

PERCEPTION OF FINAL YEAR MEDICAL STUDENTS ABOUT CASE SCENARIO BASED SUMMATIVE ASSESSMENT

1. Dr. Priya Jose, MD Paediatrics Associate professor
2. Dr. Nishanth Rajan, MD Paediatrics Associate professor
3. Dr. Rohit Bhowmick, MD Paediatrics, Assistant Professor
4. Dr. Peter Prasanth Kumar Kommu, MD Paediatrics, Professor
5. Dr. Lalitha Krishnan, MD Paediatrics, Professor

Department of Paediatrics, Pondicherry Institute of Medical Sciences, Puducherry

Corresponding author:

Dr. Priya Jose

MD paediatrics Associate Professor Pondicherry Institute of Medical Sciences Pondicherry – 605014

drjose.priya@gmail.com

ABSTRACT

Purpose: Traditionally all final year medical student summative assessments have been conducted with real patients. COVID 19 pandemic has led to closing of all medical schools. Online case-based learning continued. As exams are getting postponed indefinitely, case scenario based summative assessment was conducted. **Methods:** All final year undergraduate medical students who appeared for the university summative assessment practical examination of Paediatrics conducted during the pandemic were eligible. Validated and pre piloted questionnaire was sent through Google forms and the perspectives were studied. The perspectives of the students were studied in three domains namely pattern of examination (case scenario based), preparedness by online classes and the actual conduct of the exam. The responses were asked 'Yes' 'can't say' or 'no' questions. The data collected was converted into Microsoft excel format from Google form.

Results: 103 students gave consent and filled the questionnaire through google forms. Around 3/4th of the students agreed that online clinical classes have helped them in summative assessment. Around half of them had no difficulty in the performance because of COVID restrictions. . More than half were happy with the case scenario-based assessment and didn't feel exam with actual patients would be better. 21.4% commented the truth that history taking is a skill which couldn't be assessed with case scenarios and hence the traditional way of eliciting history and intervention with patients was not assessed. **Conclusion:** well written case based scenarios that can simulate real patients can be an alternative for real cases in emergency conditions and restriction during pandemics.

Key words: case scenario, summative assessment, Pandemic, google forms, perceptive

Introduction

Traditionally all final year medical student summative assessments have been conducted with real patients. In the year 2020 and 2021 unexpected COVID 19 pandemic has led to closing down of all medical schools. Considering the importance of continuing their medical education, online teaching was started. Theory and clinical topics were covered online in various ways possible using mannequins & virtual simulation. Both medical students and faculty had difficulties to begin with and slowly got accustomed with the new method of teaching. Multiple online meeting applications with different innovative facilities (zoom, google meet, MOODLE etc) were used. Case based learning (CBL) has gained interest for the last few years.[1-3] Medical education has changed the mode of teaching with a priority to CBL as it links theory to practice[4], it improves clinical reasoning skills. [5] Pandemic has made everyone to get accustomed in a very fast pace. Internal assessments, assessments at the end of clinical posting were conducted online using CBL. Final year clinical summative assessment of exams traditionally was conducted face to face with clinical case presentations which involved interaction with patients. Due to ongoing COVID 19 pandemics and the need to protect patients as well as students or examiners became important. Also the exams could not be postponed indefinitely. Hence National medical commission allowed universities to conduct clinical summative assessment without actual patient interaction by using case-based scenarios

and manikins. Medical schools developed their own case-based scenarios and conducted the clinical summative assessments. To our knowledge in the history of medical education in India, this is the first-time case-based scenarios were used for summative assessment. Hence, we proposed to study the perspectives of the medical students and the difficulties they faced during examination.

Methodology

After obtaining Institutional ethics committee approval (IEC: RC/2021/25) a descriptive study was done in a tertiary care teaching medical college hospital, Puducherry, south India. All final year undergraduate medical students who appeared for the university summative assessment practical examination of Paediatrics conducted during the pandemic (April 2021) were eligible for the study. All the 159 final year medical students were informed about the study through WhatsApp and consent obtained through google form. Validated and pre piloted questionnaire was sent through Google forms and the perspectives were studied. The perspectives of the students were studied in three domains namely pattern of examination (case scenario based), preparedness by online classes and the actual conduct of the exam. The responses were asked 'Yes' 'can't say' or 'no' questions. The data collected was converted into Microsoft excel format from Google form. Descriptive statistics like frequency and percentage were used for qualitative variables. Mean and standard deviation were used for quantitative variables. Independent t test was used to find

the significance. p value of <0.05 was considered as statistically significant.

RESULTS

Of the 159 students who appeared for the university case scenario based summative assessment (CSBSA) examination in April 2021, 103 students gave consent and filled the questionnaire through google forms. The female:male ratio is 1.3:1.

The perception about the preparedness for examination, about the actual content of examination and the pattern of examination were summarized in Table I, II & III respectively.

70.8% strongly agreed that online clinical classes have helped them in CSBSA. 53.4% agreed that online theory classes have helped them.

52.4% faced difficulty in having refreshments due to COVID restrictions (N95 face masks and face shields) in between the assessment. 35.9% faced hinderance in their performance for the assessment because of wearing gloves, face masks and face shields. However, 54.4% students revealed there was no difficulty in the performance because of COVID restrictions.

43.7% were neutral about the impact of lack of real patients on overall performance. It was not difficult to demonstrate clinical signs in the mannequin for 42.7% students. 53(51.5%) were happy with the case scenario-based assessment and didn't feel exam with actual patients would be better. 38(37.6%) were able to appreciate the actual feel of examination without real patients. 73 (70.8%) felt the case scenarios were well written and 42(40.8%) students

felt that the variety of cases would not have been more if real patients were there.

50.5% felt the scenarios could simulate an actual case presentation. 80.5% agreed that examiners did their best to conduct the examination with case scenarios. Around 40% of the students rated 3/5 for the examiner- student rapport with existing covid protocols.

21.4% commented the truth that history taking is a skill which couldn't be assessed with case scenarios and hence the traditional way of eliciting history and intervention with patients was not assessed.

Discussion:

Final year case scenario based summative assessment was done during the covid pandemic. This study describes the perspectives of students.

Ansar et al has done a study from Pakistan among medical engineering and biomedical students revealed that the students were not satisfied with the online teaching and hence recommended to have improvisation if continuing the same.[6]

A study among pharmacists in China by Jiang et al comparing the result of examination during pandemic with the previous year in china revealed that the results are not worse than the previous year.[7]

A study done by Rossettini et al about Online teaching among physiotherapists in Italy satisfies the students during pandemic and had a similar performance compared with other years.[8]

Simulation based classes are gaining priority to enrich online teaching. Innovative methods can be used for the learning process.[9] Though the teaching process is

in the traditional way, the pandemic has forced us to do that and around 40% agreed online simulation classes has helped them in examination. Stanley et al also described that there is no replacement for clinical bedside classes.[10]

In a study done by Malhotra et al online orthopaedics exit exam and the students were satisfied with that. The covid protocols of gloves, face masks and shields, social distancing etc did not hinder much of the student's abilities, which was similar to our study.[11] Chauchan et al conducted with scenario, mannequin and models and the students for Plastic surgery Mch examination were reported to be satisfactory.[12] Quality of assessment through hybrid way was appreciable among pathology postgraduates and they recommended that a similar mode of examination can be applied under similar emergency which was similar to our study.[13]

Nasir et al from AIIMS Rishikesh conducted post graduate Exit exam in paediatrics with spotters and clinical cases, but the external examiners were online. They concluded saying it is one of the best ways to elicit the clinical skills.[14] But we had case scenarios instead of patients, but viva voice was face to face with examiners.

Pre examination meeting for briefing the pattern with students enhanced the acceptability of these type of assessment. Mock assessments would have given further improvement in conducting the summative assessment.

Conclusion:

It is always good to conduct clinical summative assessment face to face with real patients. But during emergency situations and restriction due to covid pandemic, well written case based scenarios that can simulate real patients can be an alternative.

References

1. Abraham RJ. Effectiveness of case scenario-based learning over didactic lectures on teaching pediatric infectious diseases to undergraduate medical students. *Ind J Contem Paed.* 2019
2. Grauer GF, Forrester SD, Shuman C, Sanderson MW. Comparison of student performance after lecture-based and case-based/problem-based teaching in a large group. *J Vet Med Educ.* 2008;35(2):310–7.
3. Thistlethwaite JE, Davies D, Ekeocha S, Kidd JM, MacDougall C, Matthews P, et al. The effectiveness of case-based learning in health professional education. A BEME systematic review: BEME guide no. 23. *Med Teach.* 2012;34(6):e421–44.
4. McLean SF. Case-based learning and its application in medical and health-care fields: a review of worldwide literature. *Journal of Medical Education and Curricular Development.* 2016 Jan;3:JMECD-S20377.
5. Burgess, A., Matar, E., Roberts, C. et al. Scaffolding medical student knowledge and skills: team-based learning (TBL) and

- case-based learning (CBL). *BMC Med Educ* 21, 238 (2021).
6. Ansar F, Ali W, Khattak A, Naveed H, Zeb S. Undergraduate students' perception and satisfaction regarding online learning system amidst COVID-19 Pandemic in Pakistan. *J Ayub Med Coll Abbottabad*. 2020 Oct-Dec;32(Suppl 1)(4):S644-S650.
 7. Jiang X, Ning Q. The impact and evaluation of COVID-19 pandemic on the teaching model of medical molecular biology course for undergraduates major in pharmacy. *Biochem Mol Biol Educ*. 2021 May;49(3):346-352.
 8. Rossetini G, Geri T, Turolla A, Viceconti A, Scumà C, Mirandola M, Dell'Isola A, Gianola S, Maselli F, Palese A. Online teaching in physiotherapy education during COVID-19 pandemic in Italy: a retrospective case-control study on students' satisfaction and performance. *BMC Med Educ*. 2021 Aug 30;21(1):456
 9. Campos N, Nogal M, Caliz C, Juan AA. Simulation-based education involving online and on-campus models in different European universities. *International journal of educational technology in higher education*. 2020 Dec;17(1):1-5.
 10. Stanley D, Latimer K. 'The Ward': A simulation game for nursing students. *Nurse Education in Practice*. 2011 Jan 1;11(1):20-5.
 11. Malhotra R, Gautam D, George J, Goyal D, Ansari MT. Conducting orthopaedic practical examination during the Covid-19 pandemic. *J Clin Orthop Trauma*. 2020 Jul;11(Suppl 4):S448-S455.
 12. Chauhan S, Dash S, Ranjan P, Singhal M. Examination in the Time of COVID-19-MCh Plastic Surgery Examination: How Did We Do It? *Indian J Plast Surg*. 2021 Apr;54(2):168-171.
 13. Rao S, Chowdhury N, Naithani M, Singh A, Singh N, Gupta AK, Kathrotia R. Alternative Strategy Adopted in Practical Assessment for Pathology Postgraduate Certification Examination Amidst COVID-19 Nationwide Lockdown: An Indian Experience with a Novel Hybrid Method of Assessment. *Adv Med Educ Pract*. 2021 Jan 8;12:1-9.
 14. Panda PK, Bhat NK, Ravikant. Online MD Pediatrics Exit Examination: A Novel Method of End Curriculum Summative Assessment Amidst the Ongoing COVID-19 Pandemic. *Indian Pediatr*. 2020 Nov 15;57(11):1089.

Sl.No	Questions	Yes	Can't say	No
1	Online Paediatric clinical classes helped me in the performance during the case scenario clinical examination	73(70.8%)	22(21.4%)	8(7.8%)
2	Online Paediatric theory classes helped me in the performance during the case scenario clinical examination.	55(53.4%)	41(39.8%)	7(6.78)
3	Online Paediatric simulation-based classes helped me in the performance during the case scenario clinical examination	42(40.7%)	43(41.8%)	18(17.5%)

Table I: Perspectives about the preparedness for the examination

Table II : Perspectives about the actual content of examination

Sl No	Questions	Yes	Can't say	No
1.	Due to the lack of interaction with actual patients during case based examination, my performance was not good	40(38.8%)	39(37.8%)	24(23.4%)
2.	It was difficult to have refreshments during examination while all the covid precautions were on.	54(52.4%)	23(44.7%)	26(25.2%)
3.	Did the use of gloves, face masks and face shields hinder your actual performance skills?	37 (35.9%)	30 (29.1%)	36 (35%)
4.	Did the emphasis on social distancing hinder your performance?	16(15.5%)	31 (30.1%)	56 (54.4%)

Table III: Perspective about the actual pattern of examination

Sl No	Questions	Yes	Can't say	No
1.	The overall performance (case presentation and viva session) would have been better with real patients	32(31.1%)	45(43.6%)	26(25.3%)
2.	The examiner did their best to conduct the exam with case scenarios and mannequins.	83(80.5%)	19(18.4%)	1(1%)
3.	Was it difficult to perform the clinical signs on mannequins during examination?	30 (29.1%)	29 (28.2%)	44 (42.7%)
4.	Were you able to appreciate the actual feel of exams without the real patients?	38 (37.6%)	27 (26.8%)	36 (35.6 %)
5.	I was more apprehensive because the exam was based on case scenarios and there were no real patients for examination.	22(21.4%)	38 (36.9%)	43 (41.7%)
6.	Do you think the variety of cases would have been more if it were an exam with real patients?	27 (26.2%)	34 (33%)	42 (40.8%)
7.	Would you have preferred to have a proper exam with real patients after the pandemic rather than online examination?	15 (14.6%)	35 (34%)	53 (51..5%)
8.	Were the structured case scenarios well written?	73 (70.9%)	21 (20.4%)	9 (8.7%)
9.	Were the details given in the case scenarios enough to simulate an actual case presentation?	52 (50..5%)	29 (28.2%)	22 (21.4%)
10.	Did the images in the laptop clear enough to identify the clinical spotter?	65 (63.1%)	23 (22.3%)	15 (14.6%)
11.	Do you think OSCE was a better way of assessment than case scenarios?	38 (36.9%)	36 (35%)	29 (28.2%)