



Concise and Informative Title of the Manuscript: Perception and Feedback of Second Year Medical Students on Teaching Learning Methodology and Evaluation Methods in Pharmacology

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ABSTRACT

Background: *In order to ensure the better teaching-learning methodology in pharmacology, regular feedback from students about their views of learning experience is a very important.*

Objectives: *The purpose of this study was to know the perceptions and feedback on teaching-learning methodology and evaluation methods in pharmacology.*

Materials and Methods: *This is a detailed structured questionnaire study carried out in the Government Medical college, Ananthapuramu, during the period September 2014 involving 2nd year under graduate medical students (99) of Government Medical College, Ananthapuramu. 99 students were surveyed with pre validated questionnaire.*

Statistical analysis: *analysis of data and results were expressed as percentage.*

Results: *The views of the students were implementation of microteaching sessions, audiovisual aided lectures (PPT, OHP), interactive classes, Student seminar and Demonstrations, integrated teaching on specific conditions, more practical exercises on Dose schedule and calculation and patient oriented Drug administration procedure, rationale prescription. Continuation of teaching on resent, advanced topics after second year. Inclusion of multiple choice questions (MCQs) is desired by the participants of our study.*

Conclusion: *The students' feedback serves as useful tool for effective teaching learning methodology. Lectures with bilateral communication, patient oriented clinical problem solving are the preferred mode of learning.*

Key words: *Evaluation methods, Feedback, Medical curriculum. Needs of students, Teaching methodology*

Introduction

The process of teaching learning can be made effective if the needs of the students are considered while carrying out teaching. By taking students' feedback, suggestions for strengthening the foundation ^[1]. The primary objective of

teaching pharmacology is to enable undergraduate medical students to take rational therapeutic decisions in clinical practice ^[2]. Not only concepts but also the teaching methodologies and evaluation methods need to be kept under continuous review ^[3].

Traditionally teaching has focused more on factual information, with little or no emphasis on clinical and applied aspects. In our institute, which mainly focuses on lectures in whole class and practicals based on experiments. Clinical patient related teaching and newer teaching methods are not advocated as part of regular teaching. The present study is aimed to know the perceptions and feedback on teaching-learning methodology and evaluation methods in pharmacology for more effective teaching learning process.

Materials and Methods

This is a detailed structured questionnaire study carried out in the Government Medical college, Ananthapuramu, during the period September 2014 involving 2nd year under graduate medical students(99) of Government Medical College

Ananthapuramu. Approved by the Institutional Ethics Committee.

Students were surveyed with pre validated questionnaire containing 24 questions. The questionnaire was adapted from the previous studies [4-7], a few modifications were done in the questionnaire. Suggestions were also asked regarding the quality of good teachers and modification needed in pharmacology teaching methods. The students were asked to be truthful and unbiased in answering the questions.

Statistics: Descriptive statistics was used for analysis of data and results were expressed as percentage.

Results: Out of total 99 students, 54 were females and 45 were males.

Table -1 The views of 2nd year medical students regarding pharmacology:

Q.No	Questions &Options	percentage of students
1	Knowledge about pharmacology before entering to 2 nd year?	
	Yes	1
	somewhat	65
	No	35
2	Opinion about Pharmacology?	
	Very useful, practically important and interesting	61
	Boring	0
	Interesting	14
	Useful and interesting	22
	Useful but boring	2
3	Rating pharmacology in comparison to other 2 nd year subjects?	
	1 (best)	21
	2	65
	3	11
	4	4
4	Opinion about pharmacology in comparison to other subjects?	
	Same as other	53
	best in 2 nd year subjects	22
	competes withclinical	26
5	Need to teach subject after 2 nd year.	
	Yes, on recent ,advances topics	58
	related topics in 3 rd and final year	26

	Orientation course during internship	14
	no	1
6	Status of pharmacology teacher as compared to other?	
	Excellent	24
	All good and knowledgeable	66
	Most good few average	7
	most average, few good	2
7	Are pharmacologists respected as therapists?	
	No	32
	Yes	42
	More better status	2
	not known	23
8	Time adequate for second year MBBS teaching?	
	1 and half year	73
	2 years	5
	1 year	21
9	Wish to be a pharmacist?	
	Yes	10
	No	44
	don't know	22
	may be	23

Table-2- The views of 2nd year medical students regarding on teaching learning methodology:

Q.No	Questions & Options	percentage of students
10	Most interesting teaching method in pharmacology?	
	Audiovisual aided teaching	52
	Black board teaching	20
	Interactive classes	37
	Demonstrations	14
11	Most interesting teaching learning method in pharmacology?	
	Museum study	13
	Student seminar	14
	Experiments	18
	clinical problems	46
	Drug dosage form display	18
	Theory and practical examination paper discussion	25
12	Most interesting and useful Audiovisual aided teaching method in pharmacology?	
	PPT	61
	OHP	8
	slide show	39
	flipcharts/ flash cards	10
13	Topics need to add as a part of regular teaching.	
	Integrated teaching	41
	Demonstration	12
	Problem based learning	36
	Microteaching in groups of 4-6	18

14	Special topics need to discuss in lecture/practical.	
	Rationality	21
	Geriatric pharmacology	05
	Pediatric pharmacology	15
	Dose schedule and calculation	20
	Drug administration procedure	18
	Drugs used in special condition	48
15	Need to change order of pharmacology topics taught?	
	Yes	15
	No	86
16	Topics (chapters) found interesting?	
	CNS	55
	Chemotherapy	60
	CVS	45
	Hormones	40
	Remaining	10
17	Study material to learn pharmacology	
	Textbook only	20
	teacher's class notes	35
	handy books only	2
	Self prepared notes	20
	combinations	64
18	Pattern of studying pharmacology?	
	Regular base of interest	30
	Regular gaining of knowledge	59
	Only during tests and exams	0
	Regular base of tests/viva and interactive classes	20
	Study only for final exam	3
19	Pharmacology learning methodology?	
	Mugging	17
	Understanding	57
	Grasping	16
	Combination	80
	discussion	48
20	Practical pharmacology useful in future?	
	Prescription writing	54
	spotters	5
	clinical problem solving	55
	Components of fixed dose combination	15
	experimental screening of new	6
	Human experiments (clinical trials)	4
	criticism and rewriting prescription	45
21	Are you interested in pharmacy practicals?	
	Yes	68
	No	33
22	Which practicals you like in pharmacy?	
	Solution preparation (5 % KmnO ₄ , normal saline etc)	36
	Preparation of ointments, mixtures, lotions etc	65
	Labeling and dispensing	9

Table-3- The views of 2nd year medical students regarding evaluation methodology:

Q.No	Questions& Options	percentage of students
23	Best Clinical (patient related) evaluation method of pharmacology?	
	MCQ tests	38
	Theory and practical examination	32
	viva voce	11
24	Rating evaluation methods	
	Terminal examination	56
	MCQ test	32
	Preliminary examination	20
	Viva voce	13
	Museum study	5

Discussion

Majority of the students had somewhat knowledge about pharmacology, as they attended orientation programme in first year of medical profession. Pathology and Pharmacology were considered as interesting and useful and most difficult subjects. Another problem faced by the students is the lapse of concentration during 1 hour duration lectures, they wanted the duration of lecture to be cut short to 45 min. Studies have shown that attention span of an adult learner is 18-20 minutes after that there is a lapse^[9]. These problems could be solved by utilizing their suggestions like use of audiovisual aided lectures (PPT, OHP) which provides elaborative diagrams, figures, animation based demonstration of action of drugs on receptor, interactive classes, Museum study, Student seminars and Demonstrations. Bilateral communication should be encouraged between students and teacher where students can learn or understand in a relaxed environment. Kaufman M^[8] reported that Seminars can be organized, for better performance in university examinations. Pharmacology teaching should be continued in 3rd and final year on recent advances and Orientation course during internship for rational application of drugs in therapeutics. Han WH, Maxwell SR^[10] also suggested that there should be incorporation of some training of clinical pharmacology in the internship.

Students accepted all that pharmacology teachers are good and knowledgeable; they expected Good presentation, clarity in speech and expressivity from teachers, and free interaction, problem solving with the teachers. Definitely efforts can be taken in this direction through discussion and seeking guidance from senior experienced faculties. In our department we have 2 Associate professors, 3 Assistant professors, and 2 tutors. Student's attitude towards becoming pharmacologist was found unfavorable. By assisting the students in subject learning through simple and understandable illustrations, this mindset may be changed.

Medical Council of India has put emphasis on integration of pharmacology with medicine^[12]. Many authors opined that this integration provides students an opportunity to get acquainted with various diseases and learn role of different drugs simultaneously^[8,11]. We are conducting integrated teaching on specified topics once in three months regularly in our institute.

In our study most of the students interested in Rationality of Drugs used in special condition, Dose calculation and schedules, Drug administration procedures. Hence there is need of more practical (clinical) exercises. Gitanjali B, Shashindran CH also reported performing clinical exercises emphasizes on rational therapeutics, drug interactions cost of therapy which provides

students with enough skills and attitude in prescribing drugs safely and effectively. ^[14]

Majority of the students found chemotherapy, central nervous system cardiovascular system, hormones as the most interesting topics in pharmacology and no need of change in teaching order of pharmacology. These topics need to be emphasized more. Students mentioned that they learn pharmacology from textbook, teacher's class notes, self prepared notes, regularly for gaining more knowledge with understanding on Regular base of interest and showed interest in Prescription writing; clinical problem solving, criticism and rewriting prescription practical exercises. This response suggests that the students' attitude, their desire to have proper guidance from the instructor at every step. Though formulation-based teaching and evaluation of dispensing pharmacy is out of context in the present-day scenario ^[15], still students are interested pharmacy practicals

Amongst the evaluation methods for preparing for university examination, preliminary examinations are more preferred followed by terminal examination and MCQ test. Conduction of MCQ tests viva, and quiz at the end of every topic taught is desired by the students. National consultative meeting on review of pharmacology curriculum has also suggested the inclusion of MCQs (20%) in the written examination ^[14]. MCQs if prepared carefully following the guidelines ^[15] can be reliable and useful for assessment.

Conclusion

The students' feedback serves as useful tool for effective teaching learning methodology. Lectures with bilateral communication, patient oriented clinical problem solving are the preferred mode of learning, so there is a need to incorporate more clinically oriented exercises to make pharmacology more interesting and development of good clinical skills.

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