# Satisfaction Levels of Remote Healthcare Simulation Amongst EMS Professionals in Pune, India




## ABSTRACT

**INTRODUCTION:**

Healthcare education comprises of various components including theory, practicals, clinical and cognitive skills. The teaching andragogy has evolved from classroom sessions and laboratory experiments to clinical rotation duties. Simulation has played a significant role as a new revolutionary tool in andragogy as it involves self-reflective and immersive learning.

The COVID-19 pandemic and social distancing rules necessitated the suspension of all in-person learning activities at workplaces, public places and all educational institutes. Consequently, distance learning became essential. As a result, the classroom sessions were replaced by online mode sessions and the teaching faculties had no option but to adapt to the new technology in a short period of time.

It is crucial to gauge the satisfaction levels amongst Emergency Medical Professionals (EMP's) attending remote simulation sessions to devise more user friendly programs for the future.

**OBJECTIVE:** To study the satisfaction level of the Emergency Medical Professionals exposed to remote simulation

**METHODOLOGY:**

The present study was conducted in October 2021, amongst 200 Emergency Medical Professionals (EMP's) in the city of Pune, India. Simulated Clinical Experiences (SCE's) on various cardiac emergencies were designed by Simulation Educators. The participants attended the session via virtual platform Microsoft Teams for a period of 2 hours. A 19-item student satisfaction survey, developed by Feingold, Calaluce, & Kallen (2004) with a 5-point Likert


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scale (1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4=Agree, and 5 = Strongly Agree) was used to determine the participant's satisfaction with the remote simulation session.

**CONCLUSION:** The unanimity in the satisfaction scores is very encouraging for facilitators to devise interesting SCE's and teach in the remote simulation mode. This shall ensure that the continued medical education does not suffer as a result of the pandemic.

**KEYWORDS:** Remote simulation, healthcare, Emergency Medical Professionals



## INTRODUCTION:

Healthcare education comprises of various components including theory, practicals, clinical and cognitive skills. The teaching andragogy has evolved from classroom sessions and laboratory experiments to clinical rotation duties. Multiple rehearsals of clinical procedures and intensive use of laboratories are required for enhancing the skillset of a healthcare professional to maintain the continuity of learning.[1]

Simulation has played a significant role as a new revolutionary tool in andragogy as it involves self-reflective and immersive learning. Furthermore, with the evolution in innovative technology and teaching methodology; Virtual Reality Simulation in 3D environments, are becoming an increasingly recognized tool in medical education for higher studies and superspecialty domains[2,3]

High fidelity, Low Fidelity Simulation, Part Task Trainers, Hybrid Simulation and Standardized Patients are few tools of Simulation utilized to improve the skills of healthcare professionals. Each tool has its own set of advantages and limitations and requires to be appropriately used depending upon the specific learning objective[4]

The COVID-19 pandemic and social distancing rules necessitated the suspension of all in-person learning activities at workplaces, public places and all educational institutes. Consequently, distance learning became essential. As a result, the classroom sessions were replaced by online mode sessions and the teaching faculties had no option but to adapt to the new technology in a short period of time.[5] With didactic teaching, the online mode has several

limitations including lack of focus, limited interaction and inability to teach practical skills. Simulation offered a wonderful opportunity to demonstrate practical skills in a safe environment with the remote participation of healthcare professionals. This ensured that healthcare professionals could continue with their refresher education without the fear of contracting COVID 19 infection. Simulation helps the medical professionals with perception based and self-reflective thinking, helping them understand and enhance their clinical skills.[5,6]

High-fidelity immersive case-based simulation scenarios by using various virtual meeting platforms to meet the curricular and continued medical education needs are being used and adapted by most medical institutes. Various studies have been conducted to understand the efficacy and knowledge of the participants undergoing remote simulation.[7] Cost effective techniques of healthcare simulation can help participants understand scenarios and focus in a realistic environment. [8]

A study by Gutierrez-Barreto *et al* focusing on perceptions of facilitators and participants has described few barriers in order to improve the quality of remote simulation.[9] Such new perfusion education models help to eliminate limitations and improve the quality of education especially in the face of economic challenges. Perfusion education students and faculty will have to work together to find computer-based offerings that are equivalent to traditional classroom methods.[10]

It is crucial to gauge the satisfaction levels amongst Emergency Medical Professionals (EMP's) attending remote simulation sessions to devise more user friendly programs for the future.[11]

## OBJECTIVE:

To study the satisfaction level of the Emergency Medical Professionals exposed to remote simulation

## METHODOLOGY:

The present study was conducted in October 2021, amongst 200 Emergency Medical Professionals (EMP's) in the city of Pune, India. Simulated Clinical Experiences (SCE's) on various cardiac emergencies were designed by Simulation Educators. The participants attended the session via virtual platform Microsoft Teams for a period of 2 hours. Only ten participants

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were allowed to actively participate as caregivers in one SCE. Each SCE lasted for of 10 minutes and was preceded by a prebriefing by the facilitator. During the SCE the simulated patient underwent various changes as per the cardiac emergency and the participants were asked to intervene and provide proper care in the given time. The SCE was followed by facilitator guided debriefing. Various aspects of the cardiac emergency were discussed and active participation of the other EMS professionals was sought. The debriefing focused on clinical aspects, decision-making, critical thinking and team management. Four such SCE's were conducted during the remote simulation session.

A 19-item student satisfaction survey, developed by Feingold, Calaluce, & Kallen (2004) with a 5-point Likert scale (1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4=Agree, and 5 = Strongly Agree) was used to determine the participant's satisfaction with the remote simulation session. The instrument had four subscales: realism (n = 3), transferability (n = 3), value (n = 6) and other individual items (7). The realism satisfaction subscale aimed at gauging the satisfaction levels with regards to the fidelity of the SCE. Transferability satisfaction items dealt with the potential of remote simulation to transfer knowledge and skills. The value satisfaction subscale focused on the perception of utility of remote Simulation session in advancing knowledge and skill set. Scenario adequately tests clinical decision-making and technical skills The survey used seven additional individual items related to the patient simulation experience itself. Three items were excluded as they were found irrelevant to this study.

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The sixteen items edited satisfaction survey was administered to the participants through online mode after completion of the session. Informed consent was taken from the participants prior to the administration of the survey. Any queries pertaining to the questionnaire were clarified during the data collection by the facilitators.

All sixteen items were required to be mandatorily filled. The respondents were given one-day deadline to revert with responses. 177 respondents reverted with the completely filled questionnaire. The data was tabulated and statistically analyzed with the of SPSS version 23.

**RESULTS:**

| Age: | Percentage | In no.s |
|---|---|---|
| | | |



**Table 1: Demographic Data**

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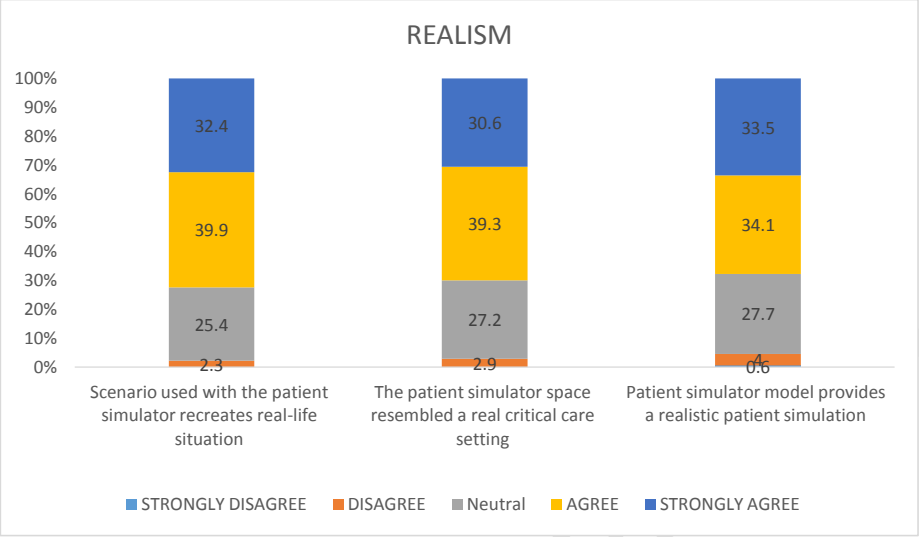
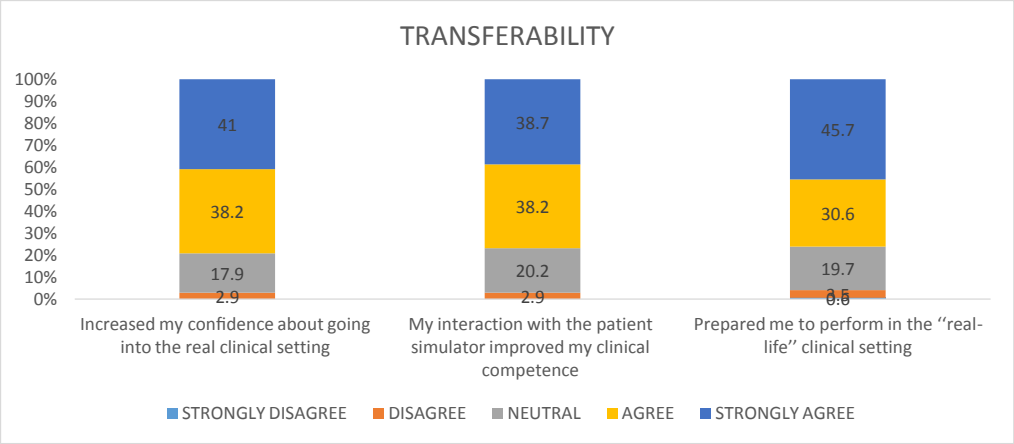
| | | |
|---|---|---|
| Less than 25 | 41.3 % | 73 |
| 25 to 30 | 49.1 % | 87 |
| 30 years above | 09.6 % | 17 |
| **Sex:** | | |
| Male | 30.5 % | 54 |
| Female | 69.5 % | 123 |
| **Qualification:** | | |
| BHMS | 54.3 % | 96 |
| BAMS | 33.3 % | 59 |
| BUMS | 4.5 % | 08 |
| Others | 7.9 % | 14 |
| **Work Experience :** | | |
| Less than 1 year | 50.8 % | 90 |
| 1 to 3 years | 37.8 % | 67 |
| More than 3 years | 11.4 % | 20 |

**Figure 1: Satisfaction towards Realism of the Simulation Session**



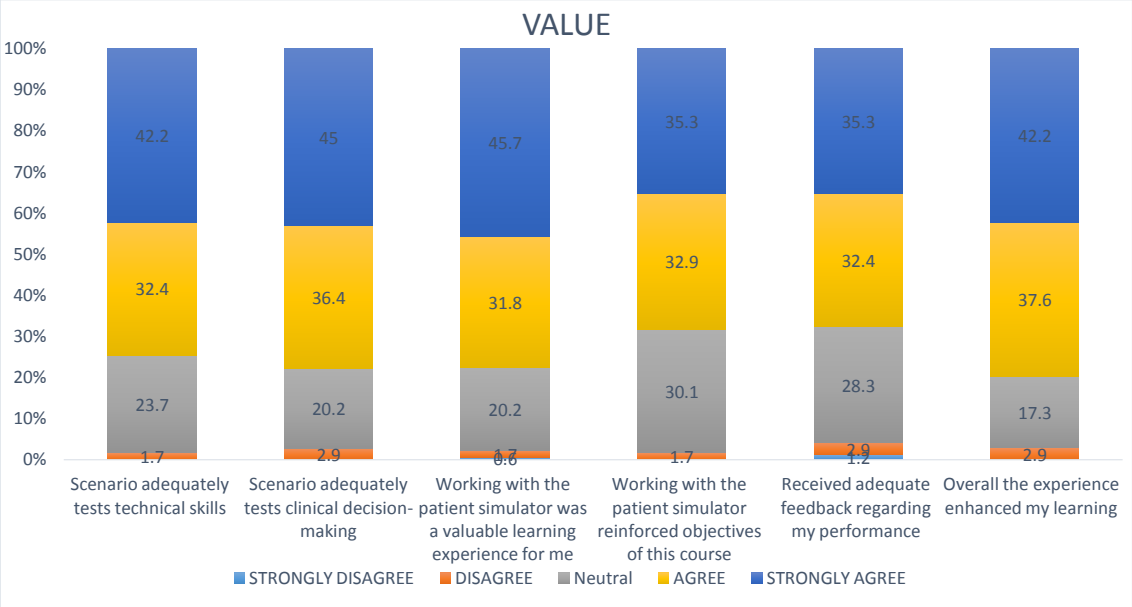

As shown in Figure 1 it is evident that the simulation session in the remote mode retained a high degree of realism.

Figure 2: Satisfaction towards transferability of skill and knowledge in Simulation Session



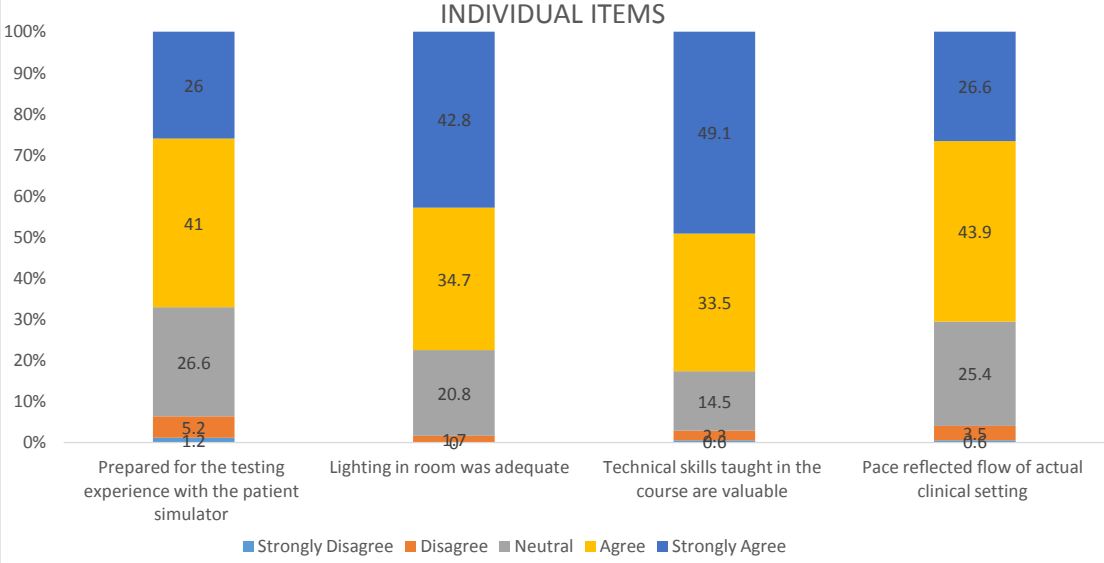

The figure 2 shows that majority participants exuded a high level of satisfaction with the ability of the remote simulation session to transfer the knowledge and skills pertaining to cardiac emergencies

Figure 3: Satisfaction towards the value of the session




The Figure 3 shows that most of the participants found the remote simulation session very useful in enhancing various aspects of learning including technical skills and clinical decision making.

Figure 4: Satisfaction towards other individual items




As seen in Figure 4, the participants were satisfied with the environmental fidelity of the remote simulation session.

**DISCUSSION:**

The study was conducted with the aim to adjudge the level of satisfaction amongst EMS professionals with the remote simulation mode of teaching. In the post Covid era, remote learning has become a norm and cannot be ignored. The remote simulation session is challenging for both, the facilitator and the participants. The facilitator needs to communicate remotely while ensuring that the value offered by the session is not reduced.

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The participant on the other hand, finds it difficult to focus and learn in a remote mode as it denies him / her the opportunity to undergo hand-on training. Remote simulation can be a useful tool to maintain continuity of learning if it is accepted by the participants.

The study focused on aspects like realism, transferability and value as they form important pillars, in the success of a simulation session. Interestingly, majority of the EMS professionals expressed high degree of satisfaction with the remote simulation session.

The session successfully recreated a real patient care setting and the participants enjoyed the immersive learning experience. Although limited number of participants could actively engage in the patient care during the session, the debriefing ensured that all participants were involved in the session.

Any teaching session is aimed at, transfer of knowledge and skill from the facilitator to the participant. The session was considered to be satisfactory in boosting the confidence and competence by most of the participants. This was ensured by creation of engaging SCE's and use of high fidelity manikin to portray the real patient care setting.

Continued participation engagement in learning is possible only if they find the teaching session relevant and useful to their profession. An overwhelming majority of participants expressed their satisfaction with the fulfillment of the objectives of the session even in the remote mode.

**CONCLUSION:** The study is limited by its sample size, singular experience and lack of comparison with a face-to-face session. Yet, the unanimity in the satisfaction scores is very encouraging for facilitators to devise interesting SCE's and teach in the remote simulation mode. This shall ensure that the continued medical education does not suffer as a result of the pandemic.

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**Comment [PERI7]:** the conclusion is not right, it is better to conclude the findings obtained



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