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Revisiting TiOSCE (Task Integrated Objective Structured Clinical Examination) for Remote Assessment in COVID-19 Pandemic

Shahid Hassan

Department of Surgery, School of Medicine and IMU Center for Education, International Medical University, Malaysia

Abstract: ***In the backdrop of OSCE known for a valid but fragmented test of clinical competency, a new assessment format named the, "Task-integrated Objective Structured Clinical Examination (TiOSCE)" was developed by the author in 2012. However, author had no idea then that the TiOSCE will provide a readily available tool to remotely assess students' performance in a crisis like COVID-19 in which a face-to-face delivery of OSCE may not be possible. TiOSCE at the time of its invention was aimed to introduce integrated OSCE with multiple sub-stations and simulated patient (SP) using authentic case scenario to respond to OSCE being segmented tests of clinical competency. Present work is a reproduction of the same TiOSCE in terms of principles, rationale, protocol, logistics and the outcome with add-in concepts of remote exam for its implementation in COVID-19 crisis. Aiming to revist TiOSCE is to find its utility of remotely managed assessment in a crisis like COVID. TiOSCE with remote assessment concepts has been designed with multiple integrated sub-stations. At each station students will spend five minutes to perform and one minute to read about the task. This will make each OSCE (with 5 sub-stations) of 20 +4 minutes station. Each of 4 sub-stations are divided into clinical attributes of history taking, physical examination, investigation and management skills stations to assess students clinical performance using online assessment. Logistically tedious and laboured, TiOSCE is achievable for online delivery as a readily available approach to examine students' clinical performance at a, "know how" than "show how" level of Miller's clinical competency pyramid. Nevertheless, the process provides the opportunity to continuing assessment of learning experience in any critical situation like COVID-19 pandemic.***

Keywords: Clinical competency, OSCE, COVID-19, TiOSCE, Online delivery, Level of competency.

1. Introduction

The impact of good assessment in medical education depends on how appropriately the tools measure the clinical performance and how reliable, valid and feasible they are to achieve the logical decision [1]. The traditional methods of clinical examination using long and short cases and orals are often argued for its subjectivity, low reliability and inadequate context specificity [2]. Oral test though comparatively more valid due to its face-to-face questions are considered less reliable for problems of unstandardized questions, inconsistent marking and lack of sufficient testing time [3]. Development of an "objective structured clinical examination" (OSCE) was sought as a solution to these problems. But the fragmented representation of the context in a number of stations in OSCE makes it less authentic for an integrated judgment of performance [4]. Yet another method to thought of, was the workplace-based assessment (WPBA) but it takes a snapshot as a predefined attribute of a more complex integrated assessment such as long case [5]. However due to the problem of feasibility it is less likely that high stakes examination as summative assessment will ever be able to attain workplace-based assessment such as Mini-CEX and DOPS. OSCEs have multiple, fragmented static or interactive stations of 5-10 minutes duration with or without examiners, patients or exhibits and a marking scheme comprising of checklist or global rating.

In the backdrop of this context a new assessment format named the, "Task-integrated Objective Structured Clinical Examination (TiOSCE)" modified from OSCE was developed by the author in 2012 [6]. However, it is a different version of OSCE in which the principle concept is the same as that of an OSCE. What is different in TiOSCE is the continuum of clinical skill's work up of the same patient's followed through to test multiple short attributes of clinical competences. As it retains most of the favorable features, TiOSCE also addresses some of the odds features of OSCE. Current work explores the possibilities of delivering TiOSCE as a flexible method using e- learning tools built on existing pedagogical design.

Planning and Delivery Method:

TiOSCE has been designed with multiple integrated sub-stations that on each station students will spend five minutes to perform and one minute to read about the task. This will make each OSCE (with 5 sub-station) of 20 +4 minutes station (see figure 1). The bell will ring after every 5 minutes (see figure 1 below). Each sub-station will assess students' clinical competency in clinical attributes of communication and interviewing skills, physical examination skills, investigative skills and management skills (see figure 2 below).

Station one will comprise of interviewing a SP with clinical scenario shown as a short video or exhibit of real patient with lesion. Station two will explore student's clinical performance in physical examination that will be provided with exhibits of patient photographs depicting his lesion and candidate asked to explain what and how the relevant examination will be performed. This station with clinical attribute of physical examination may have further questions for students to give likely specified number of differential diagnosis. Station three can again be provided with or without a SP and some investigative

reports as exhibits to be explained to the patient (or to examiner in case of no SP involved). Station 4, as the last sub-station will expect candidate to explain and discuss management plan with patient and address his concern. Here in this station candidate may be asked a couple of questions either coming from the SP or the examiner directly. This will complete any one station with 4 substations using e-learning tool as the venue for TiOSCE.

2. Discussion

In the assessment of clinical competence, OSCE has offered a new and extremely exiting way of making valid assessment of clinical performance of students in medical education since its inception back in 1970 by Harden and colleague [7]. However, OSCE being a fragmented test of clinical performance [8] has never closed the doors for long case assessment, which is still considered the most reliable and valid method provided assessment is done with reasonable number of cases. All these years a number of modifications have been proposed to traditional OSCE [9, 10]. Task-integrated Objective Structured Clinical Examination (TiOSCE) was one of the modified OSCE developed back in 2012 by the author [6]. However, author had no idea then that the TiOSCE will provide a readily available tool to remotely assess students' performance in a crisis like COVID-19 in which face-to-face delivery of OSCE will become impossible. Intention at the time of creating TiOSCE was to introduce integrated OSCE using simulated patient and authentic case scenario with some unmanned (test of written knowledge) and interactive stations (test of psychomotor skills). The proposed model is a reproduction of the same TiOSCE as far as principles, rationale, logistics, protocol and the outcome is concerned however, with add-in of its remote examination concepts in COVID-19 pandemic. TiOSCE at the time of its invention was aimed to introduce integrated OSCE in response to traditional OSCE comprising of segmented stations of a composite clinical competency [4]. Choosing an authentic case and organizing it into integrated sub-stations of different clinical attributes with carefully created task and the relevant exhibits and SP using appropriate e-learning tool, it is possible to deliver TiOSCE with option of remote assessment (see figure below). In a sudden COVID-19 crisis the traditional teaching and learning has faced the challenges of curricular implementation [11]. The most important consideration in this situation is the student's safety and well-being in patient centered care [12]. Currently, medical students report feelings of uncertainty and anxiety about financial liabilities and there on time graduation [13]. Teaching faculty has a big responsibility of obviating student's realistic concerns about these uncertainties in their career. However, the fear is that in panic state of emergency one may turn to implement an ill-prepared e-learning and remotely managed assessment, which may not follow the best practices of online instructions [14].

Beyond the assigned role of teaching and assessing research and innovation in COVID-19 crisis has become obligatory for teachers to take an informed decision. Publishing these researches are even more valuable practice to share new ideas with other faculty under immense pressure of safe curricular practice. To re-visit TiOSCE and explore its utility for intended online option has found it practical for the examination of clinical performance in a situation like COVID-19 pandemic. However, a transition from F2F to a remotely assess TiOASCE has a compromise of students assessment of clinical performance from a F2F test of high order thinking (show how) to an online test of comparatively lower order thinking (know how) in clinical performance advocated in Miller's pyramid [15]. Nevertheless, an alternative to buy in and move forward with continuing assessment during the constraints of COVID-19 pandemic is not a big price to pay for salvation.

3. Conclusion

Logistically planned stations using e-learning tools for venue, online trained SP and examiners besides, students' prior training for TiOSCE online is though time consuming but achievable. TiOSCE designed for online delivery provides a readily available approach to assess students' clinical performance achieving at Miller's, "know how" level rather "show how" level of clinical competency scale. However, the TiOSCE with option of remotely assessment during the COVID-19 crisis is a lesson learned from the medical education adaptation that can potentially be experienced in other crisis situation.

One obvious compromise in adaptation of remote assessment using TiOASCE is the shift of students assessment of clinical performance from a F2F test of high order thinking (show how) to an online test of comparatively lower order thinking (know how) in psychomotor skills of clinical performance. Anyways, TiOSCE is an effort to continuing assessment of students' learning experience in medical education in the midst of globally faced unprecedented challenges of COVID-19 crisis and its aftermath towards a new normal.

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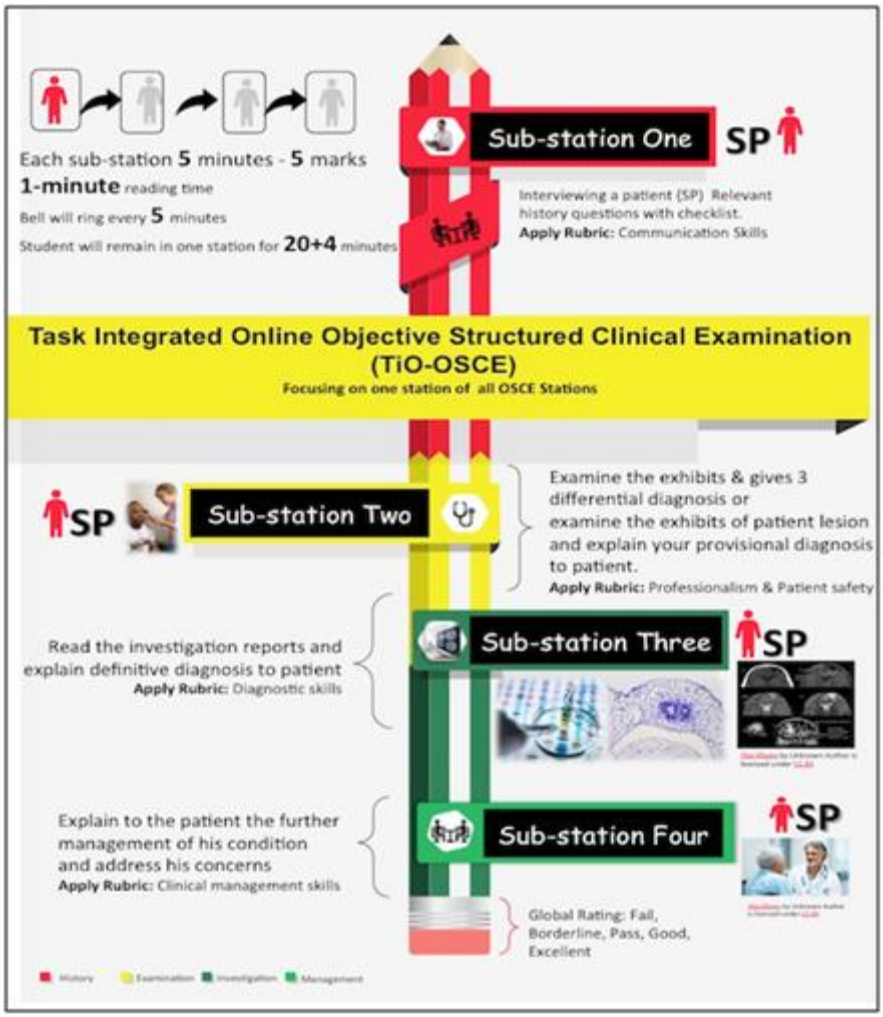

Figure 1: Infographic representation of Task-integrated Online Objective Structured Clinical Examination (TiO-OSCE)

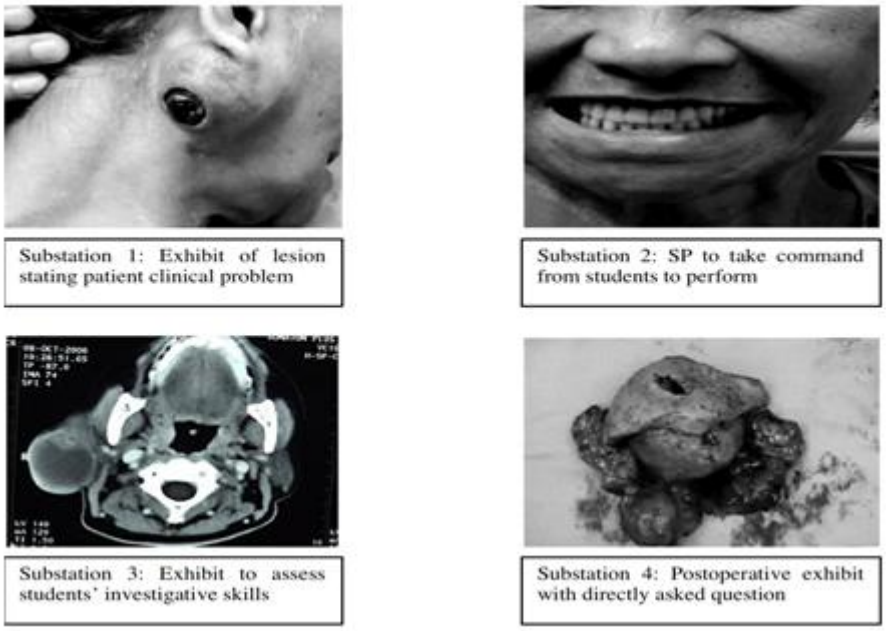

Figure 2: Pictorial representation with exhibits and SP used in 4 sub-stations that can be developed as an online TiO-OSCE (with courtesy from EiMJ editor)