Original Article

Teachers' Opinion about Pharmacology MCQ Papers of MBBS Professional Examinations

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DOI: https://doi.org/10.3329/jafmc.v19i1.68294

Abstract

Introduction: Multiple choice questions (MCQ) are very effective in assessing the students learning since it is very much objective and time saving. MBBS curriculum introduced MCQ in professional examination from 2002.

Objective: To find out the present views of teachers about MCQ papers of Pharmacology MBBS Professional Examination of different Universities of Bangladesh.

Methods: Total 56 teachers of the Department of Pharmacology & Therapeutics of 20 Govt and Non Govt Medical Colleges were purposively selected to collect their opinion by using self-administered semi-structured questionnaire.

Results: Existing distribution of different types of question (recall-60%, understanding-30% and problem based-10%) in curriculum were favoured by maximum number of teachers (61%). With the present coverage of recall, understanding and problem-based type questions 71%, 63% and 60% teachers were satisfied respectively. In the case of content coverage in MCQ papers, 57% of teachers were satisfied. Satisfaction with the construction of MCQs was also about 57%.

Conclusion: This study's findings may be used to improve the quality of Pharmacology MCQ paper by redefining the distribution of different types of questions and ensuring their coverage and construction.

Key words: Teachers' View, Pharmacology MCQ paper.

Introduction

Knowledge, skill, and attitude are three main domains on which educational and assessment objectives are based. Skills include the various psychomotor skills that are required to be performed by a competent physician. Attitude includes the personal qualities of students and their attitude towards medicine, their patients and their peers.[1] By assessment teachers judge whether the learning objectives of the course are met or not.[2] Since the learning outcomes are not the same, different assessment tools are used to judge the learnings. "No single assessment instrument is perfect and no single tool can test all aspects of medical competence and performance. Each instrument has its strengths and weakness.[3] Some of the assessment tools are inherently subjective while the rest of them may be applied with a greater degree of objectivity. No method of assessment can however be intrinsically flawless"[4] Multiple choice question (MCQ) is a type of fixed response written test which is characterized by objective scoring. MCQs are used to test the cognitive domain and they have advantages of wide content coverage, easy scoring and applicability to large group. MCQs are not devoid of disadvantages. They are often deemed unfit for testing higher order cognitive skill and there is scope for guessing by the students.[5,6] "Curriculum for Undergraduate Medical Education in Bangladesh-2002 have introduced SAQ (Short Answer Question) and MCQ for written examination, objective structured practical examination (OSPE) and objective structured clinical examination (OSCE) for practical examinations and structured oral examinations (SOE) for viva examinations to assess the different domains of learning objectives of undergraduate medical students"[7].

Previously written assessment of the medical students was carried out by essay type questions only. To overcome the content coverage and subjective type disadvantages of essay type questions, SAQ and MCQ were introduced in the curriculum of 2002. It was a dramatic change in the written assessment of medical students.

Five public universities are conducting MBBS examination for all medical students, following the same curriculum of BM&DC (Bangladesh Medical & Dental Council). "Universities

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questions papers vary in some respects in the distribution of content in the different groups, but all the universities suggested distribution of question type both in SAQ (Short Answer Question) and MCQ (Multiple Choice Questions) would be recall type-60%, understanding type-30% and problem-based type-10%.[8] All the universities have been conducting Pharmacology professional written examination since January 2007 following the 2002 curriculum. No evaluation has been carried out after the implementation of the curriculum whether the Pharmacology professional MCQ papers of the universities are as per the stated requirements of the curriculum 2002. This study was carried out to find out the teachers' opinion and satisfaction about the current coverage of different domains of educational objectives in the Pharmacology MCQ papers.

Materials and Methods

This study was a cross-sectional descriptive study and was conducted over a one-year period starting from July 2015 to June 2016. For collection of data the Bangladesh University of Professional (BUP), Chittagong University (CU), Dhaka University (DU), Rajshahi University (RU) and Shahjalal University of Science & Technology (SUST) of Bangladesh were chosen as they conduct MBBS course. Total 56 teachers of the Department of Pharmacology & Therapeutics from both government (ten) and non-government (ten) medical colleges of above-mentioned universities were included for studying teachers view about the quality of professional MCQ papers. Purposive and convenient sampling was adopted for selection of teachers for their opinion.

All the teachers (Assistant Professor & above) of the department of Pharmacology and Therapeutics of the selected medical colleges who were willing to participate were included in this study. Teachers who were not yet participated as question setter/moderator/script examiner of professional examination were excluded from the study. Pre-testing was performed using a self-administered questionnaire at one government institute and one non-government medical college and questionnaire were corrected accordingly.

Principals of the selected medical colleges were approached for necessary permission for collecting opinion from the Pharmacology teachers through Director of CME (Department of Curriculum Development and Evaluation). The researcher visited selected medical colleges. He introduced himself to the principal of the medical colleges and Head of the Department of Pharmacology and Therapeutics. Later, the opinions of all the present and willing teachers of the department were collected in the self-administered questionnaire.

After data collection a quality control check was made for completeness and internal consistency. The data was then entered into the computer. data processing and analysis were done by using computer SPSS 19 version. Interpretations were made subsequently. Data were presented in tables and graphs with necessary description where necessary for easy understanding and interpretation.

Results

Opinion was obtained from 56 teachers of the department of Pharmacology and Therapeutics of both Government and Private medical colleges of all five public universities: those conduct MBBS Course in Bangladesh. Out of 56 teachers, 16(28.6%) were Professors, 24(42.8%) were Associate Professors and 16(28.6%) were Assistant Professor. The majority (39.3%) of the teachers were from DU (Table-I). Thirty five (62.5%) teachers were from government medical colleges and 21(37.5%) were from non-government medical colleges (Table-II). There were 3 types of participation with written professional examination as question setter, moderator and script examiner. Most of the teachers (41.1%) were involved in all these three type activities, 35.7% teachers were only involved with script examination (Table-III).

During their teaching life 64% of teachers participated in faculty development programme on student assessment. Twenty three percent teachers attended workshop, 20% attended both seminar and workshop and 16% attended seminar, symposium and workshop and CME was the main organizer of these faculty development programme (Figure-1).

About the justification of present distribution of recall (60%), understanding (30%) and problem-based questions (10%), 3.6% teachers strongly agreed, 57.1% agreed and 23.2% disagreed. About the coverage of recall type questions, 3.5% teachers strongly agreed, 67.9% agreed, 12.5% disagreed and 16.1% neither agreed nor disagreed. About the coverage of understanding type questions, 1.8% teachers strongly agreed, 60.7% agreed, 23.2% disagreed and 17.9% neither agreed nor disagreed. About the coverage of problem-based type questions, 7.1% teachers strongly agreed, 51.8 % agreed, 23.2% disagreed and 17.8% neither agreed nor disagreed. About the satisfaction of construction of MCQs, 5.4% strongly agreed, 51.8% agreed and 17.8% disagreed. Among the teachers, 50% agreed with present distribution (60%) of recall questions in SAQ papers, 30.3% proposed 50% recall questions and 8.9% proposed 40% (Figure-2). For understanding type questions, 17.8% teachers proposed 40%, 5.3% proposed

20% and 69.6% agreed with present 30% (Figure-3). In case of problem-based type questions, 62.5% agreed with present 10%, 17.8% proposed 20% and 8.9% proposed 30% (Figure-4).

Table-I: Distribution of the teachers according to designation and universities (n=56)

Designation	BUP f(%)	CU f(%)	DU f(%)	RU f(%)	SUST f(%)	Total f(%)
Prof	1(1.8%)	1(1.8)	8(14.3%)	5(8.9%)	1(1.8%)	16(28.6%)
Assoc Prof	2(3.6%)	4(7.1%)	8(14.3%)	3(5.4%)	7(12.5%)	24(42.8%)
Asstt Prof	1(1.8%)	3(5.4%)	6(10.7%)	3(5.4%)	3(5.4%)	16(28.6%)
Total	4(7.1%)	8(14.3%)	22(39.3%)	11(19.6%)	11(19.6%)	56(100%)

NB: BUP= Bangladesh University of Professionals, CU= University of Chittagong, DU= University of Dhaka, RU= Rajshahi University, SUST= Shahjalal University of Science & Technology, Prof= Professor, Assoc Prof= Associate Professor, Asstt Prof= Assistant Professor

Table-II: Distribution of teachers according to designation and type of medical colleges (n=56)

Type of Colleges	Prof f(%)	Assoc Prof f(%)	Asstt Prof f(%)	Total f(%)
Government College	10(17.9%)	17(30.4%)	08(14.3%)	35(62.5%)
Non-Government College	06(10.7%)	07(12.5%)	08(14.3%)	21(37.5%)
Total	16(28.6%)	24(42.9%)	16(28.6%)	56(100%)

Table-III: Distribution of teachers according to participation in professional examination (n=56)

Participation	Frequency	Percentage
Script Examiner	20	35.7
Question setter & Script Examiner	13	23.2
Question setter & Moderator & Script Examiner	23	41.1
Total	56	100.0

Table-IV: Distribution of respondents as per their views regarding the different aspects of MCQ papers (n=56)

Statements regarding different aspects of MCQ paper	Extent of views					Mean± SD
	SD 1	D 2	NAND 3	A 4	SA 5	
	f(%)	f(%)	f(%)	f(%)	f(%)	
Present distribution of different level of questions for the MCQ papers is justified*		13(23.2)	9(16.1)	32(57.1)	2(3.6)	3.41±0.89
Satisfied with content coverage		5(8.9)	9(16.1)	40(71.4)	2(3.6)	3.7±0.68
Satisfied with coverage of recall type questions		7(12.5)	9(16.1)	38(67.9)	2(3.6)	3.63±0.75
Satisfied with coverage of understanding type questions		12(21.4)	9(16.1)	34(60.7)	1(1.8)	3.43±0.85
Satisfied with coverage of problem based type questions		13(23.2)	10(17.8)	29(51.8)	4(7.1)	3.43±0.93
Satisfied with construction of MCQ papers		10(17.8)	14(25)	29(51.8)	3(5.4)	3.45±0.85
Introduction of SBA question	4(7.1)	8(14.3)	2(3.5)	25(44.4)	17(30.4)	3.77±1.23
Introduction of negative marking for wrong answer	9(16.1)	11(19.6)	2(3.6)	26(46.4)	8(14.3)	3.23±1.36

NB: SD= Strongly disagree, D= Disagree, NAND= Neither agree nor disagree, A= Agree, SA= Strongly agree, and numbers (1 to 5) indicates scores= Present distribution of different level of questions is Recall- 60%, Understanding- 30% and Problem based -10%.*

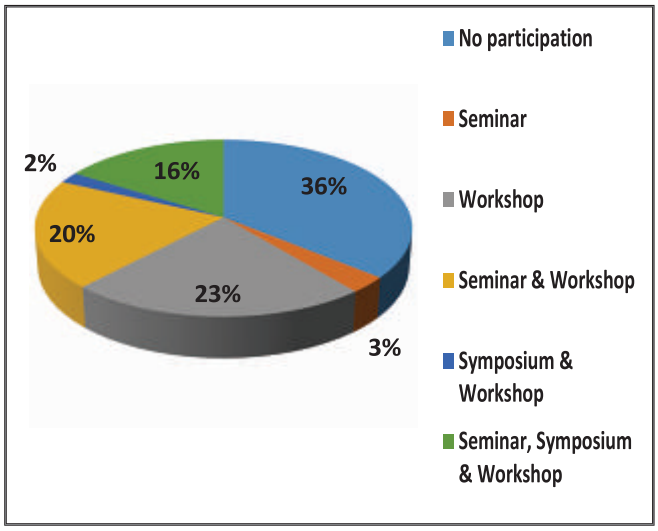

Figure-1: Distribution of teachers according to participation in faculty Development programme on assessment.

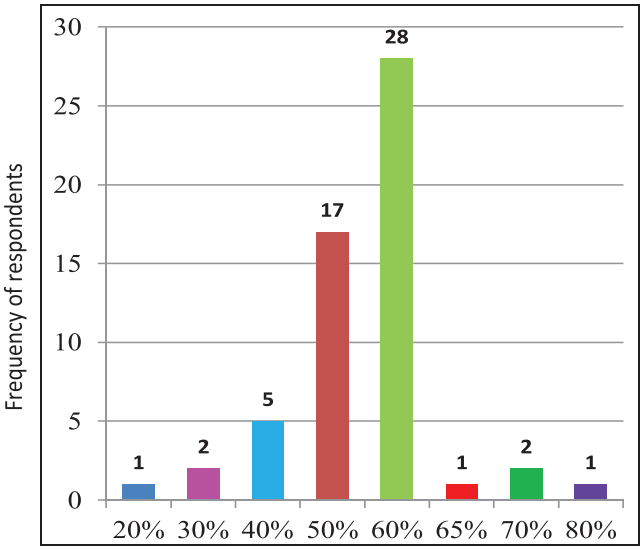

Figure-2: Distribution of teachers as per the percentage of recall type questions proposed by them in MCQ papers (n=56).

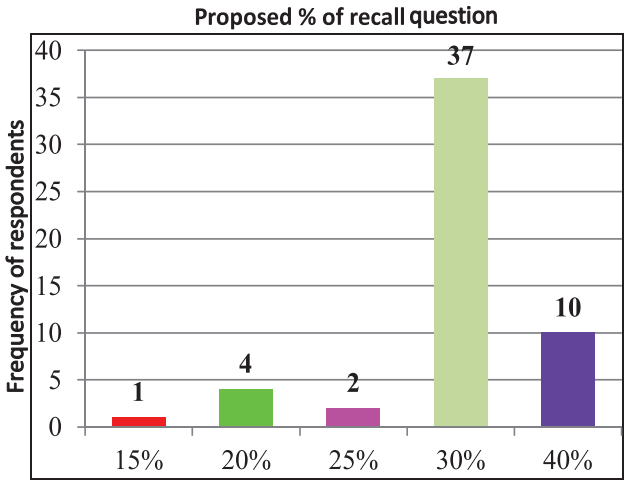

Figure-3: Distribution of teachers as per percentage of understanding type of questions proposed by them in MCQ papers (n=56).

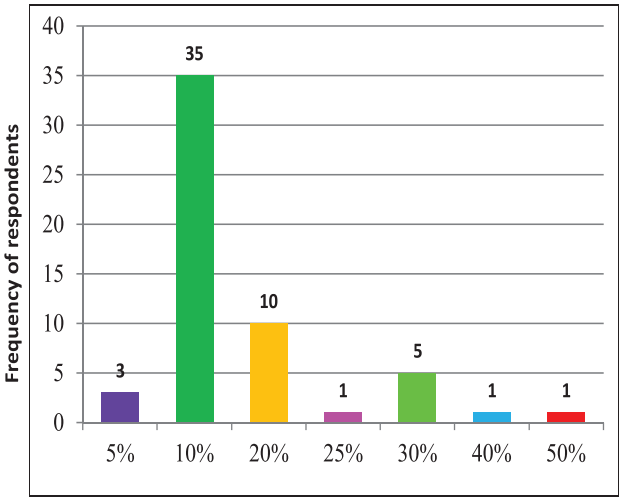

Figure-4: Distributions of teachers as per percentage of problem based type Questions proposed by them in MCQ papers (n=56).

Discussion

Teachers' opinions regarding MCQ (Multiple Choice Questions) papers of Pharmacology professional examination were collected to conduct this cross-sectional descriptive study. Teachers of the Department of Pharmacology and Therapeutics were from both governments and non-governments medical colleges/ institutes. Opinions were collected about the Pharmacology MCQ papers which was introduced in the MBBS course by curriculum 2002 and implemented in the Pharmacology professional examination since 2007. A semi-structured self-administered questionnaire was prepared to collect information from teachers. A total of 56 teachers of Pharmacology; those who participated in the written professional examination at least in one category as question setter, moderator or script examiner were purposively selected to collect information about MCQ questions papers. The different options of the questionnaire about MCQ papers were rated by using Likert scale. Among the participant's government and non-government distribution was 35 and 21 respectively. Designation distribution of the teachers was 28.5% professor, 43% associate professor and 28.5% assistant professors. Ten were government and 6 were non-government out of 16 professors. Among associate professors, 71% were government and 29% were non-government. Among the assistant professor, government and non-government distribution was equal. This distribution of respondents was like the study of Khan.[9]

The present distribution of questions of different domains recall-60%, understanding-30% and problem based-10% in MCQ paper were supported by 61% of teachers. The rest of the teachers either disagreed or undecided with the distribution. They proposed new distribution. For recall

type questions, 30% of teachers proposed 50%. For understanding type questions, 18% teachers proposed 40% and for problem-based question, 18% teachers proposed 20%. New distribution proposal in favour of more for understanding and problem-based type and less recall type questions in MCQ papers.

The percentages of teachers those agreed that the MCQ papers of the universities professional examination covered the required percentage of recall, understanding and problem-based type questions were 72%, 62% and 59% respectively.

About the content coverage in MCQ papers maximum (75%) agreed that it was satisfactory, only (9%) disagreed with the content coverage. This finding is close to the finding (84%) in the study by Khan.[9] In the case of construction of MCQs 57% were satisfied. Only 18% of teachers were not satisfied with the construction of MCQs.

Conclusion

In this study it was found that majority of the teachers agreed with the present distribution of different types of questions (recall-60%, understanding-30% and problem based-10%) in curriculum for MCQ paper. Most teachers were satisfied with the coverage of all these three type questions in current MCQ papers. Maximum teachers were satisfied with content coverage in MCQ papers. Teachers who did not agree with the present distribution of different type questions in MCQ paper, proposed for less recall and more understanding and problem-based type questions.

References

1. Harden RM. Constructing multiple choice questions of the multiple true/false Type. Medical Education.1979; 13(4):305-12.

2. Amin Z & Eng KH. Basics in Medical Education. Singapore: World Scientific Publishing Company Private Ltd:251-65 & 283-97.

3. Swanwick T. Understanding Medical Education: Evidence, theory and practice. London Deanery: Wiley Blackwell Publication: 195-270.

4. Tarrant M & Ware J. Impact of item-writing flaws in multiple-choice questions on student achievement in high-stakes nursing assessments. Medical Education. 2008; 42(2):206.

5. Srinivas DK & Kumar S. Assessment of Students in RK Adhkari & PT Jayawickramarajah (eds). Essentials Medical Education, Health Learning Materials Centre, Kathmandu. 1996:113-30.

6. Schuwirth LWT & van der Vleuten CPM. 'Written assessment' in JA Dent & RM Harden (eds). A Practical for Medical Teachers. Churchill Livingstone, Elsevier Limited, 2013:299-306.

7. BM&DC (Bangladesh Medical and Dental Council), 2002. Curriculum for undergraduate medical education in Bangladesh –2002. DGHS, Dhaka.

8. Rules & Procedure. 'Rules & Procedures for the conduction of 2nd Professional MBBS Examination in Pharmacology under new curriculum', 2006, University of Dhaka.

9. Khan T. Implementing the new assessment system in undergraduate medical education of Bangladesh. Teachers' View'. MMEd Thesis, Centre for Medical Education, University of Dhaka, 2008.