Student perceptions about pharmacology teaching and curriculum at a tertiary care medical institute of Haryana state, India – an appraisal

Mittal R[1], Gupta MC[2], Nehra V[3]

Correspondence to:

rakesh7878@yahoo.co.in

[1]**Dr. Rakesh Mittal,** Associate Professor, Department of Pharmacology, Pt. B D Sharma Postgraduate Institute of Medical Sciences, Rohtak – 124001, Haryana, India.

[2]**Dr. Mahesh Chander Gupta,** Senior Professor & Head, Department of Pharmacology, Pt. B D Sharma Postgraduate Institute of Medical Sciences, Rohtak – 124001, Haryana, India

[3]**Dr. Vikas Nehra,** Pt. B D Sharma Postgraduate Institute of Medical Sciences, Rohtak – 124001, Haryana, India

Abstract

Background

The present pharmacology curriculum is inadequate and not uniform across all medical colleges across India, inspite of guidelines issued by the Medical Council of India (MCI). Feedback form the stakeholder i.e. faculty and students is an important aspect to find lacunae and suggest changes in the existing teaching & curriculum. Hence, the present study was planned to obtain feedback from the student's regarding pharmacology teaching and curriculum.

Methods

A total of 120 medical students from III & IV professional years, interns & residents were participants of the study. Feedback questionnaire focusing on the perception towards various aspects of pharmacology syllabus, teaching and measures to improve the existing pharmacology curriculum and assessment was administered. The questionnaire contained both open ended and also close ended questions on Likert's five point scale.

Results

Students felt that pharmacy practical and experimental exercises need to be removed from the curriculum. It was stressed on to conduct more integrated seminar, tutorials, group discussions and problem based learning. Students suggested topics like clinical pharmacology, sports & emergency medicine, clinical research, ethics and new medicine formulations etc. to be included. Majority of students felt the need of monthly tests to compute for internal assessment.

Conclusion

The teaching methods should include more of small group teaching methods with judicious use of the modern teaching aids. The pharmacology curriculum should be made more need based, integrated with clinical subjects, focusing towards the objectives to be achieved by national health programme.

Key words

Assessment, curriculum, feedback, Pharmacology, teaching

Background

Pharmacology is a branch of medical stream that deals in details about the drugs, their nature, mechanism of action, therapeutic effects, drug interactions and adverse effects. It is generally been recognized that this subject renders the development of good prescribing practices by the clinicians across all specialties. In this era of pharmaceutical over-activism and drug explosion it has been felt since long that the pharmacology curriculum is inadequate and needs reform to make more knowledgeable physicians who can make better therapeutic decisions [1]. It is being constantly realized that undergraduate pharmacology curriculum needs to be more clinically oriented to fulfill the needs of clinical practice [2]. It has also been stressed by the Medical Council of India (MCI) that students should be taught skills to select the medicines more rationally but unfortunately the current teaching programme in medical colleges across India is generally lacking in this field [3]. There is a total lack of uniformity with regards to pharmacology curriculum across the medical colleges in the country. Various forums have also been criticizing pharmacy and experimental pharmacology experiments in curriculum [4] with the result that few institutions have already stopped these experiments. There should always be inclination to incorporate newer learning and teaching strategies to transform passive learning to active learning [3]. Also efforts need to be done to incorporate clinical pharmacology in the curriculum which would help to ensure safe drug therapy [5]. Student's feedback is an important aspect to find lacunae and suggest changes in the existing teaching & curriculum. The students feel that there is a gap between the actual clinical practice and skills learned as per the prescribed curriculum [6].   Hence, it was planned to carry out a survey to assess the perception of students regarding the existing undergraduate pharmacology curriculum, pharmacology teaching and learning methods and their suggestions to improve present pharmacology teaching and curriculum.

Material and Methods

Study Period
The present study was conducted at Pt B D Sharma Post Graduate Institute of Medical Sciences, Rohtak, Haryana in the year 2013 (May - October).

Study design, participants
Participants of the study were medical students who have already completed undergraduate pharmacology course i.e. from III and IV professional years, interns and residents. Total of 120 participants (30 participants from above mentioned 4 groups) were enrolled.

Response Rate
Response Rate for this study was 100% as all 120 students completely answered the questionnaire.

Questionnaire design
A feedback questionnaire focusing on the perception towards various aspects of pharmacology syllabus, teaching and measures to improve the existing pharmacology curriculum and assessment was administered. The questionnaire was based on Likert's five point scale (strongly agree, agree, neither agree/disagree, disagree, strongly disagree) for closed ended questions. In addition, questionnaire also consisted of open ended questions focusing on their suggestions.
Unique study identification number was used to avoid bias in this study and to keep the identity of the student confidential.

Data collection
Investigators of this study collected data personally by distributing the questionnaires to the students. They were asked to answer each question honestly; doubts regarding the questionnaires were also cleared. Although approximate time to fill up the questionnaire was allotted 30 minutes, few students completed earlier.

Inclusion criteria
Students of third and fourth year of MBBS programme, interns and residents willing to participate voluntarily was included for this study.

Exclusion criteria
Students not willing to participate voluntarily or not give consent; incorrectly filled questionnaire were excluded to avoid study bias.

Sample size calculation
In a pilot study done prior to the original study showed the feedback of students towards the perception of "clinical pharmacology should be an important aspect of undergraduate curriculum" was 80%. At 5% significance level, with p=0.8, q=0.2, E=0.08 [10% of P], required sample size was 96.

Outcome variable
Feelings about dispensing pharmacy practical, relevance of experimental pharmacology practical, teaching pharmacology along with clinical subjects, usefulness of computer simulations for teaching, importance of clinical pharmacology in undergraduate curriculum, importance of MCQs etc. were considered as outcome variable.

No	Questionnaire Items	Strongly Agree	Agree	Neither Agree/ Disagree	Disagree	Strongly Disagree
	Table – 1 Feedback from the students (n=120)					
1	I feel that dispensing pharmacy practical has lost its relevance in present clinical practice.	38%	44%	05%	12%	01%
2	I feel that practical on experimental pharmacology have lost its relevance in present clinical practice.	20%	33%	08%	34%	05%
3	I feel that proper understanding of pharmacology would make me a better physician.	68%	24%	01%	05%	02%
4	I feel that it would be more useful to learn pharmacology along with clinical subjects.	53%	32%	08%	07%	0%
5	I feel that practical pharmacology teaching can become more useful with computer simulations.	13%	33%	28%	25%	01%
6	I feel that clinical pharmacology should be an important aspect of undergraduate curriculum.	55%	32%	13%	0%	0%
7	I feel that pharmacology knowledge would be useful for contribution to various drug related policies / National health programmes	33%	48%	10%	08%	01%
8	I feel that MCQ's should also be a part of university theory examination.	53%	24%	08%	14%	01%
9	I feel that duration of teaching undergraduate pharmacology course (16 months) is adequate.	28%	55%	08%	07%	02%
10	I would consider pharmacology as one of subject choice for post graduation course.	04%	10%	21%	40%	25%

Table – 2 Students favoring different teaching methods in pharmacology n(%)

Teaching methods	n=120
Tutorials + group discussions	80(67)
Lectures + integrated seminar	19(16)
Lectures + tutorials	16(13)
Any others	5(4)

Table – 3 Students favoring different evaluation methods in pharmacology n(%)

Teaching methods	n=120
Short answer questions + MCQ	60(50)
Long answer questions + MCQ + viva voce	48(40)
Long answer questions + short answer questions	11(9)
Any others	1(1)

Explanatory variables

The demographic and cause of choice factors were defined at individual level. Factors at individual level were age, gender.

Ethical committee approval

Ethical clearance was obtained from the Institute Ethics Committee before the start of the study. Study subjects were informed about the study conduct, procedure, risk & benefit, privacy, confidentiality and voluntary participation. A written informed consent was obtained from the participants.

Data management and statistical analysis

The data collected was analyzed using Statistical Package for the Social Sciences (SPSS) for Windows Version 16.0 (SPSS Inc; Chicago, IL, USA).

Results

Majority of participants felt that the duration of teaching undergraduate pharmacology course (16 months) is adequate and clinical pharmacology should be included in the curriculum with no student disagreeing on this point. They also felt that pharmacology knowledge would be useful for contributing to drugs related. Most of students felt that pharmacy practical and half of students felt that experimental exercise have lost their relevance in present clinical practice (Table 1).

Students preferred tutorials, group discussions and integrated seminars as teaching methods. Students supported the inclusion of MCQ's in the examination apart from long and short questions for making the assessment more objective. Short answer questions and multiple choice questions were the most favored evaluation methods among the students (Table 2 and 3).

Students unanimously felt that internal assessment marks should be included in the university examination.

However, there was a variable response regarding the percentage contribution of internal assessment to the university examination with majority of students felt that less than 40 percent of total marks should be awarded for internal assessment (Figure 1). The frequency of the test for the internal assessment examination should be monthly. Students appreciated the teaching of therapeutics, and opined that drugs on central nervous system, cardiovascular system and antimicrobial need to be more clinically oriented.

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An official journal of CMRA

ISSN 2321-5291
Medical Science 2017; Mar., Vol-5(1):13-17
Student perceptions about pharmacology teaching and curriculum

Discussion

Pharmacology being a very important subject for future prescribers needs to be regularly updated with regard to content and methods of teaching in order to make students more knowledgeable. It has been felt by the students that the present curriculum lags behind in its practical content as pharmacy and experimental exercises are not practically and clinically relevant. Besides, there is a need to shift it towards a clinically oriented approach and incorporate clinical pharmacology in the curriculum [5, 6].
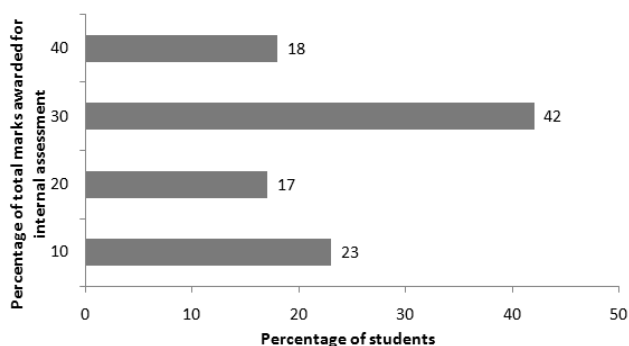

Figure – 1 Opinion of the students regarding percentage of total marks to be awarded for internal assessment.

In the present study, the feedback obtained from the students showed that they feel a gap in the present pharmacology curriculum which does not meet the expectation of first contact physicians and this should be addressed and revised accordingly.

Majority of participants felt that the duration of teaching undergraduate pharmacology course (16 months) is adequate which is as recommended by Regulations on Graduate Medical Education, recommendation by Medical Council of India [9].

Similar to the study conducted by Vasundera et al., [6]. Most of students felt that pharmacy practical have lost their relevance in present clinical practice and clinical pharmacology should be included in the curriculum though only half of them agreed about the experimental pharmacology relevance in present days. As emphasized by Gitanjali, majorities of students also felt that for better understanding of the subject, pharmacology should be taught with clinical subjects [10].

Almost all the students were of the opinion that proper understanding of pharmacology subject would make them a better physician. Majority of students felt that pharmacology knowledge would be useful for contributing to drugs related national health programme, which was as also observed in a study conducted by Mohanbabu et al. [8].

The observation by Majagi et al. was similar to our study as only 46% students felt that pharmacology learning can become more useful and interesting with the use of computer simulations. Also 67% students felt that incorporation of tutorials, group discussions and integrated seminars would make learning more effective which is also stressed upon by the Medical Council of India. Students also supported the inclusion of MCQ's in the examination apart from long and short questions for making the assessment more objective [1].

65% of students disagreed to prefer pharmacology as subject for their post graduation. This was in contrast to the response obtained by Mohanbabu et al. [8] as the participants in their study were students who were yet to appear for their pharmacology examination and in this study the participants had already passed the MBBS II professional course.

The teaching methods apart from utilizing conventional methods should be supplemented with computer assisted learning, problem based learning etc. for better understanding and retention of subject [7]. Apart from e-learning it should also include group discussion, logical reasoning skills and integrated seminar (horizontal or vertical) [8]. A gap exists between the skills and knowledge gained from the present day teaching and learning activities by a community physician and the roles to be played by him for fulfilling the national health programme [3, 4].

The observations depicted that the pharmacy and experimental pharmacology practical being taught are irrelevant in the present scenario. Some topics which are of no interest for a community health professional may be deleted. The teaching methods should be a blend of conventional and modern audio-visual aids. Pharmacology being one of the most important subjects for future doctor should be made more clinically oriented and integrated with clinical disciplines for better understating.

Conclusion

This survey highlighted that many deficiencies do exist in the pharmacology curriculum and also in the teaching and evaluation methods from an undergraduate student's point of view. The teaching methods should include more of small group teaching methods with judicious use of the modern teaching aids. The pharmacology curriculum should be made more need based, integrated with clinical subjects, focusing towards the objectives to be achieved by national health programme.

Limitations & future scope of the study

Small sample size, short period of time was the major limitation for this study. Broad based studies including other medical colleges of the state may give a better scenario.

Abbreviations

Medical Council of India (MCI), multiple choice questions (MCQs)

Competing interests

Authors' contribution

RM, MCG, VN designed the study, interpreted the data, drafted the manuscript, and revised it. RM, VN conducted the research; MCG, RM helped in the data formulation and analyzing. All authors critically revised the manuscript and finally approved it for publication.

Acknowledgments

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