Review article

Assessment in Undergraduate Medical Education: Bangladesh Perspectives

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Abstract

Background: Medical education in Bangladesh is totally controlled by the Government and run a unique undergraduate curriculum throughout the country in both public and private sectors. This paper is aimed to briefly describe the medical education reform in Bangladesh and suggests further assessment changes. The present official form of undergraduate medical curriculum has first evolved in 1988 followed by revision in 2002 and 2012. Assessment and teaching are the two sides of the same coin. Assessment drives learning and learning drives practices. Following the curriculum reform since 2002, the assessment in undergraduate medical education has been greatly changed. There are a lot of in-course formative assessments which include item examination, card final and term final, designed to improve the quality of education. Ten percent marks of summative written examinations derive from formative assessment. Traditional oral examination has been changed to structured form to ensure greater reliability. Even then, teachers are not yet building up to conduct oral examination in such a structured way. Examiners differ in their personality, style and level of experience with variation of questioning and scoring from student to students. Weakness of reliability on oral examination still exists. Students also feel very stressful during the oral examinations. Moreover, to conduct such oral examination, three to four months times per year are lost by the faculties which can be efficiently utilised for teaching and research purposes. Worlds' leading medical schools now-a-days used oral examination only for borderline and distinction students. Bangladesh also must consider oral examination only for borderline and distinction students.

Keywords: assessment, oral-examination, medical education, Bangladesh

Introduction

Teaching and learning are mutual procedures that influence each other and assessment determines both students and teachers effort[1]. The purpose of assessment is to meet the public expectation about the quality graduates, to give feedback to the educational managers about the curriculum, to differentiate the students according to their talent and to monitor their own learning. Assessment also provides a high degree of fairness and objectivity in testing and produces data to enable continuous quality improvement[2]. The welfare and indeed the future health of people depend on the quality of medical graduates and the quality of medical graduates depends on quality of medical education. Educationists believe, that, simply by changing the assessment style for the learners can affect the way students engage with the subject contents[3]. Aassessment drives learning and learning drives practices. By changing the format of assessment or examination, students can lead to engage their study more thoughtfully; their focus can be shifted to clinical rather than theoretical issues[4]. Medical teaching and learning is a little bit more complex than any other educational programme[5]. Here, they not only need to learn but need to develop their skill and attitudes too. Hence, cannot depend on a single method of assessment. Thus, assessments are done through written, practical and

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oral examination in a comprehensive way.

The concept about the teaching process, learning approach, curricular structure, assessment procedures and aims of medical education has changed globally. Medical education has moved from traditional lecture based classes to experience-based methods, from teacher centred to learner centred strategies; from rigid curricula towards a flexible one with core and electives and from centre of attention on knowledge, to performance and outcomes. This paper is aimed to describe undergraduate medical education reform in Bangladesh briefly, highlight the assessment pattern and to suggest further changes in oral examination system in order to produce competent and confident medical practitioners to meet the health needs of the community.

Medical Education in Bangladesh

The first medical college established in Bangladesh offering MBBS degree was the Dhaka Medical College in year 1947 during the British colonial rule[6]. Earlier medical education was inherited from the British colonial education system[7]. Bangladesh does not have any official curriculum before 1988 except a syllabus published by the Bangladesh Medical and Dental council (BMDC)[8]. Currently undergraduate medical education in Bangladesh is totally guided by the state controlled curriculum in both public and private medical colleges. The present form has evolved from the curriculum of 1988[9] which was the first official curriculum for the MBBS degree in Bangladesh. Medical education should be always moving like a river otherwise it will not progress to cope with new health issues. But curriculum change is not an easy work and "turf battles" are expected[10,11]. Government of Bangladesh takes initiative to change the curriculum. The 1988 curriculum has been updated taking enough time and effort of a large group of teachers for each individual subject by the 'Centre for Medical education' (CME) and approved by the Bangladesh Medical and Dental Council (BMDC) in year 2002. The teachers who facilitated the development of the document are properly trained in medical education at home and abroad[12].

The MBBS programme is a five year degree programme which is followed by one-year compulsory internship. After successful completion of internship, full registration can be obtained as a medical doctor[6].

Currently in Bangladesh there are twenty-two state-owned medical colleges and fifty-four private medical colleges. Each year total 8700 students are admitted in these medical colleges to pursue their course. In government colleges intake is around 2900 students and in private around 5800. State-owned college's tuition fees are very small amount but in private charges are very high. Both categories of colleges are under Public Universities[13].

Curriculum Reform

Before 1988 there were four professional examinations (Table I). But in 1988 curriculum, professional examination has been reduced to three (Table II). Earlier two professional examination of 2nd and 3rd has been punched together to have one in 1988 curriculum. In 2002 curriculum (Table III), three professional examinations retained but time has been reduced for 1st professional examination to 1½ years and this extra 6 months were shifted to final professional examination. Moreover, every six months term examinations have been introduced. Details of course content have been described. Moreover, formative examinations' marks are added to professional examination which is totally new concept implemented.

Teaching is mainly by traditional old system which is teacher centred and consists of lectures and practical session. The curriculum is mainly discipline based and each discipline is taught separately without any integration with each other.

Table 1: Plan for Medical Curriculum in Bangladesh before 1988

Phases	Phase I	Phase II	Phase III	Phase IV
Duration	2 years	1 year	1 year	1 year
	1st year / 2nd year	3rd year	4th year	5th year
Content	Anatomy Physiology	Pharmacology and Therapeutics Forensic Medicine and Toxicology	Pathology and Microbiology Community Medicine	Medicine Surgery Obstetrics and Gynaecology
Assessment	Formative assessment and 1st Prof. Exam. at the end of year 2	Formative assessment and 2nd Prof. Exam. at the end of year 3	Formative assessment and 3rd Prof. Exam. at the end of year 4	Formative assessment and Final Prof. at the end of year 5

Note: Pass mark is 50% in each written, practical and oral examination, separately There are three professional examinations each year, January, May and September

Table 2: Plan for Medical Curriculum in Bangladesh 1988

Phases	Phase I		Phase II		Phase III
Duration	2 years		2 years		1 year
	1st year	2nd year	3rd year	4th year	5th year
Content	Anatomy Physiology Biochemistry		Pharmacology and Therapeutics Forensic Medicine and Toxicology Pathology and Microbiology Community medicine		Medicine Surgery Obstetrics and Gynaecology
Assessment	Formative assessment and 1st Prof. Exam. at the end of year 2		Formative assessment and 2nd Prof. Exam. at the end of year 4		Formative assessment and Final Prof. Exam. at the end of year 5

Note: Pass mark is 50% in each written, practical and oral examination, separately There are three professional examinations each year, January, May and September

Phases	Phase I		Phase II		Phase III
Duration	I ½ years		2 years		I ½ years
	1st year	2nd year	3rd year	4th year	5th year
Content	Anatomy Physiology Biochemistry		Pharmacology and therapeutics Forensic Medicine and Toxicology Pathology Microbiology Community Medicine		Medicine Surgery Obstetrics and Gynaecology
Assessment	Formative assessment and 1st Prof. Exam. at the end of 1½ years		Formative assessment and 2nd Prof. Exam. at the end of year 3½ years		Formative assessment and Final Prof. at the end of year 5

Note: Pass mark is 60% in each written, oral and practical/clinical examination There are two professional examinations each year, January and July 10% marks of written summative examination comes from formative assessment

Assessment Pattern

Following the curriculum reform since 2002, the assessment system of undergraduate medical education in Bangladesh has been modified[12]. There are a lot of in-course formative examinations. These includes item examination, card final, and term final which are designed to improve quality of learning and better performance of students in the summative assessments. Ten percent marks from the formative assessments are added to the summative examinations. Traditionally these examinations were taken as oral examinations[12,14]. Item examination includes the oral examination of different individual items on the topic included in a card which is based on a system. For example, in the respiratory system card, all the important topics of the respiratory system are included as the individual item. So students face the individual item examination orally followed by the written card final examination as ongoing formative examination. 1st phase is divided into three, 2nd phase four, and 3rd phase is divided in to three semesters and after each semester there are term examinations in written, oral and practical forms. Professional examination takes place at the end of the phase I, II and III.

Written examination is the most essential determinant in the MBBS programme. New adopted curriculum gives emphasis on written examination to be customized. For example, short answer questions (SAQ) are preferred to long descriptive. Questions are specific answer oriented which are targeted to assess the level of higher cognitive domain of the examinees[15]. Many in-course formative examina-

tions as well as summative examinations are conducted with written examinations. In addition, Multiple Choice Question (MCQ) is used to test knowledge of a wide range or breadth of the subject. To assess psychomotor and affective domain, practical assessments methods have been converted to objective structured practical /clinical examinations (OSPE/ OSCE).

It will be worthwhile to mention that traditional oral examination now has been converted to structured oral examination and is taken in much methodical way. For example, in pharmacology oral examination, contents of pharmacology are divided into two sets, as students have to face two boards of oral examination. Content or topics in each setting are divided into different sub-topics with related items which are labelled in different strips of card and arranged on the viva table. Students have clear idea on topics and sub-topic in each board with allocated mark. For testing, students are advised to take or draw any item strips from different sub-topic blindly or by lottery. Examiner should be restricted to ask questions on those particular items where marks are predetermined. Henceforth, there is enormous development regarding oral exam to minimise scoring inconsistency and thereby ensure reliability. However, our observation regarding oral examination is teachers are not yet develop to conduct such examination in a structured way. They primarily conduct oral examination on their traditional ways. So, weakness of reliability on the oral examination still exists. Examiners differ in their personality, style and level of experience with variation of questions from student to students as well as marks awarded to the students. The content coverage in oral examination is also limited as the examiner cannot assess the student's knowledge in a limited time. Errors is occurring relating to 'halo effect' where the overall judgement of the examiner about the examinees competency is influenced by the external appearance or other attributes of the examinee. The drawback of oral examination is also caused the errors of central tendency; a general tendency towards leniency; and errors of contrast where the judgments of a candidate are influenced by impressions of preceding candidates.

Thus students do not get much benefit of mentioned development. Furthermore, oral examination consumes at least three to four months of each year. It actually damages most valuable teaching hours as all senior teachers are involved in oral examination. All of worlds' leading medical schools now-a-days used oral examination only for borderline students who either failed or passed and for distinction students. In this context Bangladesh must avoid exhaustive oral examination from MBBS programme and restrict it only for borderline and distinction students.

Discussion

The core part of the student life is assessment16 and student considers assessment is the curriculum[17]. Student spends major time to prepare themselves for assessment as it acts main motivational force for learning that will lead them to be a qualified person for profession[18, 19, 20, 21]. Again it is belief of educationist that to make any change in the learning, change in the assessment method is must[18].

The assessment of student learning in higher education has gone through a shift from traditional testing of knowledge towards assessment of learning[22, 23]. Furthermore, an assessment culture aims at assessing the acquisition of higher-order thinking processes and competencies instead of factual knowledge and low-level cognitive skills[24,25]. Every community wants skilled medical doctor who will act in an ethical and professional manner, and accountable to society[26].

Bangladesh has also adopted such strategies to ensure the quality education in medical science and has formulated the first ever curriculum in 19889. Subsequently it was revised in 20021[2] -known as the new curriculum, which the country is executing for the past one decade.

The new curriculum provides a lot of development in medical education. But the extensive long structured viva in all professional examination are still exists. These viva-voce examinations are very time consuming as all students have to appear in the viva examination irrespective of their passing status on the theory. Moreover, to conduct long structured oral examination for over more than 100 students in each medical school are categorically very monotonous tedious work. In addition all academic faculties are occupied with the viva examinations for three to four months per year to handle the large group of students all over the country which is more than 8000 students in each professional examination. Consequently there is enormous time lost from

teaching hours. Students also feel it is very stressful during the viva examinations.

There has been increasing realization to develop innovative assessment set-up and use them in a way that confirms a high degree of validity and acceptable level of reliability[27]. There were suggestions to restrict the viva-voce examinations to the borderline pass/fail students and to the distinction students. Viva examination can discriminate top students with higher order cognitive skill by an in depth questioning and also can extract the actual knowledge in a borderline pass/fail student. Study revealed that the performance of passed students in viva-voce was poorer than that in theory while the performance of failed students in viva-voce was found to be better than their performance in theory. This indicates that there was not much correlation between student performance in viva-voce and that of theory[28]. Another correlation study between the written and viva-voce examination showed that there was highly significant association between written and viva-voce marks of students in the 'passed with distinction' and 'passed' categories which is the true reflection of knowledge and competence of the students in this category[29]. Students with 'failed' and 'border line passed' category showed lack of significant association in performance in written and viva-voce examination. These two category students obtained higher marks in viva-voce compared to those in written examinations. These findings establish the low reliability of viva-voce examinations. Examiners' general tendency toward 'leniency' favoring particularly the weaker students may explain this trend[29].

Many medical schools for assessments depend on different method of written examination, OSPE, OSCE, as well as clinical long and short cases, and of the student's behavior[30-35]. There is no long oral or viva-voce examination. This becomes particularly important in the case of medical students, who have to demonstrate their ability to understand and apply knowledge, skills and attitudes in different contexts, capabilities which are quite difficult to assess using traditional tools.

The new curriculum has adopted a multi-dimensional assessment model that fits more appropriately in medical practice of professional attributes that range from those strictly based in knowledge, to those based on experience-scientific knowledge, critical thinking and judgement, clinical skills, technical skills, interpersonal skills, attitudes, personal virtues and self-monitoring. Bangladesh must consider having some more modification in the curriculum to have a definite change in long viva-voce system and saving enormous teaching hours. Oral examinations should be restricted only for those students' who are borderline fail and pass and with distinction. Proper orientation and training of the educators and evaluators are also essential to make the program successful.

Conclusion

There is almost certainly a greater variety of assessment practices being used in these days in undergraduate medical education in Bangladesh compared with pre-1988 medical education in order to make the assessment is objective, reliable, valid and practicable. Even then, teachers are not yet building up to conduct oral examination in an objective and reliable way. Examiners differ in their personality, style and level of experience with variation of questioning and scoring from student to students. So, weakness of reliability on the oral examination still exists. Proper orientation and faculty development activities are essential. Moreover, to conduct such oral examination, three to four months times per year are lost by the faculties which can be effectively utilised for teaching and research purposes. Worlds' leading medical schools now-a-days used oral examination only for borderline and distinction students. Bangladesh also must consider oral examination only for borderline and distinction students.

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