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Original Research Article

A questionnaire based study to assess feedback on teaching methodology and evaluation methods in pharmacology

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ABSTRACT

Background: The reviewing of teaching and evaluation methods by feedback from students and modification is very important for further development and restructuring of medical education in future. The curriculum that we follow needs to be assessed periodically as it highlights the strengths as well as points out the fallacies, which are required to improve the medical teaching.

Methods: The present study was carried out at Sri Venkateshwaraa Medical College Hospital and Research Centre in a total of 100 third year MBBS students. Pre-validated questionnaire was used. Suggestions were also enquired regarding the modifications needed in pharmacology teaching methods.

Results: Out of the topic of interest in pharmacology, CNS ranks first with 28%, followed by CVS with 20%. Regarding the topic to be added in regular Pharmacology teaching, 37% preferred on case study and treatment discussion, while 32% preferred group discussion and 16% for quiz. Among the students 54% preferred text books only for studying pharmacology. Regarding the special topics to be discussed in pharmacology, 31% opted for paediatric pharmacology. The students have also suggested for clinical based teaching.

Conclusions: The results of present study can serve as positive feedback to make the teaching programme more interesting. A well designed and systematic prospective research needs to be carried out, so that students get updated every year. It can also pave way for a rational prescribing practice after acquiring a proper and updated knowledge about Pharmacology as part of the undergraduate teaching programme.

Keywords: Evaluation, Feedback, Pharmacology, Teaching methodology, Questionnaire

INTRODUCTION

Pharmacology forms the backbone of rational therapeutics, being both a basic and applied science. Traditionally, it has focused more on factual information, with little or no emphasis on clinical and applied aspects. Dispensing pharmacy and experimental pharmacology have remained the cornerstone of conventional pharmacology practical exercises. However, clinical utility and relevance of these practical exercises have always been questioned and criticized. Pharmacology like other branches of medical science is ever- changing and evolving. The concepts of teaching methodologies also keep on evolving. Understanding current scenario of medical undergraduates regarding teaching as well as learning pharmacology and understanding its vital role in academics, clinics and research may greatly help in improving the teaching of this discipline. The reviewing of teaching and evaluation methods by feedback from students and modification is very important for further development and restructuring of medical education in future.[1,2]

Feedback is a frequent, ongoing review of strengths and areas to improve, with the goal of enhancing performance. Feedback is effective if given timely in a constructive manner with a positive attitude for improvisation. Medical teaching involves conceptual training along with the practical reinforcement of the theoretical knowledge with the aim of providing a better understanding of the subject. Assessment instruments like feedback may help to know about the pros and cons of teaching. Currently, student's feedback represents the primary means used by most programs to assess their methodology.[3]

Usually modified teaching programme (TAL -Teacher assisted learning) is followed by many medical colleges with or without some modifications. Few studies are conducted in Indian setting related to the feedback of teaching methodologies and evaluation methods in pharmacology from third year medical undergraduate students.[4,5]

The curriculum that we follow needs to be assessed periodically as it highlights the strengths as well as points out the fallacies which are required to improve the medical teaching because we are raising the future health care providers of the society. Hence, authors have designed this study to get feedback regarding teaching methods and evaluation methods in pharmacology from third year MBBS medical students in Sri Venkateshwaraa medical college - hospital and research centre, Ariyur, Pondicherry. They were also asked to provide suggestions for any improvement, if required, in the current undergraduate training methodologies which can enhance understanding of pharmacology as well as its retention throughout their medical tenure.

METHODS

The present study was carried out at Sri Venkateshwaraa Medical College Hospital and Research Centre during the period of January-April 2016. After obtaining the permission from the institutional research and institutional ethics committee, we obtained the list of all third year MBBS students who were studying at Sri Venkateshwaraa medical college hospital and research centre, Pondicherry. From that a total of 100 students participated in the study. Simple random sampling method was used. The tool used was pretested and pre-validated feedback questionnaire. The questionnaire was adapted and modified from the previous studies that assessed feedback of second year medical students on teaching-learning methodology and evaluation methods in pharmacology.[6] A few modifications were done in the questionnaire to best fit with reference to university syllabus. The questionnaire included 20 questions with three main categories, i.e., teaching-learning methodology, evaluation methods and general questions. After getting the list of third year MBBS students, a total of 100 students were randomly administered a pre-validated questionnaire, which was distributed at the end of class and they were asked to fill it up. Suggestions were also asked regarding the quality of

pharmacology teachers and modification needed in pharmacology teaching methods. The filled questionnaires were collected after a period of 30 minutes. Only completely filled up questionnaire were included for final analysis.

Statistical analysis

Descriptive statistics was used for analysis of data and results were expressed as percentage using SPSS version 23.0 software.

RESULTS

Among the 100 students, 59% knew somewhat and 19% knew many things about pharmacology before 2nd MBBS. 38% of senior students have opined that pharmacology was useful but boring. 26% of seniors opined Pharmacology was very useful and interesting. But 62% of students opined that pharmacology is very useful and interesting, 15% mentioned it as useful but boring.

Out of the topic of interest in pharmacology, CNS (Central nervous system) ranks first with 28%, followed by CVS (Cardio vascular system) with 20% and chemotherapy and ANS (Autonomic nervous system) both with 11% each (Figure 1). Among these topics, the useful one in internship was evaluated and it was found that chemotherapy stood first with 23% followed by CNS, CVS and GIT (gastro intestinal tract system) each with 15%. Among the different methods of teaching 24% of students found lectures in whole class to be interesting, while 15% preferred interactive classes and 15% preferred clinical pharmacology and 15% preferred audio-visual aided lecture.
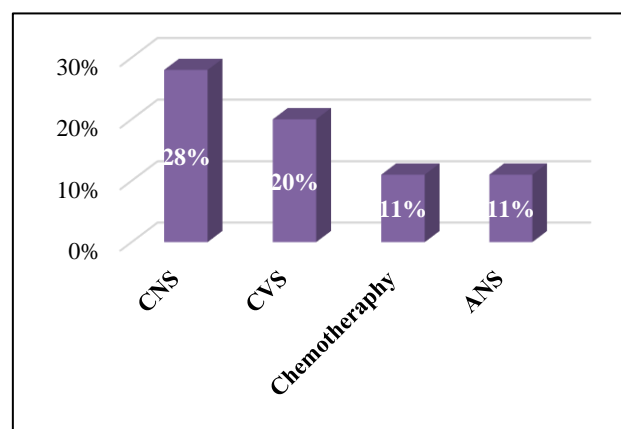

Figure 1: Topic of interest in pharmacology.

Regarding the topic to be added in regular pharmacology teaching, 37% preferred on case study and treatment discussion, while 32% preferred on group discussion and 16% preferred on quiz (Figure 2).

Among the students 54% preferred text books only for studying pharmacology. 7% preferred teachers note and

20% preferred combinations of both. Regarding the pattern of study in pharmacology, 44% studies only during tests and exams. 17% studied regularly for gaining more knowledge and 16% shall study only for final examination. 43% of students learnt pharmacology by understanding, 10% by mugging, 10% by grasping things and 30% by combination of the above.
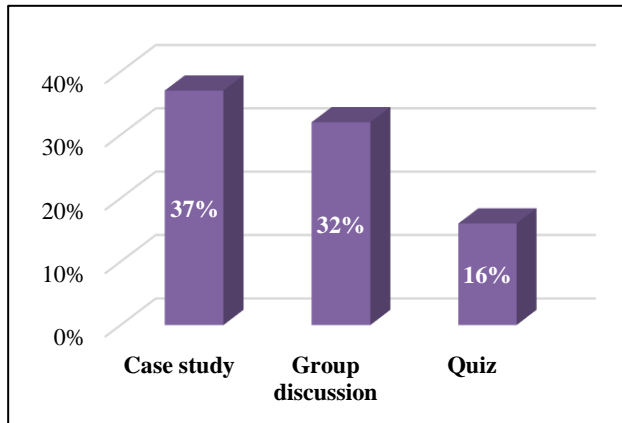

Figure 2: Topics to be added in regular pharmacology teaching.

Regarding the special topics to be discussed in pharmacology, 31% opted for Paediatric pharmacology, 22% opted for dose schedule and calculation, 17% opted for drugs in special conditions like kidney dysfunction, sexual dysfunction, emergency drugs and 11% opted for drug administration procedure.

In comparison to other MBBS subjects, 43% rated pharmacology as average similar to other subjects and 34% rated above all in subjects. 37% of students preferred orientation course of few days during internship, 26% preferred lectures on drug therapy in 3rd MBBS and 25% preferred few lectures on recent advancements in therapy. Regarding the evaluation methods in preparing the students for university examination, 35% preferred tutorials, 27% preferred problem-based learning and 14% preferred MCQ's.

Among the practical's in pharmacology, 50% of the students found prescription writing as the most interesting one. 17% found criticism of prescription interesting and 15% found therapeutic interaction interesting. And also they opted for similar percentage of preferences (prescription writing, criticism of prescription and therapeutic interactions) in grading the most useful practical in future (Figure 3). Students opinion about Pharmacology teachers as compared to others -35% opined that they were all good and knowledgeable, 23% opined that most are average, and few were good, 18% opined that most are good and few averages. Regarding the change that should be done to make Pharmacology more interesting, understandable and practicable - the students suggested for Clinical based teaching with practical approach. The students preferred order to start Pharmacology learning

was to begin with general Pharmacology, ANS and to go ahead with CNS, CVS and chemotherapy. Among the students 32% opined that pharmacologists are respected as expert therapeuticises, 30% opined they were not and 38% opined that they have a more better status. With regard to the time required for second professional MBBS teaching; 60% preferred one and half year. 28% preferred one year and 12% preferred two years.
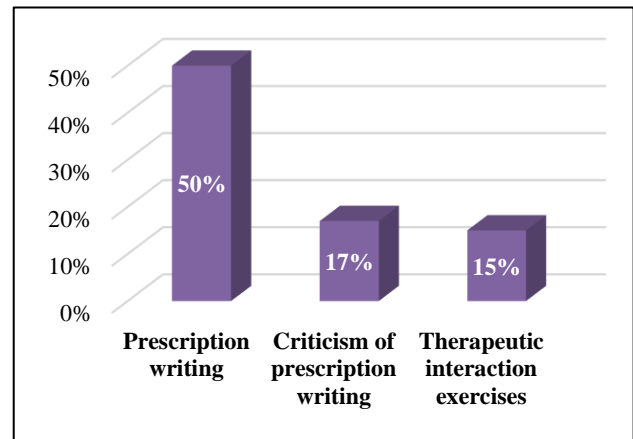

Figure 3: Interesting practical's in pharmacology teaching.

DISCUSSION

The knowledge about pharmacology and capability to apply it in practice is vital. Failure to clench the concepts during this period can lead on to irrational use of drugs in the patients at a later stage. It is vital to give emphasis to the academic need of reviewing the undergraduate and post graduate teaching programs of each subject in medical field from time to time in order to make adequate amendments, to keep up with the rapid progress the subjects in medical field is going through. Student feedback is still considered an effective methodology for the modification of undergraduate and post graduate curriculum, which will make Pharmacology a more thought-provoking and practicable subject. Thus, student feedback is a precious tool towards the improvement of students' performance when their suggestions/feedbacks are implemented in practice.[3,6,7] The significance of Pharmacology is well-accepted by many students as nearly 62% mentioned it as very useful and interesting subject which is as per the study done by Mahfoudh AM et al.[8] And also 59% had prior knowledge about Pharmacology before entering 2nd year MBBS. Few other studies also have the same opinion.[2,4,5] The favourite topic of the students was CNS followed by CVS, Chemotheraphy and ANS. The least favoured topics were general pharmacology, autacoids, GIT and RS which was not coinciding with similar other studies.[9,10] In present study the students preferred whole class lectures followed by interactive and clinical pharmacology related classes. The lecture classes can be improved by asking the students to come prepared for the class or by giving study materials or handouts prior to lecture which was stressed in a similar study.[2,4,5,9]

Table 1: The feedback questionnaire used and the response expressed in descriptive statistics.[14]

Questionnaire	Options	Descriptive statistics (in percentage)
Did you know about pharmacology before 2nd MBBS?	a. No	22%
	b. Somewhat	59%
	c. Yes. many things	19%
What was the opinion of your seniors regarding Pharmacology?	a. Useful but boring	38%
	b. Useful and interesting	10%
	c. Interesting and useless	7%
	d. Boring and useless	11%
	e. Very useful, practically important and interesting	26%
	f. Other (Specify)	8%
What is your opinion regarding pharmacology now?	a. Useful but boring	15%
	b. Useful and interesting	24%
	c. Interesting and useless	6%
	d. Boring and useless	7%
	e. Very useful, practically important and interesting	38%
	f. Other (Specify)	9%
Which topic/topics did you find interesting?	a. General pharmacology	7%
	b. ANS	10%
	c. CVS	20%
	d. CNS	28%
	e. GIT	7%
	f. Respiratory system	2%
	g. Endocrinology	8%
	h. Chemotherapy	11%
	i. Autacoids	0%
	j. Other	7%
Which topic do you think will be useful in internship?	a. General pharmacology	15%
	b. ANS	8%
	c. CVS	14%
	d. CNS	14%
	e. GIT	13%
	f. Respiratory system	3%
	g. Endocrinology	6%
	h. Chemotherapy	23%
	i. Autacoids	0%
	j. Other	5%
Which of the following method did you find most interesting in second year?	a. Lectures in whole class	24%
	b. Lectures in batches	15%
	c. Interactive classes (strict bilateral communication)	15%
	d. Demonstration/ Tutorials	9%
	e. Student seminars	8%
	f. Audiovisual (computer/ projector) aided lecture	9%
	g. Clinical (patient related) Pharmacology	15%
	h. MCQ based study	2%
	i. Others (specify)	4%
Would you like the following topics to be added as a pin of regular teaching to make it more interesting and useful?	a. Student seminar	8%
	b. Group discussion	32%
	c. Quiz	16%
	d. Case study and treatment discussion	37%
	e. Other (specify)	7%
From where you preferred studying pharmacology?	a. Text books only	54%
	b. Keys / handy books only	5%
	c. Teacher's class notes	6%
	d. Other notes	7%
	e. Self prepared notes	5%
	f. Combinations	20%
	g. Other (specify)	3%

(Table 1: Continue)

Questionnaire	Options	Descriptive statistics (in percentage)
What is your pattern of study in pharmacology?	a. Regular because of interest	8%
	b. Regular for pining more knowledge	17%
	c. Regular because of tests/ viva and interactive classes	15%
	d. Only during tests and exams	44%
	e. Shall study only for final exam	16%
How did you learn pharmacology?	a. By cramming/ mugging	10%
	b. By understanding	43%
	c. By grasping thing	10%
	d. By combination	30%
	e. Can never learn	7%
Do you think which of the following special topics should be discussed in Lecture/ Practical of Pharmacology?	a. Pediatric pharmacology	31%
	b. Geriatric pharmacology	8%
	c. Rationality	6%
	d. Dose schedule and calculation	22%
	e. Drug administration procedure	11%
	f. Drugs used in special condition like kidney dysfunction, sexual dysfunction. emergency drugs	17%
	g. Other (specify)	5%
How do you rate pharmacology in comparison to other MBBS subjects?	a. Useless, not important	9%
	b. Above all in subjects	34%
	c. Average, same as other	43%
	d. Other (specify)	14%
Do you think that the subject should be taught in or after 3rd MBBS?	a. Yes. regular lecture on drug therapy in 3rd MBBS.	26%
	b. No enough pharmacology	12%
	c. Orientation course of few days chain; internship	37%
	d. Only few lectures on newer drugs and recent advancement on therapy	25%
How do you regard pharmacology teacher as compared to others?	a. All average	7%
	b. All below average	15%
	c. Most average few good	23%
	d. Most good few average	18%
	e. All good and knowledgeable	35%
	f. Other (specify)	2%
What changes/ modification should be done to make pharmacology more interesting, approachable, understandable and practicable?	Group discussions and clinical case discussions were given by 50% of respondents	
Do you think pharmacologists are respected as expert therapeuticians?	a. Yes	32%
	b. No	30%
	c. More better status	38%
	d. Not known	0%
Rate the usefulness of each of the following evaluation methods in preparing for your university professional examination.	a. Tutorial	35%
	b. Problem based learning	27%
	c. MCQ based learning	14%
	d. Terminal exam	12%
	e. Preliminary exams	12%
Which part of the practical did you find most interesting?	a. Prescription writing	50%
	b. Therapeutic interaction	15%
	c. Pharmacokinetic calculations	9%
	d. Criticism of prescription	17%
	e. Experimental graphs and charts.	9%
Which part of the above question do you think will be most useful in future?	a. Prescription writing	53%
	b. Therapeutic interaction	26%
	c. Pharmacokinetic calculations	11%
	d. Criticism of prescription	8%
	e. Experimental graphs and charts.	2%
How much time according to you would be adequate for second Professional MBBS teaching?	a. 1 year	28%
	b. 2 year	12%
	c. 1 and half year	60%

These methods if adapted may facilitate better retention of the subject matter. Many studies like Manjunath SM et al, and Krishna J et al, are backing the fact that students require clinical case studies and discussions to be incorporated in routine pharmacology curriculum, which goes in hand with present study also.[11,12] This might develop better conceptualization of the subject, which will be useful for their future medical career. Of the practical sessions conducted, the students preferred prescription writing, criticism of prescriptions and therapeutic drug interactions to be more interesting, which will also play a vital role in shaping their clinical skill when they reach internship period.

Most of the students preferred an orientation course of few days during internship to stress the art of prescription writing as they tend to forget pharmacology after 2nd MBBS. Han WH et al.[13] has stated that there should be incorporation of clinical pharmacology in internship period to help them write rational prescriptions. Regular tests, tutorials and viva will help students learn and retain pharmacology in a better way. Most of the students preferred tutorials for preparing themselves for examinations. Inclusion of MCQs was suggested by the students which would help them prepare for future entrance examinations for post graduate courses.

Most of the students preferred text books for learning pharmacology. Most of them studied pharmacology only during examinations. However, most of the students learnt pharmacology by understanding rather than by mugging or grasping things. Students wanted few special topics like Pediatric pharmacology, dose schedule and dose calculations and drugs used in emergency to be discussed in detail during the pharmacology teaching program. Most of the students' respect pharmacologists as expert therapeuticians. The primary objective of teaching pharmacology is to enable undergraduate medical students to take rational therapeutic decisions in clinical practice.[13,14] Pharmacology is also one of the most important and ever-changing subjects in the medical curriculum. Students' perceptions and attitude regarding the different teaching learning and evaluation methods are important for further development and restructuring of medical education in future.[15] In the present study, many thought-provoking things came into picture and students have also suggested many ways that could be incorporated in the conventional pharmacology teaching so as to make the subject more interesting and understandable.

CONCLUSION

The results of our study can serve as positive feedback to make the teaching programme more interesting. As teaching and learning is self-evolving process, a well-designed and systematic prospective research needs to be carried out, so that students get updated every year ensuring outcome of a quality efficient healthcare professional. It can also pave way for a rational prescribing practice after acquiring a proper and updated knowledge about Pharmacology as part of the undergraduate teaching programme.

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