



RESEARCH ARTICLE

ASSESSMENT OF PHASE I MBBS LEARNERS IN MEDICAL INSTITUTION

K.S.Meera

1. Professor of Biochemistry Ramaiah Medical College, Bangalore-560054. Karnataka, India.

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Abstract

Assessment in medical education is inclined about integration of required knowledge, skills and attitudes rather than anyone of these factors exclusively. Assessment plays a significant role in the process of medical education and in the life of medical students as a lifelong learner. The assessment program helps in structuring training and learning, enhance student's capacity for education and engagement with the curriculum. It helps in monitoring student's periodic academic progress and early intervention if there is learning gap.

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Introduction:-

Competency based medical education is an outcome-based approach to design, its implementation, assessment and evaluation of medical education program using an organized framework of competencies. Assessment in medical education is persuaded more about integration of the required knowledge, skills and attitudes rather than anyone of these factors exclusively (1). The main purpose of assessment in competency based curriculum is to assist the teachers to decipher if learners have attained the desired competencies, furthermore with an objective to help the learner to acquire and improve their competencies. Competency based medical education (CBME) emphasizes the development of required competencies in an organized order through learner-centric approach (2).

Assessment is one of the important components of teaching and learning cycle, as it reflects improvements of students' learning (3). It has significant influence on student's experience of education, additionally improvement in the evaluation process have massive impact on the quality of learning.

The Importance of Assessment:

Assessment plays a significant role in the life of medical students, as a lifelong learner. It also helps in the evaluation of the teaching learning methods used and to improve further. The assessment program clearly outlines goals and objectives in the course (4). The assessment enhances student's capacity compliance and adherence with the curriculum competency wise. Assessment drives learning (5). Monitoring of student portfolio including certification of skills. Identifying areas, in need of intervention if any. Prioritises mentor and mentee feedback. Enabling teachers and learners to provide and utilise feedback efficiently, reflect and improve their teaching and learning

Corresponding Author: -K.S.Meera

Address:-Professor of Biochemistry Ramaiah medical college, Bangalore-560054.
Karnataka, India

Relevance of Good Assessment:

It is an alignment between objectives and the student's anticipated learning outcomes. The assessment of student learning begins with educational values (6). The assessment methods should be reliable (consistent), valid (accurate; should measure what it's supposed to measure) and guided by clearly defined instructions, criteria and standards. Quality assurance also requires quality assessment. These methods need to be fair, free from any biases and distortions. The assessments permit a comprehensive rather than a fragmented approach. Assessment should reinforce Graduate of Medical Regulation (GMR) guidelines. These should be able to reflect the learner's progress and enhancement of knowledge. It provides an information about students learning outcome. Assessment should ideally be based on a practice context in which students will find themselves in the future (7).

The difference in perspective arises from three important characteristics of Competency based curriculum.

- First, by definition, teaching and assessment has to be in the context of competencies.
- Second, discrete assessment of knowledge, skills and attitudes may not always add up to a competency.
- Third and probably the most important, there is a high context specificity in assessment.

All competencies need to be assessed multiple times and in different contexts. One summative or end of year examination is not suited for this purpose. Major characteristics of competency based assessment are their longitudinal nature, day to day assessment, provision of developmental feedback, all of which can be able to overcome shortcomings of individual assessments.

Competency Based Assessment (CBA) differs from traditional assessment.

Traditional assessments are easy to design, administer, score and analyse in comparison to CBA but may not be able to provide complete information about the progress of the student. Traditional assessments are snap shot observations of learning, are generally not linked to instructions or outcomes and promote test taking behaviour. They are fragmented and mainly focus on knowledge (sometimes skills). CBA, on the other hand, provides more comprehensive information about the progression and academic ascent of the student. They are longitudinal, often with low stakes and help to reduce examination anxiety. CBA with case-based assessments promote critical thinking and are aligned with CBME's goals of producing competent graduates (8, 9). CBA is based on direct observation and therefore helps in generation of authentic feedback. This process of assessment for learning is crucial for the acquisition of competencies (10)

CBA also helps in assembling and scrutinizing evidence to decode if the student is proficient in required competency and in grading of training. Assessment of learning is vital for the development of competency (11). The underlying concept of competency – i.e. the habitual and consistent use of knowledge, technical skills, clinical reasoning, communication, emotions, values and reflection in daily practice. It also prepares the student to demonstrate the desired behaviour consistently rather than only during the final examination.

Through, CBME significant attempt has been made in the outcome driven undergraduate curriculum to provide curriculum orientation and skills development. CBA aids in the process of learning. Its significance is to obtain evidence to determine whether students have met the learning outcomes and program objectives. Effective feedback is paramount to help learners to improve further (12). CBA is an ongoing process so that any deviation in learning can be recognized in initial stages and attention can be taken by providing formative feedback. Besides, CBA requires active involvement of the student in the form of self-assessment and reflections which aids in the process of learning. Effective feedback is vital for improving students learning capability.

Assessment of Competencies.

Assessment requires specification of measurable and observable entities. In single session, there could be assessment of multiple competencies or assessment of a competency per se. Sometimes individual competency are subdivided further into learning objectives related to knowledge, skills, attitudes, communication etc. and are assessed under individual domains. Therefore, efforts are made to include competencies in the assessment process as much as possible. CBA is very useful to convey a message to the students to structure their learning around competency framework.

Relation between Assessment and Learning Outcome:

Assessment is purpose driven. Plan of assessment needs to support the curriculum and acquaint students of achieved curriculum outcomes. During planning and designing assessments, it is essential to recognize the stakes involved in it. Higher the stake, the greater the implications of the outcome of the assessment. The more sophisticated the assessment strategies, the more appropriate they become for feedback and learning. The assessment in competency based curriculum incorporates integration to the extent feasible while maintaining subject identity. Multiple

assessment methods are necessary to capture all or major aspects of clinical competency, however no single method is sufficient to do the job. The various practises include structured long essay questions, problem based questions, reasoning out question, applied aspects, skill based assessment, objective structured practical examination (OSPE) and AETCOM based assessment. For knowledge, concepts, application of knowledge - 'Knows' and 'Knows How' of Miller's conceptual pyramid, case based MCQ and short answer questions are appropriate (13).

Assessment Methods and Standard Used In Student's Evaluation:

The methods used for assessment of students are a balance between formative and summative assessment. Features of competency based assessment. CBA operates within the framework of competencies. Assessment tools should align with competencies/objectives. CBA helps to acquire competencies / objectives (assessment for learning) & their certification (assessment of learning). It is a continuous and an ongoing process with opportunities for providing developmental feedback. Direct observation of students improves utility of CBA and feedback.

Multiple assessors, multiple tools & multiple assessments improve the validity & reliability of CBA (9). Multiple teachers are involved in an assessment. This helps not only in taking care of subjectivity but also provide much needed training of junior faculty in assessment process. The use of multiple methods, by multiple examiners in multiple settings to assess multiple competencies, blueprinting and longitudinal assessment help to improve the reliability and validity of assessment. While designing assessment, all domains of learning i.e. cognitive, psychomotor and affective should be taken into account and weightage are assigned to these domains for assessment (10, 14)

The Main Methods of Student's Competencies Assessment In Phase I MBBS Are:

Cognitive domain:

- a) Oral examination.
- b) Multiple Choice Questions.
- c) Structured Answer Questions.
- d) Long Essay Questions.
- e) Tutorials & Seminars.

Psychomotor domain:

- a) Objectively Structured Performance Evaluation (OSPE).
- b) Practical examination.

Affective Domain:

- a) Direct observation of communication skill and behaviour.

Formative Assessment:

An assessment conducted during the instruction with the primary purpose of providing feedback for improving learning. Day-to-day records and log book assessment including required skill certifications carried out by respective departments.

Internal Assessment:

Range of assessments are conducted by the teachers, teaching a particular subject with the purpose of knowing what is learnt and how it is learnt. Internal assessment can have both formative and summative functions (15).

Summative Assessment:

An assessment conducted at the end of phase to check how much the student has learnt.

Assessment methods in examination includes:

1. Written.
2. Skill assessment
3. Oral.
4. Assessment of Log-Book]

1) Written tests can assess knowledge acquisition, reasoning ability, and integrate with disciplines. Reasoning Questions: These provide excellent opportunities for testing integration, clinical reasoning and analytic ability of the student.

a) **Multiple choice questions:** MCQ's can test thoroughly in the cognitive domain at all levels.

MCQ's to include scenario based questions also. It improves the validity of tests. MCQ's not more than 20% of the total marks in all papers.

b) **Structured long essay, Modified Essay Questions (MEQ):** to include Case based, Problem-solving and for Lateral thinking,

c) **Short answer" Open-ended:** providing opportunity to sample a wider content, in a short time. These questions should be task oriented, reasoning, more flexible and good for problem-solving. Short notes on applied aspects and AETCOM.

2) Skill assessment- practical tests including ones with application oriented, OSPE, Directly Observed Procedural Skills (DOPS), record maintenance and attitudinal assessment. Practical tests should not become simply tests of knowledge.

3) Oral: Assessment during orals can be either Traditional and/or Structural. However later is more preferred

4) Assessment of Log-book. Log book records all activities like seminar, tutorials, SDL, reflection of ECE sessions, skill certifications and other academic activities. Achievement of certifiable competencies are also be recorded in logbooks. It should be assessed regularly and submitted to the department.

Basic quality of assessment methods includes Validity, Reliability, Feasibility, Objectivity and Acceptability

1. Validity: Assessment tools are selected according to the type of learning objectives. The examination covers all areas of the course in preclinical phase.

2. Reliability: The consistency of test scores over time, under different testing status. Using reliable tests. More than one examiner.

3. Feasibility and Practicability: Overall ease of construction, scoring and reporting of an assessment instrument. OSPE exam improves feasibility,

4. Objectivity: Examiners agree to the correct answer (accurately and fairly, free of examiners' bias). Use of external examiners increase fairness, quality, and transparency of assessment.

5. Acceptability: The responsiveness of faculty and students to the assessment.

Necessity to monitor the assessment: Monitoring the assessment would imply the routine collection of data about key aspects of the assessment for the purpose of ensuring that the educational process is on track and for identifying any areas in need of intervention. The teaching and learning activities provides students with sufficient exposure and practice in the work before the assessment. The timing of feedback is also essential. Feedback must be delivered early enough for students to improvise.

Conclusions:

This article emphasizes the importance of learner's assessment in medical education and are subject based. The curriculum has included the competencies the student must be imparted with clearly defined teaching learning strategies and effective methods of assessment. Assessment tools and techniques are used to ensure that appropriate correlates are tested to determine if the learner has internalized and integrated the concept and its application. The assessment helps to attain domain-independent skills, competencies like teamwork, communication skills and others towards lifelong learner. Assessment is not an end in itself but a vehicle for education improvement.

References:

1. Al-Elq AH (2007). Medicine and clinical skills laboratories. *J Family Community Med.*, 14(2):59-63.
2. Karunakaran I, Sukhumar GT, Arun GT (2022). Redefining the role of a learner in the competency-based medical curriculum. *Korean J Med Educ.*, 34(4):337-340.
3. Runnels J, O'Dwyer F (2021). Teacher reflections on implementing a learning cycle in EFL writing classes. *Writing & Pedagogy.*, 12(1):205-221.
4. Ross S, Hauer KE, Wycliffe-Jones K, Hall AK, Molgaard L, Richardson D, Oswald A, Bhanji F (2021) ICBME Collaborators. Key considerations in planning and designing programmatic assessment in competency-based medical education. *Medical Teacher.*, 43(7):758-764.
5. Vijayaraghavan PV (2022). Assessment of competencies in medical education. *Sri Ramachandra J Health Sci.*, 2: 45-46.
6. Hutchings P, Ewell P, Banta T (2012). *AAHE principles of good practice: Aging nicely*. Urbana, IL: University of Illinois and Indiana University, National Institute for Learning Outcomes Assessment. Retrieved from <http://www.Learningoutcomeassessment.Org/PrinciplesofAssessment>. AAHE. 2012 May.
7. Thomas G, Martin D, Pleasants K (2011). Using self-and peer-assessment to enhance students' future-learning in higher education. *Journal of university teaching and learning practice.*, 8(1):52-69.
8. Holmboe ES, Sherbino J, Long DM, Swing SR, Frank JR (2010). The role of assessment in competency-based medical education. *Med Teach.*2010;32(8):676-682
9. Sharma M Kamboj A K , Ramanathan R Vincent V, Shanmugam J. Perceptions of Competency-Based Medical Education (CBME) Curriculum among Indian Medical Students: A Cross-Sectional Analysis from ANIIMS, Port Blair. *National Board of Examinations - Journal of Medical Sciences.*,2(12):1267-1278
10. Medical council of India. Competency based undergraduate curriculum for the Indian medical graduate. Available: <https://wbuhs.ac.in/wp-content/uploads/2019/01/UG-Curriculum-Vol-I.pdf> .
11. Wolterinck C, Poortman C, Schildkamp K, Visscher A (2024). Assessment for Learning: developing the required teacher competencies. *European Journal of Teacher Education.*, 47(4):711-729.
12. Atkinson A, Watling CJ, Brand PLP (2022). Feedback and coaching. *Eur J Pediatr.*, 181(2):441-446.
13. Ten Cate O, Carraccio C, Damodaran A, Gofton W, Hamstra SJ, Hart DE, Richardson D, Ross S, Schultz K, Warm EJ, Whelan AJ (2021). Entrustment decision making: extending Miller's pyramid. *Academic Medicine.*, 96(2):199-204.
14. Mohan R. Measurement, evaluation and assessment in education. PHI Learning Pvt. Ltd., 2023 Apr 1.
15. Sharma R, Bakshi H, Kumar P (2019). Competency-based undergraduate curriculum: A critical view. *Indian Journal of Community Medicine.*, 44(2):77-80.