Author's response to reviews

Title: An integrative OSCE methodology for enhancing the traditional OSCE program at Taipei Medical University Hospital-A Feasibility Study

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Author's response to reviews: see over
Cover Letter

Dear Mr. Aldrin Ulep (on behalf of Professor Sam Leinster),

We want to thank you for your review of our manuscript indicated above. We have addressed all the comments for revisions and have modified the manuscript accordingly. We have made extensive changes which we feel have significantly improved the paper. We highlighted all the places where we have made corrections or additions in the revised manuscript.

Below please find the specific queries and responses.

Editorial Comment:

This paper is interesting and has potentially useful data. However, it is not clear from the paper exactly what question the authors were addressing. It appears essentially to be a feasibility study of a new approach to the OSCE. Some confusion arises because of their use of the term Virtual Patient without a clear description of what it entails. They have fallen into the trap of assuming that everyone uses the term in the same way that they do. The reviewers have made further comments that need to be addressed.

We have done a major revision of our paper including the title which is now, An Integrative OSCE Methodology for Enhancing the Traditional OSCE Program at Taipei Medical University Hospital - A Feasibility Study.

The term virtual patient (VP) is used to describe interactive computer simulations that are used in health care education. The VP is used for candidates to work through problems and situations that occur commonly in health care settings. The VP provides a consistent interactive and dynamic approach that promotes clinical reasoning and in-depth exploration of medical content.

We also added an additional author which made substantial contribution to this study (Dr. Gi-Shih Lien).

Addressing the review of Dr. Landes which stated:

I do not understand the abstract: 30 divided into groups of 6 equals five, you have 4(?) groups however examine a SP/VP combination?

Response

Dear Dr. Landes

We want to thank you for your time in reviewing our manuscript and for the suggestions you made to help us improve this paper. We have clarified the part you mention regarding the number of participants and their groups as follows:
Thirty (30) medical students in their first year of internship at Taipei Medical University volunteered to be part in a feasibility study for demonstrating the concept of iOSCE. They formed five groups of six students each and were requested to evaluate two cases: 1) a patient with abdominal pain and 2) a patient with headache using a combination of a standardized patient and a virtual patient.

Do you consider a 5 Station OSCE valid, discuss this?!

We respond with the following statement:

• Station 5 provided feedback to the examinees by a physician tutor in a small group

The debriefing station / session done by a physician tutor at the end of the examination where he / she pinpoints either strengths or weakness of the participants is one of the key aspects in this methodology. However, if the reviewer believes the debriefing part of the iOSCE methodology is more adequate or suitable to be called a session rather than a station we will make this change.

You have no clear comparison SP vs. VP right?

We have made a more clear comparison of the SP and VP.

A standardized patient (SP) is a person simulating the signs and symptoms of disease and capable of providing feedback to the candidate on clinical skills of history-taking, physical examination, and interpersonal relationships. The term virtual patient (VP) is used to describe interactive computer simulations that are used in health care education. The VP is used for candidates to work through problems and situations that occur commonly in health care settings. The VP provides a consistent interactive and dynamic approach that promotes clinical reasoning and in-depth exploration of medical content. (Added in Methods page 6, 1st paragraph)

How do you address OSCE aims at being realistic and according to the author's statement "clearer presentation" may be the fruit of a more artificial patient presentation in VP?

We have edited the statement you suggested by adding additional references and by making a more clear explanation as follows:

(Bottom of page 3) The OSCE has been used in evaluating clinical competence in health professions education around the world since Harden and Gleeson first described the concept in 1979.12-14 A Consensus Conference of the Association of American Medical Colleges (AAMC) in 1993 laid the groundwork for SP development in medical school education for teaching and assessing clinical skills.15 (Beginning of page 4) At Taipei Medical University, we use SPs and VPs to create a new way of teaching and assessing the skills of medical students. Unlike the traditional OSCE where 10 - 12 stations are used, each having a different scenario or mission, iOSCE has five stations but only one scenario or mission. The benefit of this procedure is for students to go through a more detailed and comprehensive problem solving. Students can also
choose any information in the process without any given hints as opposed to OSCE where they have only paper available (e.g. x-rays chosen but no x-rays are available).

(Bottom of page 9 and top of page 10) Participants expressed that the iOSCE experience at Taipei Medical University was better than the OSCE previously conducted in that it clarified what was to be assessed as well as allowing the participant to demonstrate his/her diagnostic reasoning better writing a simple patient note. The candidate was now able to show how he/she could integrate the information obtained from the SP with the proper diagnostic blood and imagine studies from the VP to develop a realistic differential diagnosis and plan.

OSCE stations are generally weighted according to student performance and when a certain station is highly inconsistent in results this station's results are not included into the final result.

We respond: Since this study is only a feasibility study, we will reflect on this consideration in future studies after features and characteristics of iOSCE are further improved and subjected to further refining.

Discuss the cost benefit in VP.

The benefit may be in that there is no hint for the student in iOSCE. For example, if the student didn't select the lab question or exam image as he/she would normally do in OSCE can't get information. By combining the data from the VP and the SP, this approach gives students the opportunity to experience the emotions of a real patient, the ability to interact and interview a live patient and at the same time the examinee can decide on a workup and establish a differential diagnosis. This may improve both the method of assessing trainees and the venue for students to reflect and learn from their assessment.

A disorganized manuscript, lacks a clear objective formulation in the introduction, in the "Methods" you write students "had two hours per day for each station" there may be several translation mistakes (?) discussion lacks a clear comparison to existent literature. Discuss whether the iOSCE does not give away many benefits of the OSCE as a live simulation patients.

We provided a clearer objective in the introduction / background:

(Page 4 second paragraph) At Taipei Medical University, we use SPs and VPs to create a new way of teaching and assessing the skills of medical students. Unlike the traditional OSCE where 10-12 stations are used, each having a different scenario or mission, iOSCE has five stations utilizing only one scenario or mission. The benefit of this procedure is for students to go through a more detailed and comprehensive problem solving. Students can also choose any information in the process without any given hints as opposed to OSCE where they have only paper available (e.g. x-rays chosen but no x-rays are available).

(Page 5, 2nd paragraph) The use of the VP in an OSCE-based exam has been piloted elsewhere with success. Following such principles, this study aimed at enabling candidates to show
how he/she could integrate the information obtained from the SP with the proper diagnostic blood and imagine studies obtained from the VP in order to develop a realistic differential diagnosis and plan. Thus, the current feasibility study aims to improve the students' clinical skills as well as their perceptions of the OSCE stations' effectiveness in evaluating competencies without substantial investments in cost and training time for faculty and students.

(Abstract / Methods section) Two cases were used in our feasibility study: 1) abdominal pain and 2) headache. For each of the two cases, five (5) stations were designed in which students were given 10 ten minutes per station leading to a final diagnosis and concluded with a debriefing. The five stations were:

Station 1) Interacting with the standardized patient
Station 2) Writing the patient note and developing a differential diagnosis
Station 3) Selecting appropriate laboratory and imaging studies
Station 4) Making a final diagnosis and stating the evidence for it
Station 5) Having the debriefing

Each group of 6 students was assigned 2 hours per day for each case.

Comparing iOSCE to other existing literature:

We list this as the limitation of this study. Our iOSCE was a feasibility study, and we were not concerned about its validity to accurately identify individuals with deficiencies. Certainly if we were, more stations would be necessary. The USMLE Step 2CS Examination evaluates the candidate on 11 scored SP stations (each 15 minutes with the SP, and then 10 minutes for writing a Patient Note), but that is a very high stakes assessment; our study iOSCE was not. Most academic institutions which use OSCEs as a summative assessment use 8-10 SP stations of 10-15 minutes in length. We feel that it may be more useful to describe certain strengths and benefits of our approach based on the students’ evaluations. However, we plan to do more comparisons in future studies where we expect to increase the number of participants and the number of cases given to them.

Addressing the review of Dr. Consorti which stated:

The research question is not clearly posed. The Authors state “the current study aims to improve the way to assess examinees and focuses on their perceptions of the OSCE stations' effectiveness in evaluating competencies without substantial investments in training faculty and students”.
study cannot demonstrate that this method of assessment is better than another one, but only that it is feasible and that students are satisfied with. The aim to improve the way to assess is probably an overall strategy, in which the study is framed.

Dear Dr. Consorti

Thank you for your time in reviewing our manuscript and for the suggestions you have made in order for us to improve our paper.

We have made the correction and addition as follows: (Page 5 last sentence before methods section) Thus, the current feasibility study aims to improve the students’ clinical skills as well as their perceptions of the OSCE stations' effectiveness in evaluating competencies without substantial investments in cost and training time for faculty and students.

(Page 9, last paragraph / Discussion) Although the type and clarity of instructions and level of complexity of tasks varied from one station to the next, the iOSCE methodology received very satisfactory comments from all participants. Participants expressed that the iOSCE experience at Taipei Medical University was better than the OSCE previously conducted in that it clarified what was to be assessed as well as allowing the participant to demonstrate his/her diagnostic reasoning better writing a simple patient note. The candidate was now able to show how he/she could integrate the information obtained from the SP with the proper diagnostic blood and imagine studies from the VP to develop a realistic differential diagnosis and plan.

2. Framework

2.1 Despite the statement “iOSCE is a methodology which combines the currently used OSCE at hospitals around the world with an integrated, informative, investigative and innovative approach by using both virtual and standardized patients”, the idea of integrating virtual patients into an OSCE setting is not new. A simple PubMed query with “OSCE AND virtual patient” will give the Authors some terms of reference, but there are many more papers dealing with the comparison between standardized and virtual patients.

We have corrected the above statement and added the following: The use of the VP in an OSCE-based exam has been piloted elsewhere with success\textsuperscript{25-27}. The iOSCE program is used to develop a scenario (e.g., abdominal pain, back pain, headache) using an SP and creating the dialogue between the trainee and SP from the Virtual Patient System (DxR)\textsuperscript{©} data.

2.2 The authors should give some details of the way assessment is currently performed, with a special regard to the way OSCE and virtual patients are used at their University.

iOSCE is a new methodology at Taipei Medical University which combines the currently used OSCE methodology with an integrated, informative, investigative and innovative approach by using both virtual and standardized patients.
(Page 7 Materials and procedures) To achieve a comprehensive and formative assessment of our students' clinical competencies, this assessment model is designed as a short OSCE (using one specific scenario for a series of test sessions) that contains five integrated components set up at different stations (Figure 1)

2.3 The authors should put their research in the more general theoretical framework of assessment. I suggest a careful consideration of the concept of “assessment for learning” van der Vleuten proposed. iOSCE could be a particular instance of that model, which calls for repeated, multimodal acts of assessment.

The reviewer is right; the iOSCE methodology could be a multimodal act of assessment but in the same time a learning opportunity for the participant. The participants expressed that iOSCE clarified what was to be assessed as well as allowing the them to demonstrate his/her diagnostic reasoning better writing a simple patient note. The candidate was now able to show how he/she could integrate the information obtained from the SP with the proper diagnostic blood and imagine studies from the VP to develop a realistic differential diagnosis and plan.

2.4 Why do the authors compare iOSCE with SCT, which is a written test? What about mini-CEX instead?

2.4 We do not compare the iOSCE with SCT but instead explain the purpose of the mini-CEX on the bottom of page 4.

Another technique for assessing clinical skills is the mini-CEX. This is a direct observation tool for assessing medical interviewing skills, physical examination skills, humanistic qualities, professionalism, clinical judgment, counseling, organization, efficiency, and overall clinical competence. It is a 10-20 minute direct observation assessment or “snapshot” of a trainee-patient interaction. The faculty is encouraged to perform at least one per clinical rotation. To be most useful, faculty should provide timely and specific feedback to the trainee after each assessment of a trainee-patient encounter. The mini-CEX is a valuable tool, but is extremely faculty intensive.

Please do not hesitate to contact me should you have any further questions.

Thank you again for allowing us the opportunity to revise the manuscript.

Sincerely,

Jack Li, MD, PhD

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