interesting method in 2<sup>nd</sup> yr:

- Audiovisual lectures
- Tutorials
- Student seminar
- Discussion of paper after examination

2. Special topics need to discuss:

- Pediatric pharmacology
- Geriatric pharmacology
- Dose calculation
- Drug administration procedure

3. Need to change order of pharmacology topic taught:

- Yes
- No

4. Rating evaluation methods:

- Preliminary exam
- Terminal exam

- Viva voce
- 5. Interesting topics:
  - General pharmacology
  - ANS
  - CNS
  - CVS
  - GIT
  - Respiratory
  - Endocrine
  - Autacoids
  - Chemotherapy
- 6. Topics useful during internship:
  - General pharmacology
  - ANS
  - CNS
  - CVS
  - GIT
  - Respiratory
  - Endocrine
  - Autacoids
  - Chemotherapy
- 7. Study material to learn pharmacology:
  - Text books only
  - Teachers class notes
  - Other notes
  - Combination
- 8. Pattern of studying pharmacology:
  - Regular because of interest
  - Regular because of gaining knowledge
  - Only during tests and exam
  - Studying only for final exam
- 9. Pharmacology learning method:
  - Mugging

Understanding

Combination

10. Practical pharmacology useful in future:

Prescription writing

Pharmacy practical's

Screening of new drugs

Comment on fixed dose combination

11. Knowledge of pharmacology before 2<sup>nd</sup> yr ?

Yes, many thing

Somewhat

No

12. Seniors opinion about pharmacology:

Useful and interesting

Useful but boring

Useless and boring

13 .Your opinion about pharmacology:

Useful and interesting

Useful but boring

Useless and boring

14. How will you rate pharmacology in comparison to other subjects?

Same as other

Above all subjects

Useless not important

15. Need to teach pharmacology after 2<sup>nd</sup> yr:

Only recent advances

No, enough of pharmacology

Regular lectures in 3<sup>rd</sup> yr

16. Status of pharmacology teacher as compared to other:

Good and knowledgeable

Average

below average

17. Time adequate for 2<sup>nd</sup> yr teaching:

One and a half yr

2 yrs



one yr

18. Wish to be a pharmacologist:

Don't know

Yes

No

May be