ORIGINAL ARTICLE

Transforming Medical Assessment: Virtual OSCEs in Community Medicine - Medical Students' Standpoints"

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ABSTRACT

Background: Virtual OSCE sessions offer significant utility as an educational tool by enhancing accessibility standardization, immediate feedback, and technology integration. **Aim & Objective:** To study the utility of a Virtual OSCE assessment method and to determine the students' standpoints and attitude of this approach in comparison to the traditional structured viva method. **Settings and Design:** A cross-sectional study was conducted among 150 first-year medical undergraduates at a medical institute. **Methods and Material:** OSCE stations assessed blood pressure and nutritional Anaemia. Students were sensitized in small groups via a virtual platform. Clinical skills station was evaluated virtually, while other stations were assessed physically. A structured, self-administered validated questionnaire with close and open-ended responses were used to analyze students' standpoints on the virtual OSCE. **Statistical analysis:** The Shapiro–Wilk test of normality, Wilcoxon–Mann–Whitney test, and the Phi or mean square contingency coefficient were applied. **Results:** Out of 150 students, 133 participated in the assessment. Among them, 82.4% found virtual OSCE teaching engaging, 80.4% found it interactive, and 87.6% felt it enhanced their interrogation and interpersonal skills. Most students not only appreciated the virtual OSCE for being interesting, innovative, and less time-consuming but also found it to be an effective tool for reducing their fear of facing teachers through immediate feedback. However, a few still preferred the traditional viva method for in-person contact. **Conclusions:** Virtual OSCEs are a feasible, engaging, and interactive alternative to in-person assessments, enhancing confidence, history-taking, and communication skills.

KEYWORDS

Assessment; Domains; Objective Structured Clinical Examination; Virtual

INTRODUCTION

During the COVID-19 pandemic wave, which hit India in early 2019, educational institutions were forced to adopt an online method of teaching and learning.(1) Medical schools were also not exempted from the same and were forced to engage the students using the same teaching method, considering the impact of the pandemic.(2) The pandemic greatly hindered the capacity to organize and conduct teaching. Many aspects of medical academic engagements had to transition to digital learning tools, minimizing social contacts.(1,2) Online learning platforms were utilized for teaching and student assessment.(3,4) To maintain the integrity of those pursuing training during medical graduation, the students must be assessed in all learning domains. As defined by Harden, The Objective Structured Clinical Examination (OSCE) is a method for determining

clinical proficiency where various components are systematically evaluated in a structured manner, focusing on maintaining objectivity.(3) The OSCE objectively evaluates the case-based scientific knowledge and functional ability gained throughout the medical curriculum.(4) Combining multiple observations (stations) and standardizing content and difficulty across the board for students have made OSCE a popular evaluation tool.(5) It has been extensively studied and established as a good assessment instrument in every medical discipline with excellent psychometric properties.(6,7) The validity and reliability of the assessment process are relatively higher with the use of OSCE compared to the traditional unstructured assessment methods. The learner using this method always has sufficient time and scope to demonstrate his ability or inability and get assessed thoroughly.(8) According to Norcini j. et al.; virtual OSCE assessment offers the advantage of accessibility and convenience; it allows participants to engage in evaluations from various geographical locations without a need to travel or physical presence.(9) Most of the research undertaken to improve and refine the OSCEs is focused on making them more authentic and realistic regarding clinical references.(10) Such research was mainly undertaken in clinical departments like emergency medicine and psychiatry.(11,12) A Swiss study by Bauer D. et al. demonstrated that in a virtual setting with simulated patients, candidates reported that the appearance of standardized patients was not perceived as a distraction. This indicates that students were able to focus on the interaction and complete the required assessment tasks effectively.(12) Based on the findings of a Korean study, it is presumed that such time-constrained scenario-based practical exams with greater realism are more effective at identifying stronger patient-centeredness in medical students.(13) With the implementation of a novel competency-based medical education (CBME) curriculum for Indian medical graduates in 2018-19, adopting OSCE as a tool for assessment became mandatory.(2, 3, 4) Considering the significance attributed to OSCEs by medical institutions and the inability to conduct in-person OSCE training during the pandemic, virtual sessions have emerged as a potentially effective substitute for delivering OSCE instruction.(14, 15) Virtual OSCE sessions can leverage technology to enhance the learning experience. They can provide immediate feedback, facilitate reflection and self-improvement, and improve learners' immersion, critical thinking, and decision-making skills. Simulated patient encounters, virtual reality, and interactive multimedia can be incorporated into virtual OSCE platforms to create realistic and engaging scenarios.(16, 17) A substantial shift from traditional OSCE formats to virtual OSCEs poses a critical risk to their efficacy as an assessment instrument if both evaluators and learners perceive it as lacking authenticity.(18, 19) Much research has been undertaken regarding using OSCE as a teaching tool in various clinical subjects to assess students physically. However, data concerning the efficacy of virtual OSCE assessment sessions in preventive and social medicine is deficient. Despite the surge in research regarding the effects of COVID-19, there is a deficiency in cohesive synthesis concerning the insights that can be garnered as the world transitions out of the pandemic and confronts critical inquiries about which emerging trends should be embraced and which should be discarded.

Hence, the current study was planned to study the utility of a virtual OSCE assessment method for assessing the domains of learning and to determine the students' standpoints and their attitude regarding assessment using the traditionally structured viva compared to the virtual OSCE method.

Aim & Objective: To study the utility of a Virtual OSCE assessment method and to determine the students' standpoints of this approach in comparison to the traditional structured viva method. To assess the change in students' self-reported confidence levels across selected AETCOM domains (Attitude, Communication, and Clinical Skills) before and after the intervention.

MATERIAL & METHODS

Design and Setting: This mixed-method study was conducted at a medical institute.

Participants and Sampling

150 medical undergraduates of the Phase I, degree courses, were included in the study using a convenience sampling technique, out of which 133 attended the virtual assessment.

In this study, the participants approved their anonymous data for potential future assessment for community medicine, requiring no medical or personal information.

Data collection methods: **Tools/Instruments**

Data collection methods

The study was conducted for three months, commencing from October 2021. The data was collected virtually based on the assessment scores, and responses were obtained using structured interview sessions. OSCE stations were designed to assess the rise in blood pressure and Nutritional Anaemia. Both students and faculty members were sensitized using a structured checklist related to the skill stations intended for OSCE assessment.

Sensitization was carried out in small groups after showing a video demonstration contrasting the approaches of a "good doctor" and a "bad doctor" in managing Anaemia and Hypertension. The sessions were conducted on a virtual Zoom platform, where students also interacted with simulated patients to practice history-taking. Faculty members from the Department of Community Medicine were oriented prior to designing and conducting the virtual OSCE sessions. During periods of strict COVID-19 lockdown, sessions were facilitated remotely from home. After government relaxation of COVID-19 restrictions, students were allowed to return to campus; however, the assessment continued to be conducted virtually, with one skill station arranged in each of four separate rooms—namely, the research laboratory, seminar room, museum, and tutors' room—as the teaching of the skills had also been delivered virtually. The simulated patient video was prepared to demonstrate the clinical assessment and focus on higher learning domains, like the affective domain, shown to the students. Following the sensitization, an evaluation was scheduled (Each day, 30 students were assessed by all faculty members with a ratio of 7:1 for five days). For assessment purposes, separate virtual procedural OSCE stations were designed in a standardized format. A skill station was designed to assess the student interaction with the simulated patients, which was enacted by the medical social workers and monitored by the observer/assessor. The assessment was done in an area of the department of Community Medicine of the institute utilizing the areas including faculty rooms. The annexure I, II provided depicts the standardized checklist that was prepared and shared with all the faculty members involved in the assessment process.

A self-administered, structured, and validated interview schedule was planned to analyze the standpoints and attitudes of students regarding the virtual conduct of OSCE assessment upon the process completion. Validation was carried out to ensure conceptual coverage of all important domains, with two additional faculty experts reviewing each item for relevance, clarity, simplicity, and necessity. Pilot testing was conducted to establish face validity, and those respondents were excluded from the final sample size. Construct validity was assessed through pilot testing by examining item correlations to ensure alignment between students' standpoints and the relevant items. Unipolar Likert scale items were utilized to measure students' subjective beliefs and insights regarding the examination process and its ease of conduct.

Tools/Instruments

Annexure – I

OSCE CHECKLIST NUTRITIONAL ANAEMIA ASSESSMENT
DATE:
CANDIDATE'S NUMBER

S/N	Task	Performs well	Full marks or zero for not performing
1	Greets the patient (affective)	0.5	
2	Introduces self and takes the consent (affective)	0.5	
3	The student asks the patient for chief complaints (affective)	1	
4	Listens carefully to the relevant history and allows the patient to present. (affective)	1	
5	Enquires about other relevant symptoms or rules out differential diagnosis (affective)	1	
6	Checks for signs of anaemia (conjunctiva, buccal mucosa, nail bed, palm/gen. pallor) (psychomotor)	2	
7	Asks for family history – h/o worms (cognitive, affective)	0.5	
8	The student explains to the patient about the suspected condition (affective)	0.5	
9	Rule's patient awareness – foods rich in iron and later educates for it. (cognitive, affective)	1	
10	Explain for undergoing further investigation to rule out the level of suffering. (affective)	0.5	
11	The student asks the patient for any other doubts. (affective)	1	
12	Thanks to the patient before leaving. (affective)	0.5	
	Total marks	10	? _____

Faculty/observer's feedback to the student: Yes/ no:
********************Fold the paper to hide the scoring ********************

Students name and sign: ……..

Assessors name: ……..

Assessors sign:……..

Annexure – II
OSCE CHECKLIST RISE IN BP ASSESSMENT

DATE:
CANDIDATE'S NUMBER

S/N	Task	Performs well	Full marks or zero for not performing
1.	Greets the patient. (affective)	0.5	
2.	Introduces self and takes the consent. (affective)	0.5	
3.	Ask the patient for chief complaints. (affective)	1	
4.	Listens carefully to the relevant history and allows the patient to present. (affective)	1	
5.	Enquires about other relevant symptoms or rules out differential diagnosis. (cognitive, affective)	1	
6.	Checks for signs of a rise in BP (measures BP, abnormal heart sounds (LVH), visual acuity, elevated JVP-Rt sided heart strain, other: fundoscopy, ophthalmoscope (only mentions, for phase-I) (psychomotor)	2	
7.	Asks for family history (affective)	0.5	
8	Explain to the patient the suspected condition. (affective)	0.5	
9.	Rule out the patient awareness – food, habits, stress (affective)	0.5	
10	Provides information/ generate awareness (affective)	0.5	
11	Explain for undergoing further investigation to rule out the level of suffering (affective)	0.5	
12	Ask the patient for any other doubts. (affective)	1	
13	Thanks to the patient before leaving. (affective)	0.5	
	Total marks	10	? _____?

Faculty/observer's feedback to the student: Yes/ no:
********************Fold the paper to hide the scoring ********************

Students name and sign: ……..

Assessors name: ……..

Assessors sign:……..

The assessment was scheduled using a virtual platform (ZOOM) for the topics rise in BP and Nutritional Anaemia. In a single Zoom meeting, breakout rooms were created for all the faculty members to assess specific students. Following OSCE stations were framed for the assessment process based on the standard format and guidelines.(3, 4) The procedural skills station was used to assess for 5 minutes, which included feedback provision; the other stations were evaluated for 2&1/2 minutes' duration each. The examiners reviewed the student performance for all five OSCE stations, out of which one was virtual for the allotted number of students, and at the end, provided individualized feedback, thereby opening space for reflection.

Data Analysis

Data were obtained from a structured, self-administered questionnaire on students' perceptions. All responses were entered in Microsoft Excel and analyzed using IBM SPSS compatible version. The normality of the data distribution was evaluated using the Shapiro-Wilk test. As the Likert scale data are ordinal, not continuous, the non-parametric tests were used.

The Mann-Whitney U test was employed to compare differences between the non-parametric pre- and post-assessment responses. The Phi coefficient was used to measure the effect size and the strength of association between improvement in Attitude, Skills, and Communication after the virtual OSCE assessment session. Open-ended responses were also obtained from the participants regarding what they felt about the virtual conduct of assessment. The structured interview sessions were also analyzed using thematic analysis based on the open-ended responses regarding the preferable evaluation method.(virtual or physical) Frequency and percentage distribution were analyzed based on the Likert items' reactions in the structured interview session. To calculate the reliability of the structured interview, the method of testing and retesting (Test - Retest) was adopted with a difference of two weeks. The tool was tested on 10% of students, and the reliability coefficient derived was 0.83. The reliability factor was (0.89) and was considered acceptable in the social sciences. The overall mean Content Validity Index (CVI) and the Content Validity Ratio (CVR) obtained were 0.93 and 0.84, indicating a high level for the instrument.

Data Availability Statement: Data associated with the findings are available to any individual upon reasonable request to the corresponding author's email address.

Ethical consideration: This study adhered to established ethical principles and relevant domestic and global standards. Having sensitized the participants regarding the potential benefits of the study, all of them provided informed consent and were assured of rights to privacy, confidentiality, and anonymity. IEC ref also cleared the study. No. .(SIU/IEC/314) We obtained informed consent from all the participants included in the study.

RESULTS

Of 150 female medical students in the phase I medical undergraduate course, 133 (88.6 %) appeared for the assessment session. Table I provides a summary of the demographic variations of the study participants. The central tendency of the participant age distribution was 19.4 years. Out of 133 students, 89 (66.9%) were residents of urban cities, and 44 (33.0%) were residents of rural parts of the country. 13 (9.7%) students who could not attend the assessment and sensitization sessions due to poor network connectivity were residents of remote areas of the region. A total of 86 students (64.6%) affirmed that they had interacted with a traditional OSCE instructor at some point before the virtual assessment session. Table II summarizes the Likert scale analysis for virtually covered clinical skill item during OSCE assessment. 113 (84.9%) [94 (70.6%) +19 (14.2)] respondents agreed or strongly agreed that virtual OSCE instruction was equally engaging. 110 (82.7%) selected a scale of 1 and 2, agreeing that the virtual assessment session was interactive, and 120 (90.2%) preferred a scale option of 1 and 2, agreeing that the sensitization video followed by the assessment session had developed and improved their prior data collection and interpersonal communication competence. 117(87.9%) student respondents preferred a scale option of 1 and 2, agreeing that the virtual Objective Structured Clinical Examination (OSCE) assessment method has facilitated valuable feedback on student performance, enhancing their preparation for subsequent evaluations. Table III provides the information regarding pre- and post-assessment confidence level changes as mentioned by the study participants. Most of the students, 108 (81.2%), respondents, preferred a scale option of 1 and 2, agreeing that online OSCE sessions could adequately equip participants for subsequent in-person OSCEs. A total of 127 students (95.4%) expressed agreement that virtual OSCE instruction following the pandemic would be advantageous to their preparation for the individual practical assessments. A significant correlation in enhancement in confidence levels was observed among all students participating in the virtual assessment procedure. Table IV presents the medians before and after the event, along with the correlation analysis and effect sizes. The Phi coefficient was used to measure the effect size and the strength of association between improvement in attitude, skills, and communication after the virtual OSCE session. Results indicate a statistically meaningful enhancement in participants' confidence levels was observed across all three domains following their participation in the online OSCE assessment sessions. The table V provides an analysis of the structured interview session, which was followed by the assessment method for those who attended the assessment process; 105 (78.9%) students enjoyed the overall process of the virtual assessment process, 20 (15.0%) still feel that the traditional structured viva is better assessment tool.(Table VI) As analyzed in Table VI, the Z score for virtual OSCE assessment against the traditional viva method was 0.42 (P value 0.008); the difficulty index (traditional method) was 1.06 times higher than the virtual mode. Figures II and III represent the themes derived from the open-ended questions regarding the perception of virtual conduct of the

OSCE assessment revealed that most of the students found it interesting, innovative, and less time-consuming; few felt that the traditional viva could be replaced by virtual method as the fear to face the teacher reduces, few liked the fact of immediate feedback as it helped them to improve on their skills. They expressed a need to change the traditional viva method to an OSCE-based one as they felt it would help them improve their skills. However, few of them still felt that the traditional viva method is better and more reliable as there is in-person contact with the teacher. It's better to examine the patient physically rather than in virtual mode.

Table I: Socio-demographic characteristics of the study participants

Parameter	Distribution
No. of participants in the study	133 (100%)
Median age group of the participants	19.3 Years
Participants residing in urban areas	91(66.4%)
Participants residing in rural areas	46(33.5%)
Participants residing in remote areas absent during virtual teaching sessions (excluded). (Urban and Rural)	02 (1.5%)

Table II: Likert scale analysis for virtually covered clinical skill item during OSCE assessment. (n=133)

	Disagreeing to great extent (Likert option 1)	Disagreeing (option 2)	Undecided (option 3)	Agree (option 4)	Completely agree (option 5)
Virtual OSCE assessment is engaging	4 (3.0%)	17 (12.4%)	3 (2.2%)	94 (70.0%)	19 (13.8 %)
Virtual OSCE assessment is interactive	10 (7.5%)	10 (7.5%)	7 (5.2%)	99 (74.4 %)	11(8.2 %)
Virtual OSCE and feedback help to evolve in clinical skills	4 (3.0%)	11(8.2%)	2 (1.5%)	108 (81.2%)	12 (9.0%)
Virtual OSCE assessment gives constructive feedback on the performance	5 (3.7%)	11 (8.2%)	4 (3.0%)	40 (30.0 %)	77 (57.8%)

Table III: Pre- and Post-Intervention Confidence Scores Across selected AETCOM Domains.

AETCOM Domain	Totally uncertain (Likert option 1)		Slightly confident (option 2)		Somewhat confident (option 3)		Confident (option 4)		Very confident (option 5)	
	Before	After	Before	After	Before	After	Before	After	Before	After
Attitude	0(0)	0(0)	0(0)	0(0)	2 (1.5%)	0(0)	19 (14.2 %)	98 (73.6%)	02 (1.5%)	20 (15.0%)
Communication	0(0)	0(0)	0(0)	0(0)	4(3.0%)	0(0)	17(12.7 %)	97 (72.9%)	03 (2.2%)	23 (17.2%
Clinical skills	4(3.0%)	0(0)	0(0)	5(3.7%)	3(2.2%)	0 (0)	10(7.5%)	112(84.2%)	05(3.7%)	15(11.2%)

Table IV: Attainment of confidence levels post virtual OSCE assessment sessions

OSCE Domain	Prior-session confidence (median)	Later -session confidence(median)	P-value	Effect size(r)
Attitude	03	04	<0.000	1.373
Communication	03	04	<0.000	1.662
Clinical Skills	03	04	<0.000	1.747

Table V: Structured Interview analyses for all study participants (frequency and percentage distribution)

	Virtual OSCE method		Traditional viva method of assessment	
Opinion scale	Frequency	Percentage	Frequency	Percentage

	Virtual OSCE method		Traditional viva method of assessment	
Disagree	16	12.0	79	59.3
Neither disagree nor agree	14	10.5	28	21.0
Agree	72	54.1	18	13.5
Fully agree	31	23.3	08	6.0
Total students	133	100.0	133	100.0

Table VI: Z test interpretation for participants' feedback regarding traditional viva against virtual OSCE assessment (n=133)

Nutritional anaemia/ BP (OSCE)	Virtual OSCE	Traditional viva	Z test	p-value
Agree and strongly agree	105 (78.9%)	20 (15.0%)	0.42	0.008

Figure I: Clustered/grouped bar diagram - Student Responses on the Preference for Virtual OSCE as an Alternative Assessment During the Pandemic Scenario.

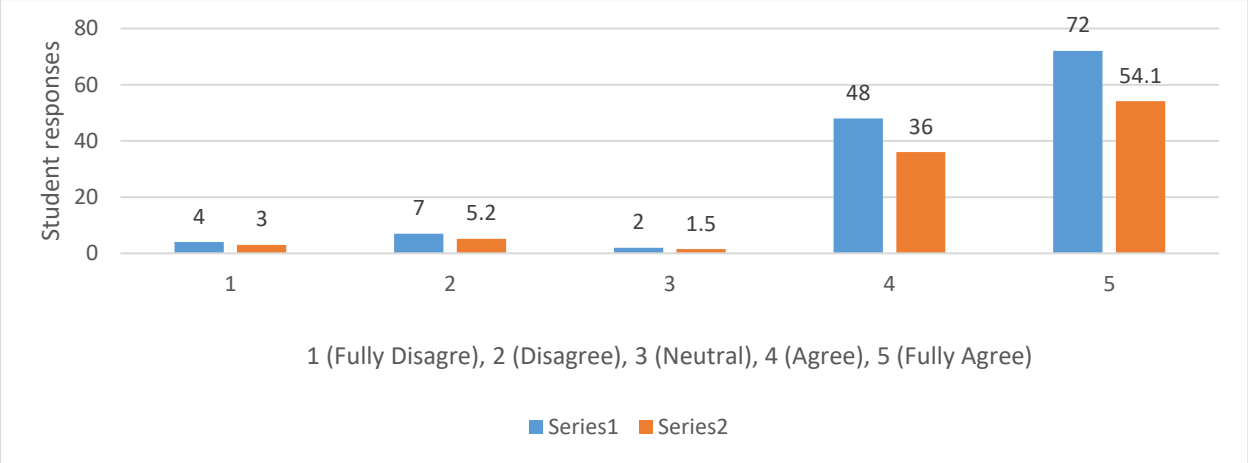


Figure II: Open-ended responses regarding virtual OSCE assessment

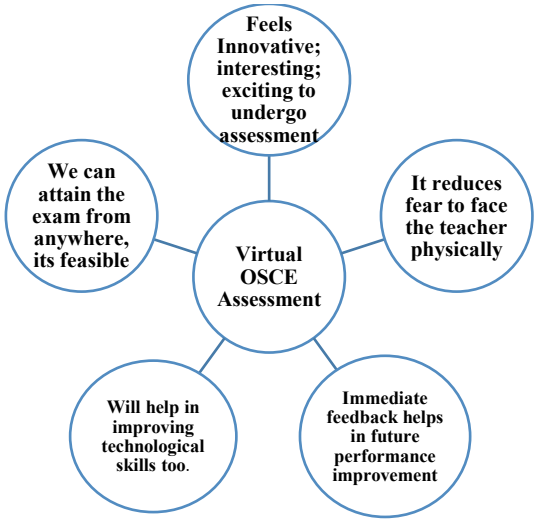
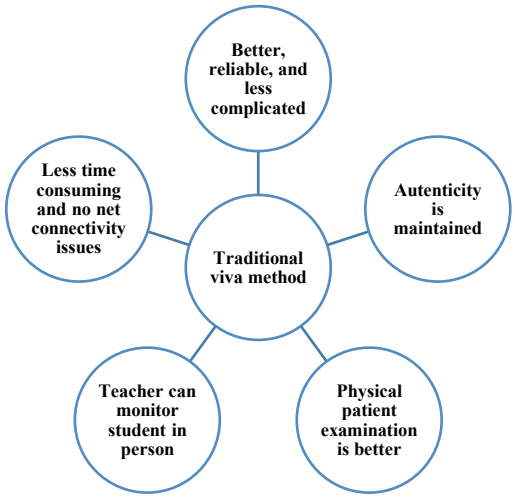


Figure III: Open-ended responses regarding the traditional viva method



DISCUSSION

The COVID-19 pandemic brought on a good opportunity for distance learning: virtual OSCEs conducted by medical schools proved to be as effective as their in-person counterparts at testing communication skills, history-taking ability, clinical reasoning, and differential diagnoses and management strategies.5, 6. In the present study, students enjoyed the overall virtual OSCE assessment experience and found it helpful. They also expressed their joy in identifying pictorial stations and interpreting lab results. The same conclusion Lim A. S. arrives at, as students found the university Virtual OSCE experience helpful as a pedagogical instrument and less intimidating compared to the traditional ones carried out in

person 7. Most students opted for a rating of 1 or 2, indicating their agreement that the online assessment was as engaging and interactive as an in-person session. These findings are highly relevant when considering the feasibility and acceptability of transitioning to virtual assessments. These results are per the findings of Casey, Goepfert et al., who concluded in their study that virtual OSCE sessions have a more personalized and adaptable approach; such tailored assessments when addressed with good clinical scenarios, specialties, levels of proficiency and specific learning objectives can be helpful for the learners in developing clinical proficiency 10. During structured interview sessions, many students still felt that the traditional structured viva, which is conducted in person, is more interactive, as per the results of Pretyman and Hannan in their studies, who concluded that the students are still comfortable with the traditional examination and viva patterns; when compared with the traditional OSCE pattern 21,22. The students expressed that online teaching and training during the COVID-19 era enabled them to better prepare for examinations and improve course completion rates. It was also emphasized that institutions should also develop virtual modalities for topic assessment to ensure timely completion of the required curriculum. This claim is further supported by the fact that their confidence levels improved statistically in attitude, communication, and clinical skills in the virtual sensitization and assessment sessions. A limitation of the virtual assessment modality reported in studies was that students were not able to practice practical procedures and core competencies required for summative OSCEs and clinical practice.(19,23) Even though the participants felt that the video on sensitization was useful, it came before the test. Among potential future research is the effectiveness of a hybrid format and the inclusion of virtual assessment sessions into practice tests and procedures. (8,9,23) However, it is important to acknowledge that virtual OSCE sessions also have limitations. They may lack the tactile and physical aspects of in-person interactions, such as palpation or physical examination, which are essential in certain clinical disciplines.(11,12,24) Ensuring the authenticity and realism of virtual scenarios can also be challenging (14,25) However, a percentage of the students in this study claimed to prefer OSCE practice with simulated patients via face-to-face approach than online. Thus, it is impossible to determine if the assessment taken online could fully replace the assessment conducted face-to-face in clinical settings.(26) Numerous studies indicate that virtual OSCE sessions are cost-effective, beneficial, and practical in the current global context, suggesting a potential role for these sessions even in the post-pandemic phase (27,28) In undertaking assessment sessions of larger groups of students for even longer periods, one main limitation highlighted was the higher problem of connectivity to the internet. It resulted in audio lag and made it difficult to access students during clinical skill stations and feedback sessions. These problems have been similarly reported in existing literature.(19,20) Systematic review of medical education during the COVID-19 pandemic presents various challenges that virtual teaching poses, such as reduced engagement compared to face-to-face teaching.(21,22,23) Additionally, virtual platforms can often record the sessions, allowing learners to review their performance and identify areas for improvement. According to the literature, meticulous planning and thorough coordination from the faculty members and supporting staff are required during the virtual OSCE sessions to ensure smooth conduction. This is again per our study, where all the faculty members readily accepted the need for change and helped plan and prepare these assessment sessions.(23,26) As the sensitization and assessment were conducted only for phase I medical undergraduates and also was for the internal assessment in community medicine subject, this method sets up a limitation for generalizing the results for the wider student population and also for other subjects unless it can be adopted for few more batches regularly.(20,24) The implementation is possible only when the technical issues along with the limitations can be taken care of and can be achieved by incorporating guidance from the literature regarding the process of conducting a virtual OSCE assessment and by taking the feedback and guidance from other institutions that have adopted or created similar virtual OSCE assessment programs.(11,19) Also, in the future, further studies are required to understand the effectiveness and feasibility of virtual assessment methods that would significantly impact the higher learning domains.

CONCLUSION

Our study findings suggest that online OSCEs hold potential as substitutes for traditional assessments-likewise more particularly within the higher affective and psychomotor learning domains. It will help in using virtual OSCEs as a tool in the post-pandemic world, continuing to assess. Most students felt this method was equally engaging and interactive, and most reported improved aptitude in patient history collection and communication abilities. Further research is needed to assess the broader impact of virtual teaching on

undergraduates' educational outcomes, as well as the effectiveness of online OSCE assessments in evaluating learning domains and student performance."

RECOMMENDATION

- Integrate virtual OSCEs into routine Community Medicine teaching—not only during emergencies—to ensure continuous practice and reinforcement of the most common public health topics, particularly non-communicable diseases and other highly prevalent disorders in the Indian population.
- Use virtual OSCEs deliberately to strengthen AETCOM domains (attitude, communication, and clinical skills), particularly communication about lifestyle modification, adherence, diet, and follow-up in hypertension and nutritional anaemia.
- Develop institutional protocols for hybrid assessment models where virtual OSCEs complement, but do not replace, bedside and community-based examinations, so that psychomotor skills and physical examination are reinforced alongside teleconsultation skills.
- Scale virtual OSCEs as a preparedness tool so that medical colleges can rapidly shift assessments online during future outbreaks, natural disasters, or local service disruptions, preserving competency tracking and progression decisions.
- Invest in digital infrastructure and targeted faculty development for designing, running, and quality-assuring virtual OSCEs in public institutions, thereby reducing inequities in access to high-quality formative assessment between urban and rural colleges.

LIMITATION OF THE STUDY

The study was conducted on female students only, which might not have highlighted the gender-based variations in the responses. The study was also limited to only one batch of medical undergraduates; results can be more validated based on responses from different semester students regarding the virtual conduct of the assessment.

RELEVANCE OF THE STUDY

- This study adds discipline-specific evidence from preventive and social medicine, where published data on virtual OSCEs are relatively scarce compared with clinical specialties, thereby addressing a documented gap in the literature on community-medicine–based vOSCEs.
- By mapping outcomes explicitly to AETCOM domains and demonstrating statistically significant gains in self-reported confidence across attitude, communication, and skills, the study operationalizes how virtual OSCEs can be aligned with the NMC AETCOM framework in Phase I MBBS.
- The work compares virtual OSCE with traditional structured viva, showing higher acceptability and lower perceived difficulty for vOSCEs, which advances understanding of how assessment format influences perceived stress, engagement, and feedback culture in early learners.
- The mixed-methods design, incorporating Likert scale data, effect sizes, and thematic analysis of open-ended responses, enriches the evidence that virtual OSCEs are not only feasible and satisfactory but also perceived as innovative, time-efficient, and useful for immediate feedback in low-stakes settings.
- By documenting implementation details (Zoom-based breakout rooms, simulated patients, structured checklists on anaemia and hypertension), the study offers a replicable model for Indian medical colleges seeking to implement virtual OSCEs in alignment with CBME and AETCOM requirements post-pandemic.

AUTHORS CONTRIBUTION

SP: Conceptualization of the project idea; Organization of the OSCE assessment; creating OSCE assignments and checklist, creation of Likert scale; Analysis and interpretation of the data; manuscript edition SP: Project ideation; oversaw the project, manuscript writing, editing, and thematic analysis.

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Nil

CONFLICT OF INTEREST

There is no conflict of i

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Declaration of Generative AI and AI Assisted Technologies in the Writing Process

The authors haven't used any generative AI/AI assisted technologies in the writing process.

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