

Perception of second professional undergraduate medical students and teachers about pharmacy practical classes in pharmacology curriculum

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ABSTRACT

Background: The practice and teaching in the MBBS curriculum has changed over the last few decades and most of it caters to the making of the Indian Medical Graduate (IMG) and the first contact physician of the community. The most notable change in pharmacy in modern times has been the virtual disappearance of the preparation and compounding of medicines. Pharmacy practical classes still form a part of the MCI curriculum in Pharmacology undergraduate teaching in many states of India including West Bengal. This study was undertaken to assess the attitude of students as well as teachers towards continuation of these practical classes in the curriculum and possible alternatives.

Methods: Second year pharmacology students were included in the study (n=143). Along with this 10 faculty members were provided a structured and pre-tested questionnaire to be answered anonymously.

Results: It was seen that 89 percent students and 100 percent faculty members wanted these practical classes to be discontinued. The most popular alternative to these classes were ADR reporting from the faculty members (90%) and demonstration of clinical effects of drugs and dosage calculation (86%) among the students.

Conclusions: Given the lessening importance and relevance of the pharmacy practical classes in today's day to day practice, a change in curriculum and examination system in Pharmacology must be considered.

Keywords: Pharmacy practical, Curriculum, Medical education

INTRODUCTION

In the field of education practical teaching has always been a very important tool in order to impart knowledge as well as skills to students. It goes without saying that only cramming up textbooks and attending long lecture classes do not prepare a student properly for their future. In addition to theoretical knowledge, skills regarding their practical application also help them to use their already accumulated information in a proper way. Medical education is no different from this. There are complex theories in even the most basics of medical science and a proper practical teaching along with

traditional theory classes is a must have in order to simplify the subject and make them more understandable to students. But the problem lies elsewhere.

As compared to text books which get regularly updated following recent researches and accomplishments in the field of medicine, the practical curriculum remains untouched.¹ As a result there is a major discrepancies in what we are teaching in classrooms and what is being taught in practical.

This is true for Pharmacology, a subject taught in the 2nd Prof MBBS curriculum as per Medical Council of India.

It deals with the mechanism of action, therapeutic uses, adverse effects and fate of drugs in human beings or animals. Practical pharmacy has been an integral part of the syllabus from the beginning. But the relevance of it has been questioned repeatedly in the last decade.² In 1997, Medical Council of India (MCI) released specific objectives for different disciplines.³ Thereafter many suggestions and recommendations have been made for an alternative approach to practical pharmacy in order to make it more clinically relevant in day to day basis.⁴

In 2007 a model curriculum for undergraduates was formulated and proposed to MCI.⁵ And in 2008 another curriculum was suggested by Directorate General of Health Services, Government of India which emphasized on clinical pharmacology.⁶ In spite of these recommendations there is lack of a concise teaching program to address the present loopholes until recently when MCI released a competency based curriculum addressing several key points.⁷ This new curriculum is soon to be implemented and incorporated into the undergraduate teaching programme all over India.

In our institution we have seen that many 2nd Professional MBBS students show lack of interest in attending practical pharmacy classes. This gradually reflects on their poor attendance and as a consequence, on their performance in final examinations also. With the new curriculum on the verge we tried to assess the perception regarding existing curriculum of the students as well the teachers in our department.

METHODS

The study was conducted in the Department of Pharmacology of Bankura Sammilani Medical College, Bankura. It was an observational, cross sectional, questionnaire based study. All students appearing for 2nd Professional MBBS examination who were willing to participate were included in the study. All the faculty members of the department of Pharmacology also volunteered to participate in the study. The study population was thus 143 students belonging to the fifth semester and 10 faculty members.

A pre designed, pre tested, validated and structured questionnaire was provided to each student and faculty member and asked to fill them up anonymously.⁸ There was only yes or no response options and participants were asked to put a \surd mark on the appropriate options. The questionnaire had 3 sections. First section dealt with general preference or non-preference of the current curriculum. The consecutive section contained a number of possible reasons for liking and disliking the above mentioned. And lastly we provided some alternatives and asked for their opinion. The study was conducted in one of the lecture classes of the term. The study duration was thus over a 60 minute class. The class was held between 1 to 2 PM on 14th September 2018. The faculty members were provided the questionnaire at the end of the lecture class and their responses were collected.

Statistical analysis was done using statistical software Graph Pad Prism version 6.0 for Windows (Graph Pad Software Inc., San Diego, CA, USA) and Microsoft Excel. Standard tests for descriptive statistics were applied. To compare the opinions of teachers and students Chi square test was applied and p value of less than 0.05 was considered statistically significant.

RESULTS

A total number of 143 students voluntarily participated in the study along with 10 teachers in the Department of Pharmacology. The results showed that 89% of the students and all of the teachers (100%) wanted the present pharmacy practical classes to be discontinued. The difference between two groups was not statistically significant. In the next section some plausible reasons for liking the curriculum was supplied. Some of the options included easy scoring, future prospects, stress relief from attending didactic lectures etc. The percentage of students and teachers who voted affirmative for some reasons for liking Pharmacy practical classes are listed in Table 1. Only 11% students wanted no change in the present pharmacy curriculum. Some reasons for disliking were also mentioned in the questionnaire. Table 2 shows the percentage of students and teachers who voted positive for some of these reasons.

Table 1: Reasons for liking pharmacy practical classes.

Reasons for liking pharmacy class	% of students who voted affirmative (n=143)	% of teachers who voted affirmative (n=10)	P value
Help remember composition of formulations	65.03	50	0.33
Help in future while working in hospitals	20.27	20	0.98
Help while treating patients at home during emergency	30.06	20	0.50
Reflects the historical aspects of therapeutics	48.25	40	0.61
Stress relief from attending only didactic lectures	81.11	50	0.02*
Relevant sessions are those that teach ORS (Oral rehydration salt)	49.65	90	0.01*
Distribution of marks helps in easy scoring	82.51	60	0.08

*Statistically significant (p value<0.05).

Table 2: Reasons for disliking pharmacy practical classes.

Reasons for disliking pharmacy class	% of students who voted affirmative (n=143)	% of teachers who voted affirmative (n=10)	P value
It has no practical relevance	82.51	90	0.54
There are more interesting and applicable alternatives	76.92	100	0.09
Ingredient are not available in adequate amounts in rural hospitals	37.06	30	0.65
No help in future while practicing medicine	81.11	90	0.48

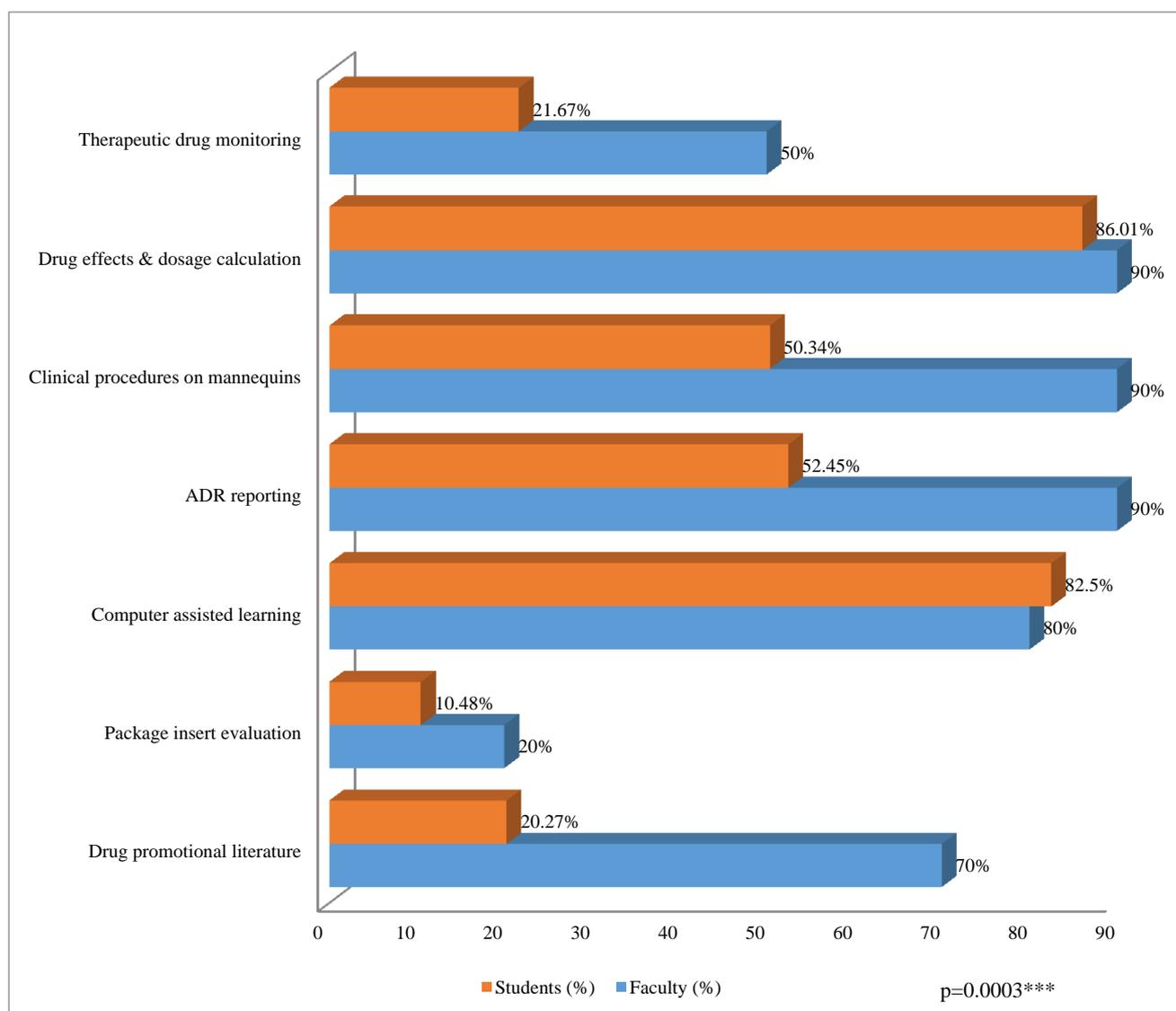


Figure 1: Alternatives to pharmacy practical (*statistically significant).

*Statistically significant; ADR – Adverse drug reaction.

Only 20.27% students felt that these classes will help them in their future practice and 30.06% felt that it will contribute to any emergency situations. The rest of them showed that the only positive outcomes of pharmacy practical classes were stress relief (81.11%) and easy scoring (82.51%). Among teachers it was interesting to see that 90% of them approved practical class which taught ORS (Oral rehydration salt). The difference of

opinion between students and teachers regarding this reason was statistically significant (p value 0.01). 100% of teachers thought that there are more interesting and applicable alternatives to present options.

Some alternative options were provided in the questionnaire as suggestions. Percentage of students and teachers who voted in favor of them is depicted in Figure

1. We found that 86.01% of students voted in favor of clinical demonstration of drug effects and dosage calculation. It was closely followed by 82.50% students voting for CAL (computer assisted learning). These were the top two options seen among the students. Whereas 9 out of 10 teachers thought that ADR reporting, demonstration on mannequins and drug effects all carried good potential to be incorporated in present curriculum. There was significant difference in opinion between students and teachers regarding ADR reporting and demonstration on mannequins. Though 70% of teachers voted for criticism of DPL (drug promotional literature) as an additional option, only 20.27% students voted positive.

DISCUSSION

Our study reveals that the students as well as teachers know that the practical pharmacy classes have no relevance in their future practice. One of the only significant reasons why students would like the pharmacy classes is that it acts as a stress relief from the didactic lectures. A sizable proportion of both teachers and students wanted alternatives such as favored demonstration of clinical effects of drugs using computer assisted learning, ADR monitoring, simulated animal experiments, criticism of drug promotional literature, TDM etc. Each of these exercises can have relevance in their future practice.

In relevant studies, Kaushal et al had proposed a four step model for undergraduate pharmacology practical curriculum.⁹ They suggested that there should be pharmacy practical classes (including intravenous infusions), experimental pharmacology practical, prescription writing exercises and therapeutic follow up cases. They had said that since these experiments are not relevant, the students need not perform them. A discussion on the ingredients, their pharmacological effects, and therapeutic uses in small groups would be adequate. Commercial and household alternatives to these preparations would also be discussed e.g. preparations for rehydration during diarrhea when ORS is unavailable etc. the paper had also suggested discussion on inclusion of injection and infusion techniques, various dosage forms e.g. inhalers, spinhalers, dispersible, sustained release formulations etc. In our department, there is a prolonged small group discussion about the formulations prepared in pharmacy classes along with alternatives that are being used commercially these days. Other segments like prescription writing, therapeutic problem discussion, drug interaction problems are also a part of pharmacology practical classes.

Simulated animal experiments and computer assisted learning (CAL) methods were also suggested also alternatives by both teachers and students alike. These methods have been suggested over animal experiments by authors before. Students prefer these methods over sacrificing animals.¹⁰ In our study 80 percent of the

teachers were in favour of simulated animal experiments. The difference in opinion regarding animal experiments as alternatives to pharmacy classes was also statistically significant.

According to the proposed Graduate Medical Education Regulations 2019, there is to be a change in the curriculum starting with the MBBS joining from August 2019. The efforts of several studies and reviews have borne fruit and the curriculum for practical Pharmacology is soon to be changed.^{7,11} Some of the inclusions in the practical classes of Pharmacology include topics that cover not only experimental but also clinical Pharmacology. These include identifications and description of different drug formulations, prescription writing and criticism of real-life prescriptions, dosage calculation, setting up and preparation of an intravenous drip, criticism of drug promotional literature, understand, recognize and report an adverse drug reaction, explain P drug concept, understand and report drug interactions, preparation of essential medicines list for health care facilities, computer simulated animal experiments etc. Pharmacy preparation that has been retained is preparation of oral rehydration solution from ORS packet and counsel simulated patient adequately regarding its use. Simulated counseling, ethics of prescriptions, long term drug use etc. are also to be included in the new curriculum.^{7,11}

One of the limitations of this study was the small population of teachers assessed. A larger study involving all teachers of pharmacology in the state and all the medical students of West Bengal would give a broader view of preferences.

CONCLUSION

We hope that with the change in the curriculum pharmacy practical classes would finally be replaced by relevant alternatives that the students would be able to use for their future practice.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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