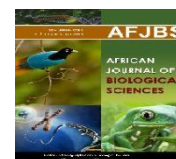


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Standardized patient as an effective tool for Early Clinical Exposure for 1st year MBBS students.

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ABSTRACT

Objectives: This study was aimed to develop a standardized patient as an effective tool for Early Clinical Exposure for 1st year MBBS students.

Methods: It was a prospective Interventional study during 2022 in department of Biochemistry. All the students of 1st MBBS batch 2021 at NSCB Medical College Jabalpur were included in the study. Two standardized patients were developed for Diabetes Mellitus and myocardial infarction each. An early clinical exposure session of three hours was conducted for each topic. In every session students were exposed to Standardized patient. Students were assessed as well as their perception was recorded in a Google feedback form.

Results: There was no significant difference ($p>0.05$) between the formative assessment score of the group which was exposed to real patient and the other group which was exposed to standardized patient for both the ECE sessions.

Conclusions: In comparison to the exposure to real patient the SP exposure was equally effective in terms of their performance in assessment and very useful medium to incorporate clinical reasoning and decision-making skills. They could get the real-life scenario in terms of presentation of the patient. It also helped them to develop communication skill as well as critical thinking towards the probable diagnosis of patient.

Keywords: ECE, Standardized Patient, Curriculum, CBME.

INTRODUCTION

The competency based medical education and early clinical exposure (ECE) forms an important component of new medical curriculum. ECE is a methodology for medical teaching by which the medical students are exposed to either clinical case or real patients in the beginning of their first professional year. ECE is introduced to students so that they can understand the relevance of the topics taught in the basic sciences. [1, 2] Since the pandemic has occurred the times are changing COVID-19 pandemic has led to decrease in student-patient interactions significantly. In this situation the use of standardized patients (SPs) in medical education can provide first and second-year medical students with the opportunity to practice skills that they will use during their clinical years [3,4].

It is very likely that there will be shortage of patients of various disorders in proportion to number of students for providing adequate clinical experiences since the number of UG seats in Indian medical colleges are increasing every year, whereas duration of patient's hospital stay is decreasing owing to rapid diagnosis with better management, day care facilities and apprehension after COVID-19.

SPs are given a set of guidelines to follow for certain responses they are properly trained to follow a script to reproduce a particular problem or symptoms, and provide specific patient centered feedback. All three domains of learning i.e., cognitive, effective, and psychomotor can be delivered and evaluated by exposing students to SPs. There is limited documentation of use of SPs for teaching and assessment of students in India. [4]

With the implementation of CBME curriculum in India, introducing SPs as a tool for ECE for 1st professional year MBBS undergraduates, will be an effective approach for developing the desired competencies in terms of cognition, psychomotor and effective all the three domains under supervision and also saving faculty time.

Considering this background, the study was aimed to develop a standardized patient as a tool for early clinical exposure to assess all the three domains cognitive, psychomotor and effective as well as hidden curriculum like professionalism in 1st year MBBS students.

We planned objectives as follows

1. To sensitize the students and faculty to the concept of standardized patient as one of the medium of Early Clinical Exposure in CBME curriculum
2. To evaluate effectiveness of standardized patient as a tool for ECE in 1st year MBBS students in subject of Biochemistry
3. To compare the outcome of Early Clinical Exposure through a standardized patient to that of a real patient in terms of cognitive, psychomotor, and affective domains in 1st year MBBS students.

MATERIAL AND METHODS

It was a prospective Interventional study conducted in duration of 6 months from March to August during the year 2022.

Study population: students of 1st MBBS batch 2021 at NSCB Medical College Jabalpur

Inclusion criteria: All the girls and boys of 1st MBBS batch 2021 at NSCB Medical College Jabalpur

Exclusion criteria: Those students who were absent on the day of ECE session were excluded.

Data collection: Data collection was done after receiving approval from the IEC and after written consent from the participants. Ethical approval was obtained from the Institutional Ethical Committee. Validation of feedback questionnaire was done by subject expert and MEU member

Plan of Work: We planned two sessions of ECE where we used standardized patient each of 3 hours. All the participants were briefed about the study the topic for session 1 of ECE was Diabetes Mellitus topic for session 2 of ECE was Myocardial Infarction. Two volunteers from staff were enrolled as a standardized patient of Diabetes Mellitus and myocardial infarction each after their consent. The person enrolled as a standardized patient was trained to enact as a patient of their respective clinical case. The detail plan of work is as shown in **Figure.1**.

Data analysis: The data collected was compiled and analyzed using appropriate statistical methods. The comparison of formative assessment score between two groups (Group I- exposed to SP Group II – Exposed to real patient and vice versa) for both the ECE sessions were analyzed by unpaired 't' test using Mean, SD and p value <0.05 was considered to be significant. Feedback

questionnaire to evaluate student's perception through closed ended questions using 5 point Likert scale was quantitatively analyzed using percentage and average score.[5] Whereas feedback questionnaire to evaluate students perception through open ended questions was qualitatively analyzed using themes and categories

RESULTS:

All the students belonged to 1st professional year of MBBS at NSCB Medical College, their age group was from 17 to 22 years. Out of these 54% were female and 46% were male students. There were total 180 number of students in the batch out of which 138 (male - 45%; female- 55%) students were present for session 1 ECE and 142 (male - 40%; female- 60%) students were present for session 2 ECE.

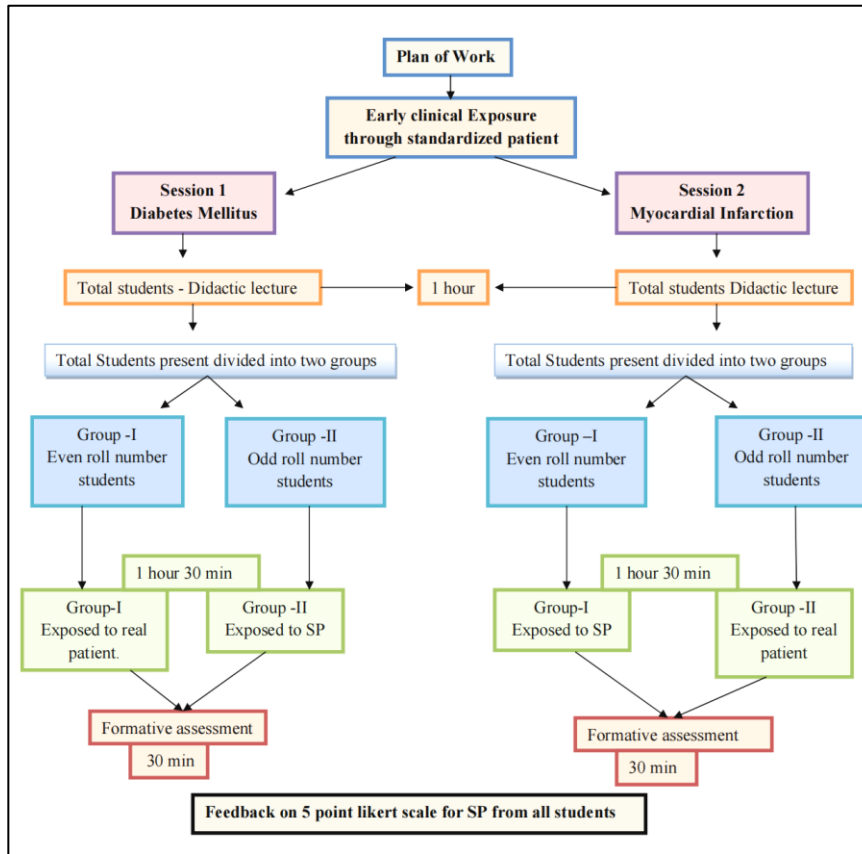
ECE Session 1- Diabetes Mellitus: Group I (exposed to real patient) and group II (exposed to standardized patient)

ECE Session 2- Myocardial Infarction: Group I(exposed to standardized patient) and group II(exposed to real patient)

As shown in **Table 1** there was no significant difference ($p>0.05$) between the formative assessment score of the group which was exposed to real patient and the other group which was exposed to standardized patient for both the ECE sessions. As shown in **Table 2 and Figure 2**: 45.3% students strongly agreed that such session will help them improve their knowledge whereas 51.8% agreed to it. 40.9% strongly agreed whereas 53.3% students agreed that ECE session with SP was helpful to improve their critical thinking. 51.1% students strongly felt and 45.3 % agreed that such exposure to the clinical case through ECE session with SP will make them understand the importance of what they are learning in the theory lectures. 33.6% strongly agreed whereas 58.4% agreed that such ECE session with SP could help them understand the various lab investigations done in the hospital lab for particular disorder. 42.3% students strongly felt that these sessions motivated them to read further on these topics as a result of participating in this ECE with SP whereas 49.6% students agreed to it. 43.8% strongly felt and 49.6% students agreed that this session of ECE with SP help them to retain the content of Biochemistry better, rather than memorizing the facts. 44.5% students strongly felt that such ECE session with SP will be able to integrate their clinical knowledge with communication skills also 51.1% students agreed to this. 30.7% students strongly agreed whereas 59.9% students agreed that such ECE sessions with SP can help them to improve performance in the assessment.44.5% students strongly agreed and 46.7% students agreed that such ECE sessions where exposure to standardized patient is given should be held more frequently.

As shown in **Figure 3**: Inthe feedback questionnaire open ended questions were asked to the studentsfor examplewhich component of the ECE sessionthey liked the most in answers to which majority of the students i.e. 78% said that the interactive session with the standardized patient they liked the most where they could understand the chief complaints and correlate the history with the lab reports and then reach to the probable diagnosis.In **Figure 4**: About the overall experience of ECE session through SP for which they had different answers for example some of the students 25% said it was a great experience whereas 26% said it was excellent feeling 18%

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students felt it was a learning experience whereas 15% felt it interesting and informative session students felt it was well organized and executed whereas felt that it could be better in terms audio-visual instruments as those sitting at the back couldn't hear properly. Few of the students suggested organizing it in small groups so that will get better exposure individually. And

almost all the students wanted such ECE sessions with real patient or SP to be organized more frequently.

Figure 1. Plan of work**Table 1: Comparison of result of formative assessment between two groups (I and II) for ECE sessions 1 and 2.**

ECE Session 1 formative assessment score (out of 30 marks) (mean \pm SD)	Group I (Even roll numbers exposed to real patient)	Group II (Odd roll numbers exposed to SP)	P –value
	26.44 (3.9)	27.04(3.5)	0.127
ECE Session 2 formative assessment score (out of 30 marks) (mean \pm SD)	Group I (Even roll numbers exposed to SP)	Group II (Odd roll numbers Exposed to real patient)	
	26.69 (3.1)	27.31 (3.7)	0.058

Table 2: Student's perception regarding ECE sessions with Standardized patient:

Sr No	Item	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1.	Do you think this ECE session with SP will help in improving your knowledge of the basic subject?	45.3%	51.8%	2.2%	0%	0.7%
2.	Do you feel this ECE session with SP was helpful to improve your critical thinking?	40.9%	53.3%	4.4%	0.7%	0.7%
3.	Do you feel such exposure to the clinical case through ECE session with SP will make you	51.1%	45.3%	2.9	0%	0.7%

	understand the importance of what you are learning in the lectures?					
4.	Do you feel this ECE session with SP could make learning basic science subjects more interesting?	40.9%	50.4%	7.3%	0.7%	0.7%
5.	Do you think this ECE session with SP could help you understand the various lab investigations done in the hospital lab for particular disorder?	33.6%	58.4%	4.4%	2.2%	1.5%
6.	Are you motivated to read further on this topic as a result of participating in this ECE with SP?	42.3%	49.6%	6.6%	0.7%	0.7%
7.	Will this session of ECE with SP help you to retain the content of Biochemistry better, rather than memorizing the facts?	43.8%	49.6%	5.8%	0%	0.7%
8.	Do you feel such ECE session with SP will be able to integrate your clinical knowledge with communication skills?	44.5%	51.1%	3.6%	0%	0.7%
9.	Do you feel this ECE session with SP can help you to improve performance in the assessment?	30.7%	59.9%	8%	0.7%	0.7%
10.	Would you like such ECE sessions where exposure to standardized patient is given to be held more frequently?	44.5%	46.7%	5.8%	1.5%	1.5%

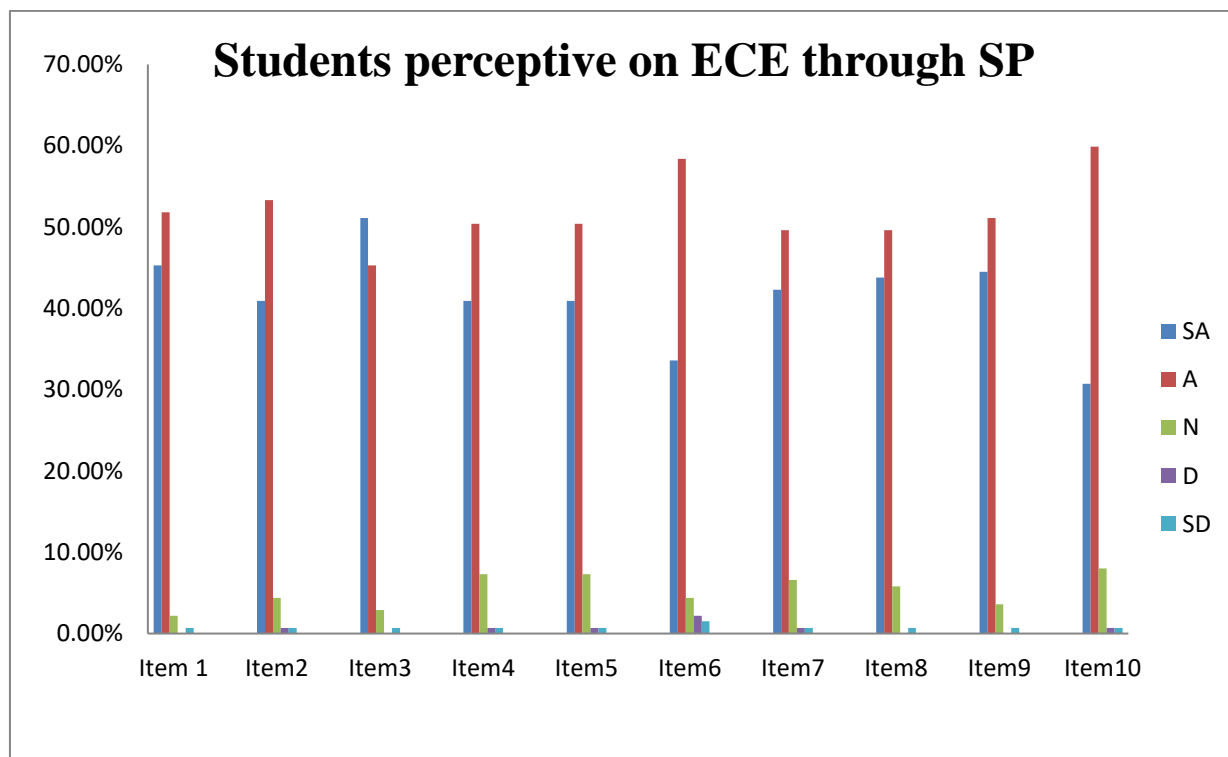


Figure 2: Item title given in table 2 (SA- Strongly agree; A-Agree; N- Neutral; D-Disagree; SD- Strongly disagree)

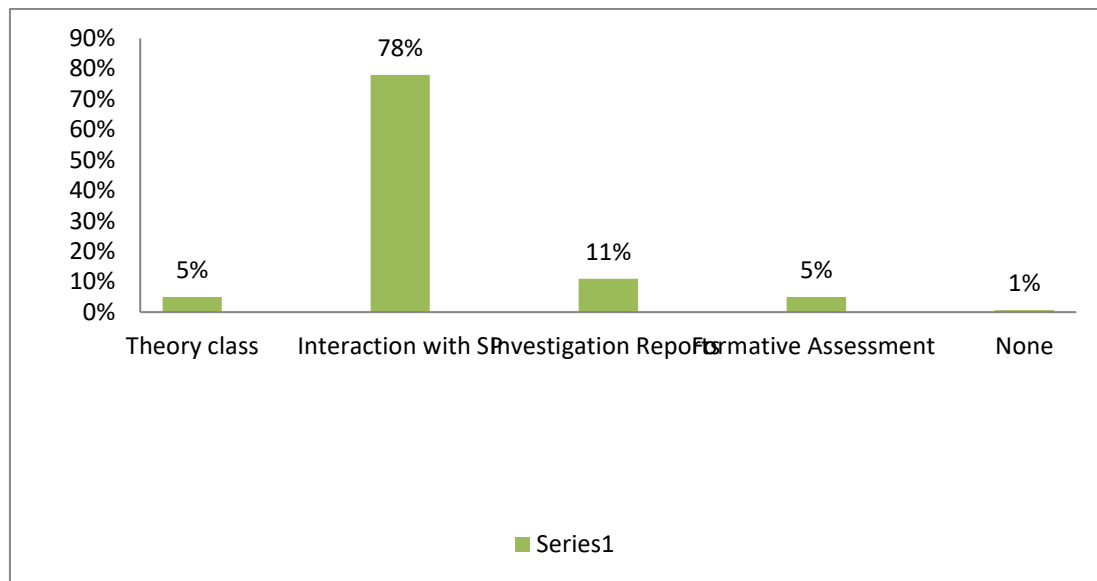


Figure 3: Students perception on which component of ECE session they liked the most.

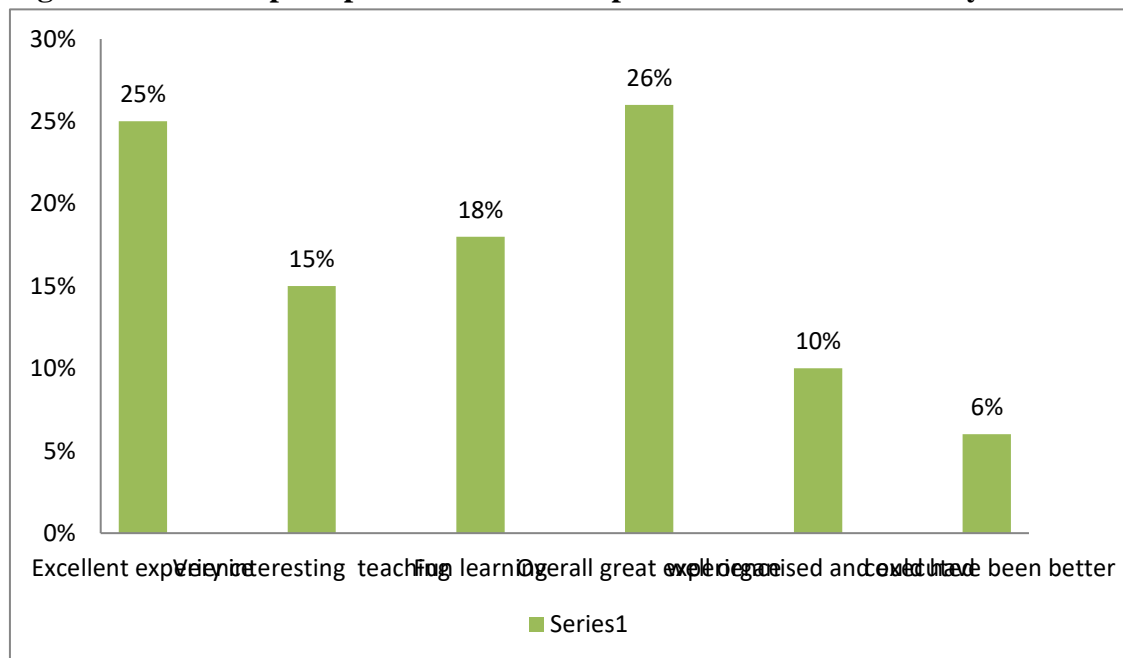


Figure 4: students perceptiveness on overall experience of ECE through SP

DISCUSSION: Our study focused on the ECE through standardized patient to MBBS phase 1 students' as a tool to initiate learning based on real clinical scenario especially to understand the clinical investigation part of biochemistry. Also to indulge doctor-patient communication, empathy and professionalism. Sessions of Early clinical exposure were planned before lectures which would enable the students to focus and understand better in lecture classes. Once students get exposed to relevant cases in real as a standardized patient and observe their lab reports in

person and try to interact with the patient, ask relevant history and try to develop their own diagnosis based on history and lab reports, it will create interest among students to understand better, as students will be able to connect theory part taught in lectures to real-life situations. Accordingly, our students felt that the ECE module with Standardized patient was equally informative as real patient even they felt the standardized patient was less annoyed and more responsive towards the questions asked by students as compared to real patient. They also felt that they could develop proper concept of diagnosis based on symptoms and lab reports from standardized patient and they could learn the basis of history taking as well as they could learn how to interact with patient in their own language. They could correlate well what was taught in theory classes regarding clinical presentation of the patient and their lab findings so they could understand the biochemistry part behind the clinical presentation of patient's condition. It definitely helped them to develop patient centric approach while studying basic subject. They developed interest in the subject also could actively participate in learning process moreover tried to be an independent learner. Students were able to understand the concept of basic science in relation to the clinical scenario so they felt that the lectures has become much more interesting than before which reflected in their assessments and group discussions. Use of SP is very new concept to the Indian medical students as well as faculty but its impact on students was very positive and productive.

As **Moss H et al** has given the ethical guidelines of for SP that SPs require training in the specific areas of role portrayal, feedback, and use of assessment instruments. They should be properly trained to enact a particular disease [7]. **Dinah Wisenberg Brin** has published an article stating use of SP centers set up to replicate operating and exams rooms in US Medical schools. Where students also carry out complex training scenarios on-site at hospitals, where students can experience a mock code blue—sometimes using realistic, high-fidelity patient mannequins and engaging with SPs who play grieving loved ones. In addition, SPs are frequently used in concert with technical simulators to enhance the learner experience and facilitate patient safety[8]. In India **Kapoor A. et al in his study suggested that** introducing SPs for training medical students, especially undergraduates, will be an effective approach for developing the desired competencies under supervision and also saving faculty time[3]. In another study by **Ravi Shankar P. et al** obtained Student feedback regarding SP in medical subject learning which was very positive and students were of the opinion that SPs provided them with an opportunity to interact with patients and obtain early clinical exposure [9]. Another study conducted by **Baylor C. et al** to assess the extent to which standardized patients who do not have communication disorders portrayed individuals with either aphasia or dysarthria in an authentic, believable manner the results suggested that the stakeholders who rated the standardized patients found them to be believable, but there were several areas in which improvements were recommended[10]. In another study **Kathryn L. Lovell et al** Performance-based assessments of medical students using standardized patients (SPs) have been conducted in a variety of formats during both preclinical and clinical years at Michigan State University College of Human Medicine where they used students as SP using students as SPs which resulted in an excellent cost-effective approach for performance-

based assessments used as formative evaluation[11]. All these studies suggest that the use of standardized patient can be an excellent option to the real patient for the teaching and learning process of medical subject which can overcome maximum hurdles that students face due to lack of number of patient available in hospital wards and increasing number of medical students each passing year as well as the pandemic situations which may be faced by community that will lead to inability of medical students to see or experience real clinical scenarios.

LIMITATION

As the number of students are more (Total-180) the ECE should have been conducted in small groups which would have given better exposure of standardized patient or real patient to each student but due to limited time and faculty it was difficult, also we could cover only two topics, more such clinical topics should be taught using real or standardized patient.

CONCLUSION

A major reason for us to introduce SPs for clinical teaching is the significant decrease in student-patient interactions due to COVID19 pandemic and considering the world after pandemic where we have to supplement better teaching learning method especially for clinical exposure in the 'new normal' phase. In our study the students and faculty were sensitized to the concept of standardized patient as one of the medium of Early Clinical Exposure in CBME curriculum. It resulted into an effective tool of ECE for teaching basic clinical subject in first year MBBS.

In comparison to the exposure to real patient the SP exposure was equally effective in terms of their performance in assessment and very useful medium to incorporate clinical reasoning and decision making skills. They could get the real life scenario that how patient will present to them it also helped them to develop communication skill as well as critical thinking towards the probable diagnosis of patient. In this way they could achieve all three domains i.e. cognitive, psychomotor and effective. Once the SP is trained in future also students can practice history-taking, clinical examination and counseling skills repeatedly with SPs that is the advantage of SP. Moreover by using SPs in place of real patients, real patients' safety and privacy are maintained and risk of legal issues can be avoided.

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REFERENCES:

1. Kumar S. Early clinical exposure as perceived by 1st year MBBS students during online sessions - A necessity in Covid era. *J Educ Technol Health Sci* 2020;7(3):101-105.
2. Das P, Biswas S, Singh R, Mukherjee S, Ghoshal S, Pramanik D. Effectiveness of early clinical exposure in learning respiratory physiology among the newly entrant MBBS students. *J Adv Med Educ Prof.* 2017;5(1):6-10.

3. Kapoor A. Kapoor A. and Badyal DK Simulated Patients for Competency-Based Undergraduate Medical Education Post COVID-19: A New Normal in India *J Indian Pediatrics* 2021;58:881-887.
4. Saxena P VarghesV Hilal H Al-Jaberi N Almabrouk T and Coey J Roles of standardized patients (SPs) in medical education: Students. reflection *Eur J Anat*;2021 25 (1): 103-108
5. Patil VS, Patil VP, Kanabur DR, *et al.* Effectiveness of Early Clinical Exposure as a Motivational Tool to Improve Students' Learning in MBBS Phase 1. *Indian J Med Biochem* 2021;25(2):51–59.
6. Moss H, Weil J and Mukherji P Set Up and Execution of an Effective Standardized Patient Program in Medical Simulation StatPearls Publishing; 2022 book.
7. Tapadar S, Dr. Das P, Sau A.K. A Study on Early Clinical Exposure trial on the 1st year students in a Medical College in Kolkata – Students' Perspective *IOSR-JDMS* 2019;18(5):39-44.
8. Dinah Wisenberg Brin, Standardized Patients Teach Skills and Empathyassociation of American medical colleges 2017:1-5.
9. Ravi Shankar P and Dwivedi N R, Role of Standardized Patients in Teaching Medical Students *Journal of Clinical and Diagnostic Research*. 2016, 10(6): 01-05.
10. Baylor C, Burns M I, Struijk J Herron L Mach H,a and Yorkston K Assessing the Believability of Standardized Patients Trained to Portray Communication Disorders *American Journal of Speech-Language Pathology* 2017 26 :791–805.
11. Kathryn L. Lovell, Brian E. Mavis, Jane L. Turner, Karen S. Ogle & Marilee Griffith Medical Students As Standardized Patients In A Second-Year Performance-BasedAssessment Experience, *Medical Education Online*,1998 3:1, 4301,1-6.