



Knowledge, attitude and practice of pharmacology teaching among practitioners of Northern India

Sanjay Khanna^{1*}, Pratap Shankar², Dheeraj Kumar Singh², Preet Lakhani², Sachin Tutu², Rakesh Kumar Dixit²

¹Department of Pharmacology, Integral Institute of Medical Sciences and Research, Integral University, Lucknow

²Department of Pharmacology & Therapeutics, King George's Medical University, Lucknow, UP, India – 226003

Received: 30-04-2016 / Revised: 24-05-2016 / Accepted: 31-05-2016 / Published: 02-06-2016

ABSTRACT

Pharmacology remains one of the most important subjects of medical curriculum and is also regarded as one to be forgotten very easily. This study aims at getting an idea about knowledge attitude and preferences in teaching, various learning methodologies, rational pharmacotherapy and knowledge seeking practice in Pharmacology among our practitioners. It is analytical study. 280 general practitioners of Northern India with an adequate exposure to Pharmacology learning before are being analysed. The response of these practitioners to a questionnaire on various areas of teaching, learning methodology in Pharmacology was analysed under different subtopics and heading like student oriented teaching, learning methodologies, knowledge exploratory behaviour etc., using a software SPSS 17(version). Questions which were not answered were considered as invalid. Results show that majority of the practitioners preferred improved learning methodologies, eg., 90% liked case based discussions, 94% felt integrated teaching more wholesome, and 82.6% felt group discussions are better for allied topics. A change of attitude towards learning pattern has been seen. Knowledge of rationality in drug use is deficient in 22%. Interest to update recent advances in medicine is found in 34.6% only. The study clearly suggested that even our practitioners preferred an interactive session filled with the content of case discussions, and supported MCQs as a better and reliable method of evaluation and also they are of view that the tough chapters be dealt differently possibly by practicals. Practical sessions can be helpful in teaching basic concepts and also about rational pharmacotherapy. Knowledge seeking behaviour needs improvisation by teacher.

Keywords: Student oriented teaching, learning methods, knowledge exploratory.



BACKGROUND

Pharmacology shall always remain as one of the most important subjects of medical education curriculum, which has to be brought forth in clinical application inevitably. Being one of the most difficult subjects to be retained over a time period it gets natural and curious on our side to know what our practitioners hold their opinion and attitude towards the teaching methodologies of pharmacology. The study is aimed towards evaluating the general practitioners' attitude and the teaching methods preferred by them while they were undergoing their undergraduate training, the learning methodologies they found most interesting and engaging, rational drug use and knowledge seeking practice in Pharmacology. In Indian medical colleges during undergraduate course the medical students are trained in Pharmacology

during their II year of MBBS curriculum. Knowledge of Pharmacology gets indispensable as it holds a ground for the safe and effective practice of medicine. During the undergraduate training as students of pharmacology the general practitioners also felt pharmacology to be very tough to remember and retain for a longer duration. This study attempts to have the feedback and possible suggestions from our general practitioners on how to improve the methods in teaching, discover some new learning methodologies and what attitude they hold towards the clinical applications of pharmacology.

The questions were framed such as to help participants in their self-assessment about their approach in learning and keeping themselves updated about the recent developments and paradigms in pharmacology. The questions here are

*Corresponding Author Address: Dr. Sanjay Khanna, Associate Professor, Department of Pharmacology, Integral Institute of Medical Sciences and Research, Integral University, Lucknow, E-mail: drkhannasanjay@yahoo.com

blind ended and there is no grading or scaling. It gets important on our side to keep and maintain the confidentiality of the participating practitioners.

MATERIAL AND METHODS

The general practitioners were asked and involved in the study after getting a written informed consent, in which all the aims and objectives regarding the study has been clearly intended. The study was carried out for a period of 3 months.

Sample size: It included 280 practitioners of Northern India; and it is based on a previous study [1].

Inclusion criteria: Medical practitioners, who showed willingness to participate.

Exclusion criteria: unwilling medical practitioners.

Initially 298 medical practitioners were enrolled of whom 280 participated. Questions which remained unanswered were considered as invalid and were omitted from the study and data processing. 130 females and 150 males constituted this study group. The results were pooled and analyzed under four headings that is, feedback for student (when our practitioners were students) centric teaching, learning methodology, application of rational pharmacotherapy, and knowledge seeking behavior.

Statistical Analysis: The result was analyzed by SPSS (Statistical Package for Social Sciences) software of version 17. Results of the study have been represented as tables.

RESULTS

1. Feed Back For Student Oriented Teaching

A. Case based discussions: While being students, our 79.8% general practitioners used to prefer the format when the content of class discussion was a case based discussion. And 89.5% liked when the time allotted for theory time was 15 minutes. It indicates that even today the format should be rescheduled and it needs to be changed to student centric teaching.

B. Difficult portions analysis: 60.6% of the general practitioners held CNS as the toughest chapters of pharmacology curriculum, while 25.4% considered ANS as toughest. Thus these chapters need to be brought under the light of newer and advanced teaching methodologies.

C. Way out of difficult portions: Our 58.7% of the subjects felt that repeated tests can bring down the difficulty level of these tough chapters while

46.3% practitioners hold that repeated teaching will bring down the difficulty level. 90.5 % still hold this opinion that the difficult chapters need to be split in smaller portions for repeated tests and analysis.

D. Practical-the preferred: 70.2% practitioners still feel that the practical in pharmacology used to be interesting while 75.7% say practical helps in better understanding of pharmacology especially of tougher chapters.

E. MCQs utility: 94.5 % practitioners still feel that MCQ is the right modality to gain an in-depth knowledge and to even gain some improvement in their academic performances. Our practitioners also felt that by inclusion of MCQs as an evaluating tool it won't only help the students to get ready for their competitive exams to held in their career ladder, but also those students who besides having good knowledge fails to put that properly on their subjective exams answer sheet.

2. Various Learning Methodologies

On probing and analyzing much more about our general practitioners learning methodologies it came out that our general practitioners hold different view regarding the time duration needed for the preparation of exams, while 58.6% believed that 3 months is the ample time for preparation but regarding the time for preparation for exams 41.4% holds 6 months as the sufficient time.

When asked to the general practitioners about the methods used for memorizing drug names, 58.4 % replied that they used mnemonics as the method while 36.5% used to follow repeated recollection as the method. Only 20% of the general practitioners of our study were used to visual reproduction of contents or tabulation as the method of recollection. Nearly 94% of general practitioners thought that topic should be learnt simultaneously from various subjects for a better understanding and learning.

Under group based learning attitude, student seminar was considered as useful for listeners by 56.3% of our study group while 44.2% of participants believed it was useful only for the presenter. The way a seminar by student helps the presenter is better analysis of the topic presented for 42.2%, while for the listener it is better involvement in 44.6%. The results also stressed that 82.6% of the general practitioners believed that group discussion is the better method of learning.

3. Rational pharamcotherapy

While trying to divulge about the awareness of rational drug use among our general practitioner while they were students of pharamacology it was found that 78.4% of the practitioners still showed

the desirable attitude of learning and correcting some of their errors regarding irrational prescription, which indicates their attitude towards learning while they were the students of pharmacology.

4. Knowledge exploratory attitude

When probed about the knowledge seeking behavior it came out that 56.5% of our practitioners were in the habit of reading about the drugs they encountered while reading books while 74.6% of the participants were in the habit of reading the drugs used in the prescription. Nearly 34.6% used to update their knowledge of pharmacology through dailies while 18.9% through medical publications. Here our participants thought that if the teacher would have intervened at this period of learning, it would have further added the wing to their knowledge seeking behavior.

DISCUSSION

Student Oriented Teaching: after analysis of the results it came out that even as students our general practitioner preferred the teaching methodology to be shifted from traditional textbooks to knowledge sharing methods. It was preferred by most of our participants that the case discussion content of the class in which after briefing about the disease, the drug used in that situation was discussed in detail used to ignite in them an unending interest in the subject [2]. It was also found out that Central nervous system and Autonomic nervous system were unanimously quoted as tough by majority of the practitioners as students. It also came out in the study that regular testing and evaluation followed better results [3].

Our practitioners used to prefer short tests and the bigger portions to be split in many shorter ones suitable for their comprehension. As stated earlier that practicals were the motivating forces for the subject, and also liked MCQs as a better assessment tool over the long tedious subjective form of exam.

Various Learning Methodologies

- a) Individual Learning Methods: Our study clearly showed that nearly 76% of our practitioners thought that practical oriented teaching should be the ideal method of learning. The knowledge about the methods and the preferred ways of learning has been clearly outlined by the questionnaires [4].
- b) Assessment through MCQ based, should be started. The integrated learning of a subject through various subjects was being used by our practitioners. Memorizing the names of drugs is a great challenge in pharmacology

and here mnemonics remains the preferred method of the practitioners while being student of pharmacology.

- c) Peer Based Learning Methods: It was found that group discussion remains as the best way of learning preferred even some of the older participants of our study as nearly 83% of the participants are of this view.

Rational Pharmacotherapy

It needs to be applied and followed religiously even today and the time to follow, as these irrational drug use can lead to a general deterioration of all the health paradigms and all the treatment protocols. Still a bigger percentage of 22% of the participants are inflexible to the newer regimens and treatment protocols.

Knowledge Exploratory Behaviour

Our participants supported that the formative assessment is the guiding force for a better learning and also in installing reassurance and instilling values and thus helps in reinforcing students motivation for a better and clear learning [5]. Even the eminent educationalist are of opinion that regular testing and evaluation will bring out better results [6]. In the previous studies it has been inferred that if animal models are not feasible to be applied then computer simulated software's can be introduced in pharmacology teaching and even our participants go with this suggestion [7]. Even the reports go along with our findings that apart from regular classroom teaching innovative practices and methods were preferred by these practitioners as students [8,9]. In a study conducted among Nigerian students it was suggested that introduction of clinical oriented pharmacology teaching shall bring wonders to this subject and it also goes along with our result [10,11].

It was disheartening that very few the participants were of this opinion that the regular updating of knowledge in the subject and recent inventions should remain as an essential component of lifelong and limitless learning of a doctor.

CONCLUSION

The study revealed that even the practitioners were of opinion that the teaching pattern needs to be modified that shall suit the present generation of students of pharmacology and these were the methods which were liked by them and in due course be followed and developed further to suit the new competitive needs of the present generation. Even the participants are of this opinion that the regular and MCQs based assessment had boosted their interest and confidence in the subject and so it will do now. So it is a continuous process

of development in medical education paradigm and some of the methods were preferred before by these participants and will be liked even by some of the

newer lot and some methodologies being subjected to needs of the generations shall witness a shift.

REFERENCES

1. Badyal DK, Bala S, Kathuria P. Student evaluation of teaching and assessment methods in pharmacology. *Indian Journal of Pharmacology*. 2010;42:87-89.
2. Medical Council of India. Published in part – III section – 4 of the Gazette of India up to December, 2009. Website: www.mciindia.org. Accessed 8th april 2016.
3. AAC and U - <http://www.aacu.org/value/metarubrics.cfm>; LLU Office of Educational Effectiveness – <http://www.llu.edu/central/assessment/index.page> LLU Assessment. Accessed 8th april 2016.
4. Willis, J. Brain-based teaching strategies for improving students' memory, learning, and test-taking success. *Review of Research. Childhood Education*. 2008;83:31-316.
5. Friedman Ben-David M. The role of assessment in expanding professional horizons. *Med Teach* 2000;22:472- 7.
6. Shankar PR, Jha N, Bajracharya O, Gurung SB, Singh KK. Feedback on and knowledge, attitude, and skills at the end of pharmacology practical sessions. *Journal of Educational Evaluation for Health Professions*. 2011;8:12.
7. Badyal DK, Bala S, Kathuria P. Student evaluation of teaching and assessment methods in pharmacology. *Indian Journal of Pharmacology*. 2010;42:87-89.
8. Badyal DK, Desai C. Animal use in pharmacology education and research: The changing scenario. *Indian Journal of Pharmacology*. 2014;46:257-265.
9. Shankar P. Ten basic competencies for undergraduate pharmacology education at KIST Medical College, Lalitpur, Nepal. *The Australasian Medical Journal*. 2011; 4:677-682.
10. Gupta K, Arora S, Kaushal S. Modified case based learning: Our experience with a new module for pharmacology undergraduate teaching. *International Journal of Applied and Basic Medical Research*. 2014;4:90-94.
11. Bhosale UA, Yegnanarayan R, Yadav GE. Attitude, perception and feedback of second year medical students on teaching–learning methodology and evaluation methods in pharmacology: A questionnaire-based study. *Nigerian Medical Journal: Journal of the Nigeria Medical Association*. 2013;54:33-39.