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ORIGINAL ARTICLE

Appraisal of the Current Pharmacology Curriculum, Teaching Methodology and Effectiveness in Undergraduate Medical Education: A Student-Centric, Questionnaire-Based Study

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Abstract

Background: Periodic students' feedback ensures and enhances the effectiveness of the curriculum. **Objective**: This study was designed to obtain students appraisal of the undergraduate pharmacology curriculum and teaching methodology. **Methodology:** This cross-sectional study was conducted in the Department of Pharmacology at Colonel Malek Medical College, Manikganj, Bangladesh from May to June, 2019 for a period of two months. Questionnaire-based data were collected from students of both sexes who had completed 3rd Professional examination. Likert Scale was applied to collect students' feedback on pharmacology. **Results:** A total number of 40 students were recruited for this study of which 60.0% students were strongly agreed about organized teaching. About 47.5% students were agreed that the course was appropriate at their level. However, 55.0% of them strongly agreed that teacher provided clear constructive feedback during class. Total 60.0%, were agreed that the course improved their problem-solving skills. Overall, 55.0% students were agreed regarding their satisfaction on Pharmacology course delivery and conduction. **Conclusion**: In conclusion, periodic appraisal from students regarding pharmacology curriculum is vital in developing efficient medical graduates. [*Journal of Current and Advance Medical Research, January 2021;8(1):30-33*]

Keywords: Pharmacology curriculum; student-centric appraisal; medical education

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Introduction

Pharmacology is an integral part of medical curriculum, health sciences curriculum and research-oriented biomedical program. But the aims and implementation of pharmacology education differ based on the program context[1]. Undergraduate pharmacology in Bachelor of Medicine and Bachelor of Surgery (MBBS) is important to ensure an effective and safe drug therapy for the future physician[2-5].

The 21st Century educational insights and scientific advancement must provoke pharmacology teachers to reconsider teaching methodology.[1] Student' feedback is an integral part of the medical curriculum which builds self-awareness of the faculty. The feedback may help to know about the opportunities and obstacles of teaching methodology[4-7].

Colonel Malek Medical College is a relatively new public medical college in Bangladesh. Students are taught as per the curriculum based on Bangladesh Medical & Dental Council. Though a lot of feedback is conveyed to the faculty of pharmacology during the class-time, most of it is not published. This inspired the faculty to undertake this study to obtain students appraisal of the undergraduate pharmacology curriculum and teaching methodology and use it for faculty improvement.

Methodology

This descriptive cross-sectional study was conducted in the Department of Pharmacology at Colonel Malek Medical College, Manikganj, Bangladesh during May and June 2019 for a period of two months. The 4th year MBBS undergraduate student with the same age group of more than or equal to 21 years with both sexes were selected as study population. All 40 students of a batch were involved in this study. After completion of 3rd Professional examination, ten (10) structured-questionnaire were asked regarding Pharmacology course and feedback scale were prepared like Likert Scale (strongly agree, agree, neutral, disagree and strongly disagree) manually. All the data were analysed by using Microsoft Office Excel Home and Student version 2016 which was subsequently archived for recommendations and future reference.

Results

A total number of 40 students were recruited for this study. Among the participants, 22(55%) students were female and 18(45%) students were male. It had been found that 24(60%) students were strongly agreed that course content taught in an organized manner. It had also been found that 21(52.5%) students were strongly agreed that they achieved their goal in pharmacology and 22(55%) of them strongly agreed that teacher provided clear constructive feedback during class. Majority of them (47.5%, n=19) were agreed that teacher encouraged student questions and participation during class. Most of the students (47.5%, n=19) were agreed that teachers were successful in creating an environment that was conducive to learning. Neutral response was negligible and nobody put a tick mark on disagreed or strongly disagreed box (Table 1). Regarding the appropriateness of course for the 4th year of students, 19(47.5%) students were agreed that the course was appropriate at their level. About 21(52.5%) students had agreed that course work helped them to understand concepts more clearly. Majority of them (60%, n=24) were agreed that the course improved their problem-solving skills (Table 2).

Table 1: **Teacher-specific questions**

Variables	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Teacher presented course content in an organized manner throughout the course	24(60%)	15(37.5%)	1(2.5%)	0(0%)	0(0%)
Teacher helped to achieve goals in Pharmacology	21(52.5%)	19(47.5%)	0(0%)	0(0%)	0(0%)
Teacher provided clear constructive feedback during class	22(55%)	16(40%)	2 (5%)	0(0%)	0(0%)
Teacher encouraged student questions and participation during class	17(42.5%)	19(47.5%)	4(10%)	0(0%)	0(0%)
Teacher successful in creating an environment that was conducive to learning	18(45%)	19(47.5%)	3(7.5%)	0(0%)	0(0%)

Table 2: **Course-specific questions**

Variables	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Course was appropriate for the stated level of the class (3rd Phase of current MBBS curriculum)	7(17.5%)	19(47.5%)	4(10%)	8(20%)	2(5.0%)
Course work helped me understand concepts more clearly to become a competent professional	14(35%)	21(52.5%)	4(10%)	1(2.5%)	0(0.0%)
Course developed my ability to apply theory to practice and improved my problem-solving skills	12(30%)	24(60%)	4(10%)	0(0%)	0(0%)

Most of the students (37.5%, n=15) studied pharmacology 11 to 14 hours per week, followed by 8 to 11 hours per week (32.5%, n=13). Majority of them (55%, n=22) agreed about their overall satisfaction in pharmacology. The results of student self-evaluation questionnaire are summarized in Table 3 (Q1: On average, how many hours per week students spent on Pharmacology course, including attending classes, doing readings, reviewing notes; Q2: Overall, satisfaction on Pharmacology course delivery and conduction) (Table 3).

Table 3: **Student self-evaluation question**

Duration	Q1	Q2
>14hrs	5(12.5%)	17(42.5%)
11 to 14hrs	15(37.5%)	22(55%)
8 to 11hrs	13(32.5%)	0(0%)
5 to 8hrs	6(15%)	1(2.5%)
<5hrs	1(2.5%)	0(0%)

Discussion

Pharmacology is an integral component of the undergraduate curriculum and is vital in the safe and effective practice of medicine. Hence, the educational impact of pharmacology curriculum must be appropriately assessed in the light of modern medical educational methods and techniques. Pharmacology, as a discipline has its own unique challenges in curriculum development, implementation and teaching methodology. Colonel Malek Medical College is a relatively new public medical college in Bangladesh. Students are taught as per the curriculum based on Bangladesh Medical & Dental Council. Studies by Engels[1] provide us a comprehensive view on the challenges and reflections in pharmacology education. A student-centric approach has been previously assessed in the studies of Dhami et al.[2] where the students' perceptions and feedback on teaching-learning pharmacology were evaluated in a Nepalese undergraduate medical educational scenario.

The present study provides a unique student-centric perspective on pharmacology education by comprehensively evaluating teacher specific, course specific and student self-evaluation questionnaire. Thus, this study enabling all students to obtain and reflect on multiple aspects of the effectiveness of current pharmacology curriculum.

This study has revealed that organization and instructional methodology of course content was much appreciated by a significant proportion of the students evaluated (60%). A significant number of students also indicates that the feedback system, in-class participation and the overall classroom environment is conducive to learning pharmacology. The majority of students (52.5%) have strongly agreed that the learning goals in pharmacology is achieved during the course. This indicates that students in this study appreciate classroom interaction and feedback during the course and consider them as important in achieving the learning objectives and gaining proficiency and clarity in the subject. Conceptual clarity and problem-solving skills gained during the course were also indicated as significant and strong in this study. The majority of students (47.5%) agreed that the course was appropriate for their level.

The total student learning time in most students is found to range between 11-14 hours. This includes both face to face student learning time such as lectures and non-face to face student learning time such as review of notes, self-study and so on. This suggests that students consider obtaining cognitive and metacognitive skills in pharmacology as significant in their success and progress in the

course. The current course structure and instructional methodology are evaluated effectively by most students. This suggests that the scaffolding of knowledge and the teaching techniques used to impart and reinforce concepts are student-oriented and student-centric which is aligned to 21st century medical educational objectives.

As in all single-centric studies, this study is limited by the demographic characteristics of the student population. However, the present study is unique in evaluating the total student learning experience in pharmacology through multiple domains and entirely with a student-centric perspective. This study thus offers a comprehensive student-centric view of the current pharmacology curriculum. These insights may be utilized during future curriculum appraisal, curriculum development, enhancement of student-learning experiences, academic leadership and development of future medical teaching methodology.

Conclusion

A student-centric evaluation of the pharmacology curriculum is vital in developing efficient medical graduates. Most undergraduate medical students appreciate a well-structured and organized curriculum which enables teacher-student interaction, problem solving and a conducive classroom learning environment. Pharmacology, as a discipline constitutes a significant component of the total student-learning time and is perceived by students as important in their overall success and progress during the course.

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