

Section

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Article

Feedback of Second-Year Medical Students on Existing Teaching Methodology in Pharmacology: A Questionnaire Based Study

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ABSTRACT

Background: In order to successfully run a curriculum in a medical college, it is a mandatory to collect regular feedback from the students regarding teaching and learning methodologies. The primary objective of our study was to analyse the various teaching-learning aids and course content of pharmacology. The secondary objective was evaluation of pharmacology practical classes and their relevance in relation to the interests of students as well as clinical application.

Methods: This is a cross sectional, open labelled questionnaire based study conducted among 100 2nd year MBBS students of a tertiary care teaching hospital. The questionnaire consisted of 10 questions with 4 response options each. Descriptive statistics was used for analysis and interpretation and the results were expressed as percentage frequency of responses. **Results:** It was revealed from our study that a majority of the students (45%) found microbiology undergraduate practical laboratory more interesting with pharmacology at 35%, which reflects that 65% students think that pharmacology laboratory exercises are boring and less useful. From among the pharmacology practical laboratories (clinical laboratory, experimental pharmacology and pharmacy), majority (47%) of the students opted for clinical prescription and problem based learning exercises as most beneficial. A whopping 55/100 students wanted introduction of clinical case studies as part of the regular practical teaching schedule while 30 students felt that doctor-patient role play should be included in teaching curriculum for better understanding of subject. Surprisingly, 42% of students find audio visual aids as most useful teaching methodologies while 33% students like bilateral (student- teacher) interactive classes. On the contrary, 72% of the students prefer studying pharmacology from combination of both lecture notes, textbooks and their self-prepared notes. 50/100 students wanted inclusion of more case studies and treatment protocols as a part of regular teaching protocol in pharmacology and 30 students wanted more group discussions to be included as a part of teaching curriculum in pharmacology. **Conclusion:** Pharmacology is a dynamic and continuously evolving branch of medicine. The results of our study are hoped to help in knowing students' perspective regarding pharmacology teaching and modifying pharmacology teaching patterns for better outcomes.

Keywords: Problem based learning, pharmacology, questionnaire based study, student's feedback form, teaching methodology.

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INTRODUCTION

Student's feedback form constitutes one of the most vital milestones for teaching in a medical college.^[1] However, it is seen that in many medical institutes, pharmacology is treated as a very formal and dry subject with inadequate teaching practices. Pharmacology is one of the most important subjects for 2nd year medical students as it forms the basics of rational therapeutics. The main aim of teaching pharmacology is to prepare medical students to undertake important clinical decisions in their future.^[2] In Pharmacology

various concepts like drug production and regulation, mechanism of drug action, various side effects of drugs and medical treatment of various diseases etc. are introduced for the first time to medical students.^[3] Imparting information and knowledge about drugs is a first step towards preparing medical students for their future clinical endeavours. The teaching and learning in 2nd year is a point of concern because it is during this time the students are exposed to

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pathophysiology of various diseases and their treatment which they can relate to when they come in contact with patients. Students must realise the relevance of Pharmacology and its application in clinical context.^[4] The pharmacology curriculum deals with both experimental and clinical sciences. Experimental pharmacology curriculum elucidates the various mechanisms of drug action in animal setup and encompasses the basics of pharmacy practices. Whereas, the clinical pharmacology curriculum, introduces the concept of drug prescription for common medical ailments, adverse drug reaction (ADR) monitoring and drug interactions at various levels.^[5] Teaching in Pharmacology is predominantly lecture oriented. While practical sessions are found not adequate enough to instil confidence to the students in dealing with real life situation. Pharmacology is depicted mainly as a theoretical subject by most of the medical students where main focus is on learning and mugging up rather than its real life implementation.^[6] The course content at hand is humongous which makes it harder for them to recall the pharmacological terms, drug names etc.^[7] Considering the significance of the subject, several measures are adapted by colleges all over India in order to make the teaching and learning of pharmacology more interesting and at the same time relevant. Reviewing of teaching program at regular intervals and making necessary modifications in the content as well as the methodologies of teaching is something which is unavoidable in Pharmacology as the subject demands its due importance.^[8] Questionnaires based studies are the studies where the information is collected from the answers of MCQs filled by the subjects. This type of study forms a very effective, convenient, time saving and cost effective mode of collection of data from the students as well as learning about their behaviour and knowledge. But such studies must be validated and standardized from time to time. This study was planned to evaluate the teaching methodology of pharmacology and its shortcomings. Further, the study was expected to explore student's opinion regarding teaching format in theory and practical classes and recommend necessary changes for its betterment.

METHODS

A cross sectional study was conducted with open labelled questionnaire in tertiary care teaching hospital. After obtaining the oral consent from the students, the questionnaire was distributed among 100 2nd year MBBS students. The questionnaire consisted of 10 questions having 4 options each. Students were asked to mark the most appropriate option as per them and also they were instructed to be unbiased while answering the questions. They were given adequate time to fill the questionnaire. They were also directed not to reveal their personal information in the questionnaire so as to make students feel comfortable with expressing themselves. All the completed questionnaires were collected and the ones which were incomplete were excluded from the study. Final data of 100 students was entered into Microsoft excel sheet after making the required exclusions. Descriptive statistics was used for analysis and interpretation of our data and the results were expressed as percentage suggesting the frequency of the answers.

RESULTS

After analysing the results of our questionnaire we observed that about 55% of the students thought pharmacology was most important and useful subject of second year MBBS followed by pathology (40%). Surprisingly, only two students considered microbiology as an important subject and 3 students thought forensic medicine was more relevant.

But surprisingly, amongst the undergraduate practical labs, majority of the students (45%) found microbiology practical's to be most academically engaging and only 35% second year MBBS students liked pharmacology practical classes which suggests that 65% students found pharmacology laboratory exercises as boring and less useful. 17 students were of the opinion that pathology laboratory practical exercises were quite useful and interesting whereas only 3 students considered forensic medicine practical classes to be informative.

Amongst the pharmacology practical laboratory exercises (clinical laboratory, experimental pharmacology and pharmacy), majority (47%) of the students voted for clinical prescription and problem based learning exercises as most beneficial whereas only 3 students out of 100 considered the experimental laboratory to be more beneficial to students.

A whopping 55 out of 100 students wanted introduction of clinical case studies as part of the regular practical teaching schedule while 30 students felt that doctor-patient role play needs to be included in teaching curriculum for better understanding of the subject. Only 10 out of 100 students felt that experimental projects on drug designing will be helpful if included in curriculum and 5 students demanded evening teaching in wards on prescription writing.

Not surprisingly, 72% of the students preferred studying pharmacology from combination of both lecture notes, textbooks and their self prepared notes. 17% students study the subject exclusively using the textbooks. About 6% students stated that they study by referring to lecture notes only while only 5% students studied pharmacology by preparing his/her own notes after referring to lecture notes, textbooks and seminars.

When modes of teaching were analysed, it was found that 14 students out of 100 thought seminars were useful and 11 students out of 100 felt that tutorials were helpful while majority of students (42%) picked audio visual aids as the most relevant teaching aid while 33% students liked bilateral (student- teacher) interactive classes.

50/100 students wanted inclusion of more case studies and treatment protocols as a part of regular teaching protocol in pharmacology. 15 out of 100 students were in favour of inclusion of MCQs based learning for studying pharmacology. Also, 30 students demanded more group discussions and only 5 students thought it would be beneficial if more theory based lectures were included as a part of teaching curriculum in pharmacology.

Most of the students (46%) felt that casualty exposure for emergency drugs once a month would make pharmacology more interesting if included in the syllabus. 30% students wanted bed side teaching to be included as a part of teaching curriculum on monthly schedule. Surprisingly, only 13 students wanted research methodologies to be taught during pharmacology and only 11 students were interested in learning case based viva on treatment protocols.

More than half of batch (65%) wanted recent drug advances to be taught in 3rd year MBBS also. 19% and 11% students were interesting in learning paediatric pharmacology and geriatric pharmacology respectively in the 3rd year. Only 5

students out of 100 wanted drugs related to dermatology to be included in curriculum in 3rd year.

Students in large numbers agreed that pharmacology should be taught in the final year. It was observed from the feedback forms that 44% students were keen on learning about newer drugs, 30% felt lectures on drug therapy would be helpful and 20% students were in favour of orientation classes on pharmacology during internship. Only 6 students out of 100 felt that pharmacology was not relevant for the final year.

DISCUSSION

In the present study many facts came into light and students gave vital suggestions which could be incorporated in teaching curriculum so as to make the subject more interesting and rewarding. It was not surprising to note that most of the students (55%) considered pharmacology to be the most important subjects of second year as compared to pathology, microbiology and forensic medicine. Many students (65%) desired that recent drug advances must be taught in 3rd year MBBS. The poll also revealed that 44% students felt the need for lectures on newer drugs and 30% students wanted some classes on drug therapy to be taken in the final year. Also, some of the students demanded that orientation classes on bedside pharmacology must be held during internship. We feel that the more clinical approach on the subject in the second year will allow the students to be more oriented in the final year. Also, teachers should be well aware of the recent advances and newer drugs in pharmacology which will create more zeal among the students in second year and help in better retention of the subject. Few lectures on recent drug advances and drug therapy should be conducted during 3rd year MBBS. Bed side orientation classes on pharmacology, during internship are a good suggestion as reiterated by our students and will give them hands on experience. Many feedback studies also suggested the similar point of view of students for better understanding of the subject.^[9,10] It may also guide students to take better therapeutic decisions when they will be practising medicine in future.^[11]

Also, it was seen that half of the students opined that mode of teaching in pharmacology should be inclusion of more case studies and treatment protocols rather than inclusion of the more theoretical lectures. It is envisaged that students are more interested in studying pharmacology from clinical aspect rather than only theoretical lectures. Our study has been supported by other studies which also revealed similar results with students wanting to study therapeutic and clinical pharmacology.^[9,10,11] There were other studies on teaching methodologies in which students demanded that clinical case studies should be included in all teaching classes.^[12-14] Our students also proposed group discussion will be more beneficial to them as supported by other studies which also indicated that group discussion motivates students to improve their communication and learning skills which definitely helps them in better grasping of theory.^[15] Majority of the students did not opt for Multiple Choice Questions (MCQs) based learning methodology. The plausible reason for this is that most probably students find MCQs a better tool for assessment rather than for learning purposes as seen in other studies.^[16]

If we go with newer trends, 42% students find audio-visual aids as most useful teaching methodology and only some students find tutorials and seminars helpful. 33% students

are of opinion that bilateral interactions with teachers were beneficial. Considering the demand we are also of the belief that audiovisual aids are more helpful for the students as suggested by the study conducted in Goa medical college.^[10] Although seminars/ tutorials can be improved, our results are consistent with another similar study in which there was very little demand of seminars.^[17] Bilateral interactions can be made better with proper guidance and efforts should be made to make them understandable as they were favoured by one third of the class. Studies have shown that interactive sessions among students and teachers enhance their performance in exams.^[18] There is an urgent need to take note of this to draw student's attention to the subject and make required changes in pharmacology curriculum.

As much as 72% students agreed that they study pharmacology by combining teacher's notes, self-prepared notes and from textbooks. Only very few students studied the subject exclusively using either the lecture notes or self-prepared notes. Only few students studied pharmacology from textbooks. Our result was supported by another study in which students preferred studying from combination of textbooks and lecture notes.^[9,10]

As majority of students agreed that pharmacology is the most important second year subject but sadly they rated the pharmacology laboratories as boring in comparison to the microbiology practical classes. We are of the opinion that practical knowledge is the most effective tool for understanding theory and a good practical demonstration laboratory is a must to simplify the subject. Although, majority (47%) of the students agreed that clinical pharmacology laboratory is the most useful; only 3 students find experimental pharmacology laboratory as useful and 7 students voted for pharmacy laboratory. The possible reason of students finding experimental laboratory less useful could be ignorance regarding the advantages of Computer-Assisted Learning (CAL).^[19] We observed and made a finding from the responses given by the students that pharmacy laboratory was less useful to them as compared to clinical laboratory in which students learned about writing prescriptions for common medical conditions, problem based learning exercise (PBLs), drug interactions and ADR monitoring. One of the study stated that in terms of student's perspective pharmacy practical laboratory holds little or no value in future practice as compared to the clinical laboratory.^[20] There are other studies which emphasises that learning drug prescription in clinical pharmacology laboratory should be made a vital part of pharmacology curriculum.^[21,22] It has been reiterated by the students that they wanted more clinical case studies in pharmacology practical classes. Also, many students suggested doctor patient role play which could make pharmacology laboratory more interesting. The imminent need of the hour is to build a clinically oriented pharmacology practical with more clinical case studies and PBLs. Also, simulative treatment on mannequins could help students to have a good concept about treatment of diseases in second year. Doctor patient role play is a good option for better learning and improving medication-communication skills as suggested by some of the studies.^[23] Also, students demanded that casualty exposure once a month would be very helpful to them. Students were in favour of bed side teaching once a month. Our results were consistent with studies in which both students and teachers wanted bed side teaching of pharmacology.^[24] Also, when asked about exposure of clinical research methodologies during

pharmacology practical classes, very few agreed for it. The reason for this is that students have insufficient knowledge of the prosperous career in clinical research.^[25]

Our study suggested that it is imperative to review the teaching programs from time to time and make adequate changes to make pharmacology more clinically oriented and interesting to students.

CONCLUSION

Pharmacology is continuously evolving field and forms the backbone of medicine. Therefore, feedback from students and making required amends after reviewing the subject from time to time is very crucial. As a result, various teaching-learning methods have emerged across the medical colleges to make pharmacology more interesting.^[26] This study has helped in knowing students' perspective regarding pharmacology teaching and it will be helpful in modifying pharmacology teaching patterns for excellent outcomes.

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