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Original Article

Medical Education Section

A Questionnaire Based Study to Evaluate Change in Attitude, Perception and Feedback of Second Year Medical Students with Respect to Their Academic Terms on Teaching-Learning Methodology and Evaluation Methods in Pharmacology

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ABSTRACT

Background: Pharmacology is one of the most evolving branches in medical sciences. Hence not only notions but also the teaching methodologies and evaluation methods need to be kept under continuous reform. Feedback from the medical students, for whom this reform is meant offers continuous directive for the improvement.

Aims: To assess the change in student's attitude, perception & feedback on teaching-learning methodology and evaluation methods in Pharmacology at the end of this subject course.

Materials and Methods: Total 140 second year medical students studying at Smt.Kashibai Navale medical college, Pune were selected; administered with a prevalidated questionnaire containing 25 questions in their first semester and same questionnaire with little modifications at the end of third (last) semester. Suggestions were also asked regarding the quality of good pharmacology teachers and modification in pharmacology teaching methods.

Statistics: Descriptive statistics were used and results were expressed as percentage.

Results: Most of the students found CVS (49.25%) as most interesting topic in first semester whereas Endocrines (53.2%) in last semester. Opined, more or less similar topics i.e. Chemotherapy (54.06%, 53.5%), CVS (52.52%, 54.3%), CNS (44.15%, 47%) and endocrines (37.3%, 43.1%) to be most useful topics in internship in both the semesters. 50.58% students preferred clinical/patient related pharmacology and 47.36% mentioned use of audiovisual aided lectures in last semester. Prescription writing and criticism of prescription were amongst most useful and interesting in both the semesters. Students' interest in microteaching and problem based learning continued and increased in last semester whereas seminars, quiz and museum studies were mentioned as good adjuvant to routine teaching. Periodic written tests and theory viva at the end of a particular system were mentioned as effective evaluation methods. Even in last semester student's continuous interest was found in gathering information on recent advances in pharmacology and gave favorable response to inclusion of new drug information during theory classes.

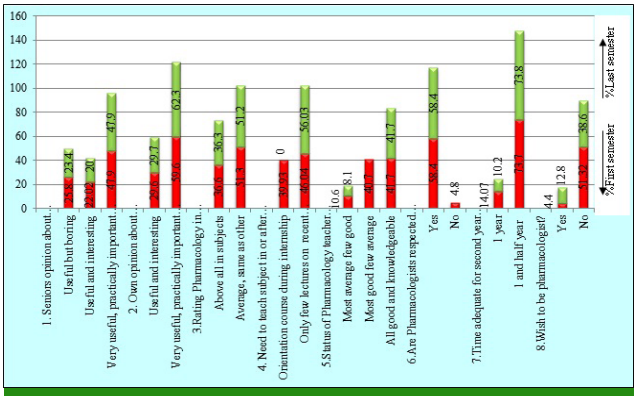
Conclusions: The changes made in the Pharmacology teaching-learning methods with reference to students' response in first semester significantly evoked their interest in learning pharmacology; stressing need for continuous reform.

Keywords: Evaluation methods, Pharmacology, Second medical student, Teaching-learning methodology

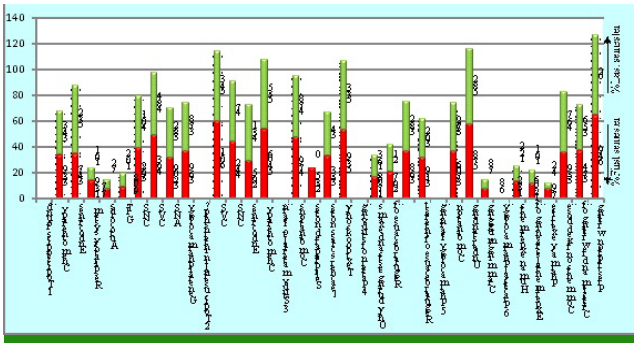
INTRODUCTION

Pharmacology, a branch of medicine is progressing by leaps and bounds. But the place and status of Pharmacology in the medical curriculum is obscure. Medical students criticize the way it is taught, its examinations and its usefulness when they practice [1]. Consequently reforms in Pharmacology are the need of the hour in terms of teaching methodologies and evaluation methods [2].

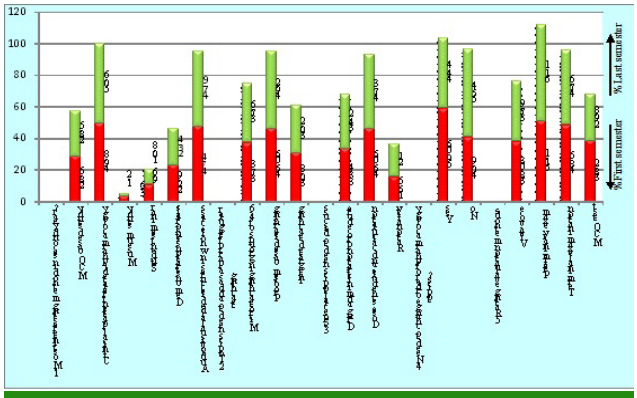
Traditionally, it is focused more on factual information with little or no emphasis on clinical and applied aspects.



[Table/Fig-1]: Comparison of responses to general questions (%) of participants to questionnaire in two academic semesters (n = 140)



[Table/Fig-2]: Comparison of responses to learning methodology (%) of participants to questionnaire in two academic semesters (n = 140)



[Table/Fig-3]: Comparison of responses to teaching & evaluation methods (%) of participants to questionnaire in two academic semesters (n = 140)

Dispensing pharmacy and experimental pharmacology has remained the cornerstone of conventional pharmacological practical exercises. However clinical utility and relevance of these practical exercises have always been questioned and criticized [3].

The primary aim of teaching pharmacology to medical students is to train them on rational and scientific basis of therapeutics. Pharmacology teaching is facing a major challenge in the medical science due to constant reformation. Generally, there is an opinion that teaching pharmacology in medical schools has failed to keep in pace with the rapid changes in medical practice. To make pharmacology teaching more innovative and interesting learning experience, efforts have been made by formulating new educational strategies to meet the educational objectives. Educational objectives can be evaluated by assessment procedures and timely feedback to achieve the learning goal [4]. It is accepted that the feedback from students serve as an effective tool in developing teaching methodology and evaluation methods in undergraduate teaching [5]. With the results of our earlier study we had concluded that, there is a definite need for modification of undergraduate curriculum by means of conducting few microteaching sessions and clinical-oriented problem-based learning with MCQ-based revisions at the end of each class so as to make pharmacology more interesting and practicable [6]. Pertainesing to these results we had made requisite modifications in teaching-learning methods by introducing 'NEW DRUG WATCH' and clinical problem solving under title "POSE A PROBLEM" conducting microteaching sessions and MCQ tests in next two semesters. Present study has been designed to evaluate the change in attitude, perception and feedback of second year medical students on teaching-learning methodology and evaluation methods in pharmacology before appearing for university examinations with reference to modifications we made.

MATERIAL AND METHODS

Design and study population

This was a cross-sectional study involving 140 second year medical students in their first semester studying in SKNMC&GH; who were surveyed with prevalidated questionnaire designed for them. The questionnaire was adapted from the previous studies that assessed feedback of Second year medical student's on teaching-learning methodology and evaluation methods in Pharmacology; few modifications were done in the questionnaire to best fit with reference to university syllabus. Questionnaire included questions on three main categories i.e. teaching-learning methodology, evaluation methods and general questions. Same questionnaire was repeated at the end of their last semester i.e. before appearing to university examination.

Data collection

After getting the protocol approved by the Institutional Ethics Committee (SKNMC No/Ethics/App/2010/72); the list of second year medical students studying at Smt. Kashibai Navale medical college was obtained, after getting the list; 140 of total number of first semester students were administered with a prevalidated questionnaire containing 25 questions at the end of pharmacology class to fill up. Same questionnaire was administered in same way in their last semester before appearing for university examinations. Suggestions were also asked regarding the quality of good pharmacology teachers and modification needed in pharmacology teaching methods.

The filled questionnaires were collected immediately once they finished the filling on the same day. The questionnaire validation was done by a pilot study on 15 students.

Statistical analysis

Descriptive statistic was used for analysis of data and results were expressed as percentage.

RESULTS

Out of total 140 students, 64 were females and 76 were males and the mean age of the students was 19.7 ± 0.26 years. In reply to questions, after requisite modifications in teaching-learning methods significantly different and promising answers were obtained from students in last semesters.

Responses about general questions: Pharmacology was opined to be very useful, practically important and interesting subject by 47.9% of senior students when asked in both the semesters. None has treated the subject as boring and useless. About 7% and 7.3% senior students gave variable responses stating, although useful and interesting it is very difficult, volatile and confusing subject respectively in first and last semester. Same response was observed with second year students i.e. majority (59.6% and 62.3%) of them found the subject to be very useful, practically important and interesting in two semesters respectively [Table/Fig-1].

When the students were asked to grade the subject in comparison with other subjects, majority (51.3%, 51.2%) of them found no difference from other subjects i.e. they treated all the subjects equally important. 56.03% students mentioned that they would like to have few lectures on newer drugs/ and recent advancement on therapy with pharmacology orientation course of few days during internship.

When the students were asked about their opinion on pharmacology teachers; 41.7% students found most of the pharmacology teachers good and knowledgeable and 40.7% found most them good and few average. 58.4% students mentioned pharmacologists are respected as expert therapeuticians undoubtedly. Significant i.e. 73.8% students in both the semester unanimously mentioned course time of one and half years is adequate for teaching second year. Only 14.07% students gave favorable attitude on the argument that second year medical course time of 1 year is adequate [Table/Fig-1].

We came across diverse suggestions and opinions on the qualities of good pharmacology teacher by students in both semesters. According to them teacher should be knowledgeable, approachable, student interactive, problem solving and should come up with good audiovisual presentations, communications, clarity in speech, expressivity and with clear basic knowledge of the subject. When the students were asked about being a pharmacologist in future, only 4.4% students accepted that they want to become a pharmacologist in first semester wherein, 12.8% in last semester gave consent to become pharmacologist.

Responses about teaching-learning methodology and evaluation methods: Majority of students found Endocrines (53.2%), CVS (48.4%), CNS (40.1%) and General pharmacology (37.8%) as most interesting topics in pharmacology in contrast to Cardiovascular System (49.3%), Central Nervous System (39.2%) and General pharmacology (36.9%) in first semester. Chemotherapy (54.06%, 53.5%), CVS (52.5%, 54.3%), CNS (44.2%, 47%) and Endocrines (37.3%, 43.1%) are going to be the most useful topics in internship as per their opinion in two respective semesters [Table/Fig-2]. 59.06% versus 44.4% students suggested change in the order in which pharmacology topics are taught; whereas 14.3% versus 33.1% accepted present order to be the best in last semester. 49.8% versus 50.6% students preferred clinical/patient related pharmacology and 47.4% versus 47.9% preference was given to audiovisual aided lectures in two respective semesters [Table/Fig-3]. Prescription writing (64.9%, 62%), comments on fixed dose combinations (35.9%, 46.7%) and criticism and rewriting of prescription (37.4%, 35.6%) were found amongst most interesting and useful topics from pharmacology practicals in two respective semesters.

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In questions about the methods to make pharmacology teaching more interesting about 49.2% students continued their stand of adding problem based learning in conventional teaching and microteaching sessions (37.6%).

Students were also questioned about learning material and methods [Table/Fig-2] that they use to learn pharmacology. Majority of the students mentioned that they learn pharmacology from textbook only in both the semesters (i.e. 53.9% and 53.3% respectively). Comparable (47.9%, 47.8%) number of students admitted the combination of teacher's class notes, self prepared notes and textbook. Amongst the evaluation methods for preparing for university examination preliminary examination (51.1%, 61.1%) was given highest score followed by terminal examination (48.5%, 47.6%) and MCQ test (38.2%, 29.8%) in two respective semesters

[Table/Fig-3]. For making pharmacology more interesting/ approachable/understandable and practicable student suggested incorporation of new drug information along with prototype drugs in comparative manner along with video clipping and student slide show in both the semesters.

DISCUSSION

Pharmacology is one of the most important and ever escalating subjects in the medical curriculum. As a result various teaching-learning methods are espoused across the whole world to cope with learners' expectations. Each one has its own advantages and disadvantages. Students' perceptions and attitude regarding the different teaching-learning and evaluation methods are important for further development and restructuring of medical education in future. Students' feedback is also important for a medical teacher as it offers room towards his excellence.

It is the need of present hour to review the teaching programs time to time and making sufficient modifications, to keep swiftness with progress in the subject and to deal with the requirements of the beneficiaries. In present study many interesting changes in students' attitude and perception came into picture when requisite modifications were done in their teaching-learning and evaluation methods with respect to students' suggestion received in first semester. Incorporation of their suggestions in conventional pharmacology teaching made them learning subject more interesting and understandable.

A class of students who was totally unaware of the subject in first semester reflected the acute need for subject orientation program before the students enter into medical education and we have started orienting new students before we start teaching pharmacology. Majority of the students found CVS, CNS and General pharmacology amongst the most interesting topics in pharmacology; whereas ANS, GIT, Autocoids and RS were less interesting topics in their first semester. So we emphasized more on these topics through use of microteaching sessions, problem based learning, patient related teaching and interactive teaching with strict bilateral communication along with conventional teaching and to our surprise we observed the improvement reflected in results. Involvement of students improves learning and thereby performance in university examinations. This approach towards teaching pharmacology was appreciated by students than theoretical conventional teaching.

Some studies mentioned about inability of doctors in writing the rational prescription and it is suggested that there should be incorporation of some training of clinical pharmacology in internship [7]. In present study students have additionally asked for conducting few lectures on new drugs and recent advances in the therapies during internship apart from pharmacovigilance and rational prescribing in both the semesters. And we had fulfilled this demand by active participation of interns in various CMEs on recent drugs and therapeutics. Student's attitude towards becoming pharmacologist was found turned favorable in last semester after discussing scope and the future prospective of subject. Introduction of few interesting teaching-learning methods like 'POSE A PROBLEM' and 'NEW DRUG WATCH' have changed their mindset to treat subject very difficult to some extent before appearing to university examinations. Assisting the students in subject learning through simple and understandable illustrations given by our faculties have helped to change their mindset over next semesters.

Students unanimously accepted all pharmacology teachers as good and knowledgeable; however expected free interaction and problem solving with the teachers in both the semesters. Definite efforts were taken in this direction; through discussion and seeking guidance from senior experienced faculties. Conducting MCQ tests and viva sessions at the end of every topic was done to make them study pharmacology regularly due to these tests as per their suggestions in first semester. In radiance of the results of present study we should appreciate that these all issues must be given prime importance while updating undergraduate curriculum.

CONCLUSIONS

Student's feedback plays a pivotal role in developing effective methodologies in pharmacology teaching. Formulating new educational strategies to meet the educational objectives of making pharmacology more interesting and practicable is the hours' need. Conducting few microteaching sessions; adding newer drug information and more of clinical oriented problem based learning through new modalities like 'POSE A PROBLEM' and 'NEW DRUG WATCH' may be appreciated by undergraduate student.

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