Editorial:

Continuous Assessment in Undergraduate Medical EducationTowards Objectivity and Standardization

Salam A[1], Yousuf R[2], Allhiani RF[3], Zainol J[4]

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Assessment is an essential component of teaching-learning in higher education. It determines the extent of students' learning or achievements over the course of study[1]. Teaching and assessment are the two sides of the same coin[2]. Teaching without testing is similar to cooking without tasting[3]. Educational testing or assessment thus drives learning, and learning ultimately drives practices[4]. Learning results in a change in learners' behaviours[5]. Undergraduate medical education aims to produce doctors in the region who are safe, competent and confident and able to meet the health needs of the community while also being able to continuing medical education[6]. The medical curriculum is designed with specific content to meet societies' demands by having competent medical doctors to offer quality medical care to their communities and clients worldwide[7]. In an effectively designed curriculum, course objectives reflect the assessment content[8]. The objectives fall into three domains: knowledge, skills, and attitudes. Knowledge objectives address cognitive measures ranging from being able to recall factual events to integrating processes for problem-solving and creation. Skills objectives involve psychomotor aspects needed to be an efficient clinician. Attitude objectives relate to the personal qualities of the learner and their approach to medicine, patients and their peers[8]. Knowledge is assessed by written examinations such as multiple-choice questions (MCQ), modified essay questions (MEQ), short answer questions (SAQ), and key feature questions (KFQ). The MCQs can be multiple true-false (MTF), single best answer (SBA) and extended matching questions (EMQ)[9]. The MCQs are the most widely used objective test items and can test any higher level of the cognitive domain if they are constructed well[10]. The practical skills are assessed by objective structured practical examination (OSPE). Clinical skills are assessed by clinical examination using the long case, short case and objective structured clinical examination (OSCE)[9]. Attitudinal aspects are assessed through the personal qualities and behavioural approach of the learners.This paper describes methods of continuous assessment used in undergraduate medical education aimed to ensure the objectivity and standardization of the assessment.

It has been found that lack of objectivity and varying standards of assessment methods in higher education is a big problem[11]. Traditionally, the assessment system of students in educational institutions is one-shot, i.e., at the end of the

1. Abdus Salam, Medical Education Unit and Community Medicine Unit, Faculty of Medicine, Widad University College, Malaysia.
2. Rabeya Yousuf, Blood Bank Unit, Department of Diagnostic Laboratory Services, Hospital Canselor Tuanku Muhriz, Universiti Kebangsaan Malaysia (UKM) Medical Centre, Malaysia.
3. Rajaa Fahad Allhiani, Medical Education Department, Faculty of Medicine, King Abdulaziz University, Saudi Arabia.
4. Jamaludin Zainol, Surgery Unit and Dean Faculty of Medicine, and Deputy Vice-Chancellor (Academic and Internationalisation), Widad University College, Malaysia.

Correspondence to: Dr. Abdus Salam, Associate Professor and Head of Medical Education Unit and Community Medicine Unit, Faculty of Medicine, Widad University College, Bandar Indera Mahkota, 25200 Kuantan, Pahang, Malaysia. Email: abdussalam.dr@gmail.com ORCID iD: https://orcid.org/0000-0003-0266-9747

course or semester or programme, which has strong criticism that it may not give much reliable information about students'outcomes. As a result, continuous assessment is introduced to harvest more reliable outcomes on students' grades or learning[12].

Continuous assessments are a series of tests on students conducted during a course of study rather than a one-shot examination at the end of the term or semester. There is a continuous record of all academic achievements and activities in the various folders. The final mark or score of continuous assessment is the average of the scores achieved by the student and used to grade the students' ability in that particular course.The marks are carried to the summative assessment, making summative assessments cumulative[9]. Continuous assessment guides the students and allows the teachers and counsellors in an educational institution to know the easiest way of assessing students without waiting for a one-shot assessment of traditional examination[12].The continuous assessment appears to be an essential tool to monitor, guide and strengthen the course or the programme[13].

Continuous assessment worked for both formative and summative purposes[14]. It is formative, or "assessment for learning", when used to diagnose students' understanding and learning problems, provide appropriate feedback, and enable students to attain and improve meaningful learning. It is summative, or "assessment of learning", when a mark is given that contributes to the complete results of the course /semester /programme to facilitate progression or certification[15,16]. Thus, the formative function facilitates students' learning development, and the summative function enables progression and certification[17]. However, in supporting "assessment for learning," the practice of formative feedback often faces challenges and seems to fail[17]. The reasons are widespread uses of continuous assessment with summative purpose[18], the move towards modularization of curricula leading to an increase use of summative with a decreased use of formative assessment[19], inadequate staff, growing student diversity, plagiarism[17], lack of feedback, large class size, shortage of time, lack of facilities[13] and inefficient staff. Feedback dialogue between student and faculty is an essential condition for students to have meaningful and constructive learning experiences[17,20] and thereby improve the in-depth-learning and future studying as well[21]. However, it is evidenced that, the feedback given is not enough (quantity), is very brief, which may not be very helpful, or feedback does not provide advice on how to improve (quality), and feedback comes too late in regards to timing[17]. More feedback conversation between faculties and students is required so that students become aware of how the feedback can positively guide their learning[17]. Widespread use of continuous assessment with a summative function may cause the faculties to experience a heavy workload, especially in a large class with a lack of adequate teaching materials and institutional resources[14]. Students also may feel overloaded and will get less time for preparation for the subsequent assessment, which may them lead to cheating and plagiarism[14].

Moreover, faculties in medical schools in many cases traditionally are not trained to teaching and assessment[3,22,23]. Right now, the roles of faculties are changing from deliverer of material to a more creative, designer and facilitator of learning[3]. It is essential to train the faculty to develop their teaching skills and abilities in continuous assessment, giving constructive and effective feedback on pedagogical approaches and their effectiveness in delivering subject content within programmes[14,24]. Institutional support is mandatory to provide a conducive environment for its implementation, for faculty development and also to appreciate their contribution through rewards and incentives.

The continuous assessment may include assessment of daily classwork, seminars, case presentation, course-related research project preparation, presentations and report writings, field visits with reporting, practical work etc. Mini clinical evaluation exercises (MiniCEX), direct observation of procedural skills (DOPS), objective structured long case examination records (OSLER), logbook and portfolio assessments are formative assessments often carried out for the clinical students[9,25]. A portfolio assessment system is an efficient tool for the students to concentrate their efforts. The portfolio also includes evidence of work, a logbook, personal reflections and certificates from the tutor on the students' work[26]. Multi-source feedback (MSF) is another evaluation method for clinical students, consists of evaluation completed by peers, other clinical team members such as nurses, pharmacists, psychologists or even by patients on the trainees' work habits, teamwork

capability, interpersonal sensitivity, etc. Examples of MSF tools include: Physician Achievement Review (PAR), 360-degree assessments or MINI-PAT (Peer Assessment Tool)[27].

It is essential that the assessment methods should be aligned to teaching and intended learning outcomes as well as valid, reliable and implemented for maximal effects[14]. Therefore, harmony between the assessment weightage and the curriculum towards objectivity and standardization is essential[28]. Assessment that aligns with the curriculum signifies its reliability and validity. Reliability is how an assessment gives a consistent outcome on a students' progress across multiple measures. Validity is the extent to which an assessment measures what it is intended to measure[29]. Faculty development activity should be an integral part of educational institution for a sustainable educational and organizational development[30].

In conclusion, continuous assessments are a series of tests of students' learning activities recorded continuously during the course period, which helps in students' guidance by the teachers and the counsellors for educational development. Continuous assessment worked both for formative and summative purposes. But, formative purposes i.e., feedback delivery is failed due to inadequate staff, widespread uses of continuous assessment for summative purposes experiencing heavy faculty workload with lack of teaching materials, growing student diversity with plagiarism. Careful planning and well coordination between teaching delivery and assessment in terms of reliability and validity is recommended. The educational planners need to pay attention on the methods of continuous assessment towards objectivity and standardization through a harmony between weightage in the assessment system and the curricular content.Regular faculty development programmes should be implemented by well-trained trainer across all levels of faculty aimed to produce competent and confident human capitals for a sustainable educational and organizational development. Institutional management support with adequate resources is mandatory to provide a conducive environment for its implementation and also to appreciate the contribution through rewards and incentives. This paper offers a window for educators around the world to ensure the methods of continuous assessment toward objectivity and standardization in medical education.

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