

Original Research Article

# Students' current perceptions and feedback on teaching and learning Pharmacology from an evolving medical school

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## Abstract

**Background:** Understanding current perceptions and opinions of medical students regarding learning pharmacology may prove useful in improving the teaching of this discipline. Students' feedback would probably reveal whether the so-called reforms are acceptable to them and their opinion for the betterment of teaching/learning Pharmacology subject.

**Aim:** The study aimed to determine the opinion of students regarding the teaching of pharmacology, the best way of knowing and retaining the subject and application of the subject in future practice.

**Methods:** The present cross sectional study was carried out by the Department of Pharmacology in collaboration with Medical Education Unit, MSDS Medical College, Fatehgarh among the undergraduate students currently studying the Pharmacology and who were due for appearing in final examination. A 30 item self administered questionnaire was administered to the students in the classrooms just after completion of classes. Time allocated for the completion of the questionnaire

was 30 minutes. After compilation of collected data, analysis was done using Statistical Package for Social Sciences, version 21 (IBM, Chicago, USA).

**Results:** Data of 77 study subjects was analyzed. 77% students were in favour of inclusion of real life case studies and their treatment whereas 73% of the students showed interest in Problem Based Learning. Only one student wanted to include more number of seminars. 45% agreed that pharmacology education had given them capacity for self-directed learning whereas 25% of the students reported oppositely. 58% students were in the view of inclusion of recent advances in Pharmacology curriculum.

**Conclusion:** In general students' perceptions regarding learning pharmacology was observed to be positive. Its need of an hour to address students point of view to make learning the subject from a futuristic practical therapeutic point of view and simultaneously mitigating the general stigma that the study of this essential medical subject is boring.

## Key words

Perceptions, Feedback, Medical Students, Pharmacology, Teaching, Learning.

## Introduction

Understanding current perceptions and opinions of medical students regarding learning pharmacology may prove useful in improving the teaching of this discipline [1]. Student perception is an accepted means of reviewing teaching and evaluation methods and developing teaching methodologies in undergraduate programs around the world [2]. Traditionally, the teaching of pharmacology in medical schools follows a discipline-based and lecture-based approach with a heavy emphasis on acquiring factual knowledge concerning drugs [3].

Pharmacology, like any other branch of medicine, is progressing by leaps and bounds. Consequently, reforms in undergraduate teaching are the need of the hour. It is generally agreed that reviewing the teaching program at regular intervals and modifications in the methodologies of imparting basic knowledge about drugs and drug therapies is a must. Many attempts have been made by various colleges all over India and abroad to make the teaching of pharmacology more interesting and relevant. Expertise in teaching develops after years of experience following use of various teaching methods [4-6]. Students' feedback would probably reveal whether the so-called reforms are acceptable to them and their opinion for the betterment of teaching/learning Pharmacology subject. The

present study was therefore planned to determine the opinion of students regarding the teaching of pharmacology, the best way of knowing and retaining the subject and application of the subject in future practice.

## Material and methods

The current survey was planned and executed by the department of Pharmacology in collaboration with Medical Education Unit, MSDS Medical College, Fatehgarh among undergraduate medical students.

**Study area:** MSDS Medical College, Fatehgarh

**Study Population:** Undergraduate students currently studying the Pharmacology and who were due for appearing in final examination.

**Study design:** Cross-sectional study

**Study period:** March-May 2014

**Sample size:** All the undergraduate students currently studying the Pharmacology and who were due for appearing in final examination.

**Study tool:** 30 item self administered proforma

**Study strategy:** The proforma was distributed to the students in the classrooms just after completion of classes by the principal investigator and co-investigator themselves following a brief explanation of the objectives and data processing procedures, including anonymity and the importance of voluntary-based participation. The questionnaire was

designed based on the literature review in this field and in consultation with pharmacology experts. The time allocated for the completion of the questionnaire was 30 minutes. It was also explained that the data would be used for quality assurance, as well as, for research purpose with a request for their co-operation. Attempts will be made to contact every student however those students who could not be contacted after three attempts were excluded from the study. Permission of Institutional ethics committee (IEC) was sought before the commencement of the study. Informed consent was obtained from the study participants.

All the questionnaires were manually checked and edited for completeness and consistency and were then coded for computer entry in Microsoft Excel. After compilation of collected data, analysis was done using Statistical Package for Social Sciences (SPSS), version 21 (IBM, Chicago, USA). The results were expressed using appropriate statistical variables.

## Results

During different visits made by the authors to classes, 89 students were present. Out of which 81 completed and returned the questionnaires giving an overall response rate of 91.0%. Four proforma were discarded during data analysis due to lack of internal consistency. Finally data of 77 subjects were compiled and included in the study. Male students outnumbered female students. The majority (65%) of the parent(s) of the students were non-medical professionals. Most (88%) of the students belonged to urban areas. (**Table - 1**)

Seventy seven percent students were in favour of inclusion of real life case studies and their treatment whereas 73% of the students showed interest in Problem Based Learning. Only one student wanted to include more number of seminars. (**Table - 2**) Twenty eight students (36%) agreed that pharmacology is a favourite subject, whereas 12% disagreed and 52% responded neutrally. More than half of the

students (65%) agreed that pharmacology is more closely integrated with the clinical sciences and real cases from hospitals should be used during stimulated learning problems. Thirty five students (45%) agreed that pharmacology education had given them capacity for self-directed learning whereas 25% of the students reported oppositely. 58% students were in the agreement of inclusion of recent advances in Pharmacology curriculum. (**Table - 3**)

## Discussion

Student feedback has been considered to be an effective methodology for modification of undergraduate curriculum and making pharmacology more interesting and practicable. The majority of the participants were female students whose parents are non-medical personnel. Student feedback is thus considered an invaluable tool for improving students' performances when suggestions obtained from students are implemented [7].

In the current study it was observed that more than half of the students (65%) agreed that pharmacology is more closely integrated with the clinical sciences and real cases from hospitals should be used during stimulated learning problems. Another study from New Delhi showed that 80.46% students and 87.50% teachers were in favor of bedside teaching of clinical pharmacology [8]. It was opined in the study that bedside teaching should be started after 6 months of teaching basic pharmacology and should be continued till the completion of the final year. Considering the demand, we also feel that during practical classes, second year students should be taken to wards for discussion of treatment protocols of various admitted cases. An alternative approach could be the use of short therapeutic problems and patient oriented problem-solving strategies. Our study revealed that 77% students were in favour of inclusion of real life case studies and their treatment whereas 73% of the students showed interest in Problem Based Learning. On the other hand, not even a single student wrote about Computer-Assisted

Learning (CAL) as a potential teaching methodology in an open ended question. Probably it could be due to ignorance regarding the advantages of CAL. Another study on the use of CAL, it was observed that a large number of students expressed the advantages of CAL as

reduction in animal use, clear estimation of drug effects, and repeated observation of experiments and demonstration of difficult experiments [9]. If properly introduced, CAL can go a long way in teaching pharmacology in the future.

**Table - 1:** Socio-demographic characteristics of the study subjects (n=77).

Socio-demographic variables	Category	Frequency	Percentage
Gender	Male	51	66.23
	Female	26	33.77
Students' background	Rural	09	11.69
	Urban	68	88.31
Profession of parent(s)	Medical	27	35.06
	Non-medical	50	64.94

**Table - 2:** Students' opinion about changes recommended in teaching pharmacology (n=77).

Opinion about changes recommended*	Frequency	Percentage
Make more use of audio-visual aids	29	37.66
Introduce group discussions	24	31.17
Introduce Problem Based Learning	56	72.72
Include more clinical pharmacology	25	32.47
Case studies and treatment	60	77.92
Decrease the number of lectures	15	19.48
Increase the number of lectures	04	05.19
Include more student seminars	01	01.29
*Multiple responses permitted		

This study showed that more than half of the students (65%) agreed that pharmacology to be more closely integrated with the clinical sciences and real cases hence opined that lectures should be clinically oriented. This clearly shows that the students are now more interested in therapeutic and clinical pharmacology guidance. Another survey from United States of America outlined improvement in students' attendance following changes in the teaching style [10]. These changes included encouraging independent learning, reduced lecture time and increased problem-solving exercises. Wood DF stated that PBL is not about problem solving per se, but rather it uses appropriate problems to knowledge and understanding [11]. In problem based learning (PBL) students use "triggers" from the problem

case or scenario to define their learning objectives. Subsequently they do independent, self directed study before returning to the group to discuss and refine their acquired knowledge. Regarding likelihood of pharmacology's being taken up as subject for post-graduation, the percentage of agreed students was less than half of the total percentage of participating students. This finding indicated that pharmacology was not a favoured subject for specialization among the study participants. This comes in agreement with previous studies showing that students do not consider pharmacology as a favourite subject [12]. It is possible that students' interests are biased toward clinical sciences rather than fundamental sciences. Several reports have pointed out that this may in part be due to

students' apathy about the enormous challenge of learning about the majority of drugs. It appears that there is a stigma attached to the study of pharmacology [13] and the students' interests appear more biased towards clinical careers with prospective earnings far better than

pharmacology careers [14]. Their preference for pharmacology as a subject in post-graduation was lower, probably due to inadequate knowledge about this subject matter, which is vital for booming careers in the clinical research and pharmaceutical industries [15].

**Table - 3:** Perceptions and opinion towards pharmacology teaching and learning by the study subjects (n=77).

Item	Disagree	Neutral	Agree
Pharmacology is my favorite subject in 2 <sup>nd</sup> year of my training	9 (11.69%)	40 (51.95%)	28 (36.36%)
The subject will help me immensely in choosing drugs rationally in my future practice.	3 (3.9%)	23 (29.87%)	51 (66.23%)
I find pharmacology lecturers interesting and stimulating.	8 (10.39%)	26 (33.77%)	43 (55.84%)
I would like Pharmacology to be more closely integrated with the clinical sciences and would like real cases in hospital to be used during problems stimulated learning (PSL).	5 (6.49%)	22 (28.57%)	50 (64.94%)
The subject has helped me to develop my problem-solving and logical-reasoning skills.	6 (7.79%)	32 (41.56%)	39 (50.65%)
I would like the subject to be focus more strongly on the health problems of our country with special emphasis on locally prevalent diseases.	4 (5.2%)	31 (40.26%)	42 (54.54%)
I would like more thorough practical sessions on rationality of prescription	6 (7.79%)	31 (40.26%)	40 (51.95%)
I would like to welcome modules on Pharmacology and therapeutics during the clinical years of my training.	13 (16.89%)	27 (35.06%)	37 (48.05%)
I would like to include recent advances in Pharmacology curriculum.	11 (14.29%)	21 (27.27%)	45 (58.44%)
I would like MCQs to be included in the assessment.	18 (23.38%)	12 (15.58%)	47 (61.04%)
The current assessment concentrates on ability to acquire facts rather than on the development of problem-solving skills.	17 (22.08%)	24 (31.17%)	36 (46.75%)
The Pharmacology teaching has inculcated in me a capacity for self-directed learning.	19 (24.68%)	23 (29.87%)	35 (45.45%)
I will consider Pharmacology as one of my subject for post-graduation.	21 (27.27%)	21 (27.27%)	35 (45.45%)
There should be more emphasis on objective structured practical examination (OSPE) and PSL, rather than didactic lectures.	20 (25.97%)	24 (31.17%)	33 (42.86%)

The results obtained may not be applicable to all the medical students. These findings are based on a single centre study from a western Uttar Pradesh. More multi-centric studies need to be

carried out among medical students and pharmacology fraternity at large to gather more and analyze with special reference to Students'

perceptions and feedback on teaching and learning pharmacology.

## Conclusion

In general students' perceptions regarding learning pharmacology was observed to be positive. We need to identify priority areas for feedback oriented improvement in the pharmacology. Its need of an hour to address students point of view to make learning the subject from a futuristic practical therapeutic point of view and simultaneously mitigating the general stigma that the study of this essential medical subject is dry and boring.

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