Original Article

Student Perception of Current Pharmacology Teaching Methods ⨂

Nazia Mahmud Badhon[1]* 🆔

ABSTRACT

Introduction: *The primary objective of this research was to understand the perception of medical students regarding the teaching and learning methods of pharmacology in a medical college associated with a tertiary care hospital.* ***Methods and Materials:*** *A questionnaire-based study was conducted among 3rd phase of MBBS & 2nd phase BDS students at the MH Samorita Medical College. The questionnaire, consisting of 22 pre-validated points, was carefully designed to assess the students' views on various teaching and learning approaches.* ***Results:*** *The analysis was carried out on a sample of 150 medical students from the tertiary care hospital. The results indicated that 80% of the participants preferred faculty members to employ more Audio-Visual aids to enhance their learning experience. Additionally, 78.67% of the students advocated for the inclusion of case-based learning in the curriculum, while 86.67% expressed a desire for more clinical pharmacology content. Interestingly, 28% of the students felt that MCQs (Multiple Choice Questions) should be incorporated into the assessment of academic performance. As for the ideal teaching method, 13.33% of the students believed that didactic lectures were the most effective. Moreover, a majority of 65% considered the combination of an LCD projector and a blackboard as the ideal teaching/learning medium for pharmacology.* ***Conclusions:*** *This study highlights the preferred teaching and learning methods in pharmacology that would contribute to the overall improvement of students' learning experiences.*

Keywords: *Learning, Medical students, Methods, Pharmacology, Teaching*

1. Associate Professor, Department of Pharmacology and Therapeutics, MH Samorita Hospital and Medical College, Dhaka, Bangladesh.

INTRODUCTION

In the ever-evolving field of pharmacology, education plays a pivotal role in shaping the next generation of skilled healthcare professionals. As one of the key pillars of medical science, pharmacology equips students with the knowledge and skills necessary to understand the mechanisms of drugs, their therapeutic effects, and potential adverse reactions. With the rapid advancement of medical research and the emergence of innovative therapeutic approaches, it is essential to gauge how current teaching methods in pharmacology align with the needs and expectations of aspiring healthcare practitioners. Pharmacology, a constantly evolving medical discipline, serves as a fundamental and applied science. The primary goal of teaching pharmacology to undergraduate medical students is to empower them to make well-informed therapeutic decisions in clinical medicine. It stands as one of the most dynamic branches of medical sciences, prompting the need to regularly assess and adapt teaching and evaluation methods based on student feedback. Some argue that the teaching of pharmacology in medical schools has struggled to keep pace with the rapid advancements in medical practice.[1-4] This study delves into the perspectives of Bangladeshi students studying pharmacology, seeking to gain a comprehensive understanding of their experiences with current teaching methodologies. Bangladesh, a country in South Asia with a burgeoning healthcare sector, faces unique challenges in imparting pharmacological knowledge to its aspiring healthcare professionals. As the nation strives to strengthen its healthcare system and enhance patient care, it becomes imperative to assess whether the existing teaching methods adequately equip students with the skills and competencies required to excel in the dynamic world of pharmacology.[5-9]

Throughout this research, we aim to explore the various aspects of pharmacology education that impact students' learning and engagement. We will examine the traditional lecture-based teaching approach, practical sessions, case-based discussions, and the integration of technology in the teaching process. By soliciting feedback directly from students, we hope to gain valuable insights into the strengths and weaknesses of these methodologies, as well as potential areas for improvement.

Additionally, this study intends to shed light on the students' perceptions of the relevance and applicability of pharmacological concepts in real-world clinical settings. As future healthcare practitioners, their viewpoints carry significant weight in shaping the direction of pharmacology education, and understanding their perspectives can facilitate the implementation of more student-centered and practical teaching methods.[10] The findings of this research endeavor can serve as a vital resource for educators, curriculum designers, and policymakers in Bangladesh's medical education landscape. By addressing the identified concerns and capitalizing on the strengths of existing teaching methods, the goal is to optimize the learning experience for pharmacology students, empowering them to become proficient and compassionate healthcare professionals.

OBJECTIVE

To assess the student perception of Current Pharmacology Teaching Methods.

METHODS AND MATERIALS

This cross-sectional descriptive study was conducted between June 2022 to June 2023 among the students of a private medical college and hospital (MH Samorita medical college and hospital) in Dhaka Bangladesh. Purposive sampling technique was adopted to collect data. Their comments were collected by using a self-administered semi structured questionnaire. The aim of the study was to assess the perceptions of 3rd phase of MBBS & 2nd phase BDS students regarding learning and teaching methods of Pharmacology and therapeutics. The participants included 154 medical students from MH Samorita Medical College medical college who met the inclusion criteria. Students from the 1st phase ,2nd phase and 4th phase MBBS & 1st phase ,3nd phase and 4th phase BDS were excluded.

The questionnaire consisted of three parts:

Part A: Included 6 definitive questions with options "Yes" and "No."

Part B: Comprised of 3-point Likert scale-based questions with options "Agree," "Disagree," and "Neutral."

Part C: Consisted of correct or cross choice questions.

The research team obtained informed consent from the participating students before administering the questionnaire. Out of the 154 students, 150 fully completed forms were analyzed, and 4 incomplete forms were excluded from the statistical analysis.

The collected data were analyzed using MS Office Excel and presented as a percent.

RESULTS

Table 1 shows the demographic status of the study group. Where the mean ±SD age group of the students was 20±05 years. Plus majority were female, 65%.

Table 1: Demographic status of the study group

Age Mean ±SD	20±05 years
Gender: Male	35%
Female	65%

Table-2 shows Student Opinions about changes recommended among the students who participated in the study 87% expressed the opinion that student seminars should be introduced into the curriculum. 80% of the students expressed the opinion that group discussions should be introduced. The majority of the students expressed the curriculum should be based on more clinical pharmacology.

Table 2: Student Opinion about changes recommended

Opinion about changes recommended	Yes (%)	No (%)
Need to Increase the number of lectures	81.34	18.66
Make more use of audio-visual aids	80.00	20.00
Introduce student seminars	86.67	13.33
Introduce Case based learning	78.67	21.33
Introduce more clinical pharmacology (Pharmacovigilance)	86.67	13.33
Introduce group discussions	80.00	20.00

Table-3 shows Likert point scale questionnaire. Among the participants, 80 students didn't pick pharmacology as their favorite 2nd-year subject. Only 4 students agreed that Pharmacology will help immensely in choosing drugs rationally for their future clinical practice.

50 students agreed that the calculation of Pharmacokinetic parameters is relevant and helped them in better understanding General Pharmacology. 80 students agreed that charts will help in better understanding the mechanism of action of drugs

Table 3: Likert point scale questionnaire

Item	(No of students)		
	Disagree	**Neutral**	**Agree**
I find pharmacology lecturers interesting and stimulating	70	20	60
Pharmacology is my favorite subject in 3rd MBBS & 2nd BDS	80	20	50
I would like Pharmacology to be more closely integrated with the clinical sciences and would like real cases in hospital to be used during problems stimulated learning (PSL)	30	5	115
The subject has helped me to develop my problem solving and logical-reasoning skills	60	60	30
The subject will help me immensely in choosing drugs rationally in my future clinical practice	20	126	4
I would like MCQs to be increase in number in formative & summative assessment	50	52	48
Discussion charts help in better understanding of mechanism of action of drugs	20	50	80
Calculation of pharmacokinetic parameters (e.g. Vd, t1/2, Therapeutic index) is relevant and helps in better understanding of general pharmacology	20	80	50

Figure 1 describes Students' choice of the best teaching method. The results were analyzed by giving consisting of correct or cross-choice questions. Among the

participants, the majority of the students preferred tutorials, group discussions, and seminars as their best choice for teaching methods.
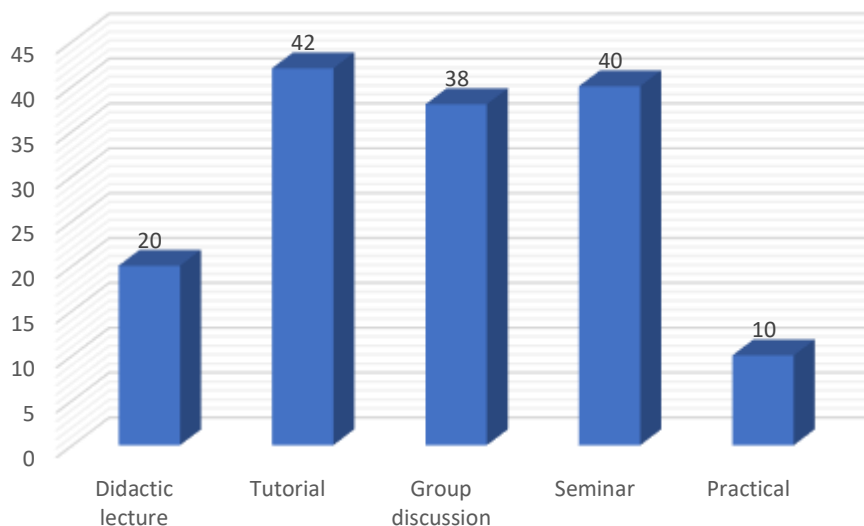
Figure 1: Students choice of best teaching method.

Figure-2 shows Ideal teaching learning media based on student opinion. Among the participants in the study 98 students expressed the opinion that power point combined with black board teaching as their ideal learning media. Only seven students felt black board teaching as their ideal teaching learning media.
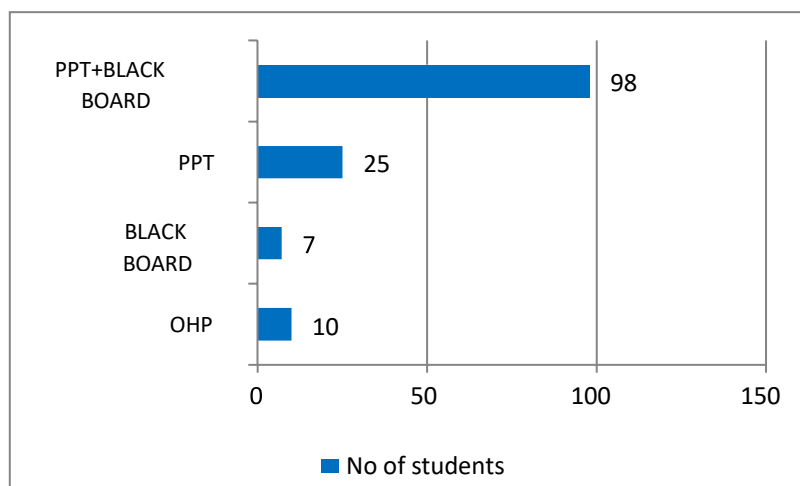
Figure 2: Ideal teaching-learning media based on student opinion

DISCUSSION

According to Atkins et.al (2010), a significant majority of students (78.67%) expressed the need for case-based learning to be introduced into the curriculum, which contrasts with the study conducted by two studies (98%) and (73%).[10-11] In our study about 25.33% of students favored the introduction of group discussions, a much lower percentage compared to another study (31%).[12] Moreover, 76.66% of students in our study agreed that pharmacology is closely related to clinical sciences, advocating for the use of real

cases from hospitals during problem-based learning. This aligns with a study conducted in New Delhi where 80% of students were in favor of bedside teaching in clinical pharmacology.

It is essential to involve students in discussions regarding treatment strategies for admitted cases, as this approach has garnered support from accreditation organizations like the General Medical Council, the Association of American Medical Colleges, and the American Medical Association. Integration of pharmacology with clinical subjects provides students with a valuable opportunity to understand various diseases and the vital role of pharmacology. Consequently, many medical schools have taken the initiative to integrate pharmacology during clinical years.

Among the participants in the study, 98 students expressed the opinion that PowerPoint combined with blackboard teaching was their ideal learning media., similar to the findings of another study.[13] There exists a certain stigma among medical students regarding the study of pharmacology, as some are more inclined towards pursuing a clinical career with better earnings prospects, as reported by another study.[14]

CONCLUSION

Through meticulous research, the study has uncovered the most effective teaching and learning methods in pharmacology, providing valuable insights to improve the educational experience for students. However, it is important to acknowledge the limitations of our present study, as it was conducted solely among second-year medical students in a single tertiary care center. To draw accurate conclusions,

further multicenter studies need to be carried out among medical students. By actively reviewing and adapting our teaching methodologies, we can better address the needs and preferences of our aspiring healthcare professionals, ensuring they are well-equipped to thrive in the ever-evolving field of medicine.

REFERENCES

1. Atkins MS, Hoagwood KE, Kutash K, Seidman E. Toward the integration of education and mental health in schools. Administration and policy in mental health and mental health services research. 2010 Mar;37:40-7.
2. de la Cruz Tomé MÁ. Ramsden, P." Learning to Teach in Higher Education". Tarbiya, Revista de Investigación e Innovación Educativa.(4):109-10.
3. Angle HL, Perry JL. An empirical assessment of organizational commitment and organizational effectiveness. Administrative science quarterly. 1981 Mar 1:1-4.
4. Wubbels T, Brekelmans M. Two decades of research on teacher–student relationships in class. International journal of educational research. 2005 Jan 1;43(1-2):6-24.
5. Baird and Northfield. Learning from the PEEL experience. Melbourne, Australia: Monash University. Creative Education. 2013;4(2).
6. Wuensch KL. What is a likert scale? and how do you pronounce'likert?'. East Carolina University. 2005 Oct 4;4.
7. Manjunath SM, Nagesh Raju G, Srinivas TR, Someswara GM. A study on the evaluation of medical students' perception and feedback of teaching-learning of pharmacology in a medical college. International Archives of Integrated Medicine. 2015 Sep 1;2(9).

8. Krishna J, Singh A, Goel S, Gupta A, Sharma P, Beg MR, Singh AK, Surana A, Chitti Babu G. Students' current perceptions and feedback on teaching and learning Pharmacology from an evolving

medical school. International Archives of Integrated Medicine. 2015 Jul 1;2(7).

9. Kela AK, Mehta VL. Impact of inclusion of clinical projects in undergraduate teaching. Indian Journal of Pharmacology. 1993 Oct 1;25(4):249.

10. Sekhri K. Teaching methodologies in pharmacology: A survey of students' perceptions and experiences. Journal of Education and Ethics in Dentistry. 2012 Jan 1;2(1):40.

11. Han WH, Maxwell SR. Are medical students adequately trained to prescribe at the point of graduation? Views of first year foundation doctors. Scottish Medical Journal. 2006 Nov;51(4):27-32.

12. Dunaway GA, Faingold CL. Development and implementation of a multidisciplinary sophomore medical curriculum: Integration of pharmacology with basic and clinical sciences. Pharmacologist. 2001;43:83-90.

13. Walley T, Bligh J, Orme M, Breckenridge A. Clinical pharmacology and therapeutics in undergraduate medical education in the UK: current status. British journal of clinical pharmacology. 1994 Feb;37(2):129-35.

14. Zgheib NK, Simaan JA, Sabra R. Using team-based learning to teach pharmacology to second year medical students improves student performance. Medical teacher. 2010 Jan 1;32(2):130-5.