Evaluating Debriefing Encounters of Emergency Medical Practitioners in Remote Simulations and Standardized Patient Scenarios

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INTRODUCTION:

Clinical training plays a fundamental role in shaping the future clinical practice of medical students during their graduation and post-graduation years. It is essential for them to acquire and continuously update their skillset using innovative teaching methodologies to ensure evidence-based patient care.[1] Traditional classroom-based teaching methods have been found insufficient for skill acquisition, leading to a decline in bedside clinical teaching. Consequently, simulation-based medical education has gained rapid acceptance.[2]

Simulation-based training encompasses various methods, such as part task trainers, low and high fidelity manikins, standardized patients, remote and virtual simulations. This approach allows students to experience Simulated Clinical Experiences (SCEs) in a controlled environment, facilitating hands-on training for emergencies, patient communication, interpersonal skills, and professionalism.[3] Simulation-based education has gradually become integrated into clinical curricula, benefiting various medical specializations, including emergency medicine, critical care, nursing, obstetrics, and surgery, significantly enhancing students' clinical and cognitive skills.[4]

Research indicates that simulation-based training is superior to didactic teaching in helping medical graduate students learn critical assessment and life-saving skills, which are crucial in fields like emergency medicine. [5]Regular practice in simulation scenarios and reflective debriefing sessions offer valuable insights for self-improvement, enabling learners to handle real-life emergencies more effectively.[6] Furthermore, studies suggest that standardized patients are more effective than manikins for teaching skills like history taking and physical assessment.[7]

Skills such as history-taking and physical assessment are more effectively demonstrated and taught through the use of standardized patients rather than manikins, as suggested by previous research.[8] Additionally, a study conducted by Musa Dahlia et al. in 2021 recommends that educators employ teamwork strategies for complex clinical scenarios to enhance higher-level learning, while individual work is suggested for promoting lower-level learning in simpler scenarios.[9] It is crucial to acknowledge that the simulation experience is influenced by various factors, including the physical environment, exposure to real-life situations, and the comfort level of participants.[10]

Moreover, the conduct of debriefing sessions should take place in an environment that fosters confidentiality, trust, open communication, self-analysis, and reflection. Establishing a strong facilitator-participant bond is essential for fostering engaging discussions, clarifying doubts, and encouraging the expression of ideas.[11] According to Wickers et al., effective debriefing involves the creation of a physical environment conducive to learning, the development of a trusting relationship with participants, addressing and discussing difficulties and doubts, engaging students in the analysis of patient care situations, and skillfully posing self-reflective questions. [12]

Collaborative teamwork is recommended for complex clinical scenarios to promote higher-level learning, while individual work is suitable for simpler scenarios. The simulation experience is influenced by factors such as the physical environment, exposure to real-life situations, and participant comfort levels. Moreover, the research underscores the importance of comprehensive debriefing in simulation activities. It emphasizes that debriefing should not be compromised in remote simulations and suggests incorporating standardized After Action Reviews (AARs) to enhance the learning and self-reflection experience.[13]

In recent studies, virtual debriefing and its associated barriers have been explored, emphasizing the need for explicit strategies to maintain psychological safety.[14] Additionally, a 2016 study proposed a checklist known as Promoting Excellence and Reflective Learning in Simulation (PEARLS), which serves as a tool for providing peer feedback on debriefing performance, benefiting simulation educators.[15]

The study also highlights the emergence of tele-debriefing, a technique introduced during the COVID-19 pandemic. However, there is a dearth of head-to-head comparison studies evaluating debriefing experiences in virtual and in-person settings.[16]

Objective:

To compare the debriefing experiences of Emergency Medical Professionals (EMPs) after participating in remote simulation sessions and standardized patient encounters.

Methodology:

The research was conducted in March 2022 among 200 EMPs working in various healthcare settings in Pune, India, including casualty, emergency care units, Intensive Care Units, and ambulances. The study focused on the Advanced Trauma Course of the International Trauma Life Support (ITLS) organization, a two-day intensive program that teaches patient assessment and critical condition management in a pre-hospital environment. Specifically, the study compared EMPs' experiences during the patient assessment module of the Advanced Trauma Course.

Participants were selected only if they had no prior exposure to simulation, debriefing, or ITLS sessions. The facilitator provided a demonstration of the required skills and distributed written patient assessment algorithms for better understanding.

The EMPs were randomly assigned to two groups: Group A underwent Standardized Patients (SP) Simulation, while Group B experienced Remote Manikin Simulation through the Microsoft Teams Application. Each group was further divided into teams of six participants, each exposed to Simulated Clinical Scenarios following the ITLS patient assessment Algorithm.

After completing the simulation, all participants underwent a 15-minute facilitator-guided debriefing session. Group A's debriefing was conducted in person, while Group B's was conducted remotely. Subsequently, participants completed the 20-item Debriefing Experience Scale (DES) questionnaire developed by Reed (2012).[17]

The DES questionnaire comprised four subscales with 20 items, each requiring responses on a 5-point Likert scale, ranging from "strongly disagree" (1) to "strongly agree" (5). The subscales covered various aspects of the debriefing experience, including the analysis of thoughts and feelings (4 items), learning and making connections (8 items), Facilitator's skill in conducting the debriefing (4 items), and appropriate facilitator guidance (3 items).

Informed consent was obtained from all participants before administering the questionnaire. Participants were given one hour to complete the questionnaire, and any queries regarding the questionnaire were addressed by the facilitators. Data analysis was conducted using SPSS version 23.0 to ensure data integrity and avoid plagiarism.

RESULTS:

Table 1: Demographic Data

Age:	**Percentage**	**In no.s**
Less than 25	35 %	70
25 to 30	53 %	106
30 years above	12 %	24
Sex:		
Male	32 %	64
Female	68 %	136
Academic Background:		
BHMS	54 %	108
BAMS	34 %	68
Others	12%	24
Work Experience :		
Upto 1 year	56 %	112
More than 1 Year	44 %	88

Table 2: Debriefing Experience Score – SP Simulation V/s Remote Simulation

Subscale	**Mean**		**Standard Deviation**		***p* value**
	SP Simulation	**Remote Simulation**	**SP Simulation**	**Remote Simulation**	
Analyzing Thoughts and Feelings	4.16	3.91	0.095	0.140	**0.0316***
Learning and Making Connections	4.24	3.96	0.143	0.122	**0.00089***
Facilitator Skill in Conducting the Debriefing	4.20	3.81	0.113	0.098	**0.00543***
Appropriate Facilitator Guidance	4.45	3.85	0.088	0.059	**0.0138***

*** indicates significant *p* value (<0.05)**

DISCUSSION:

The primary objective of this study is to investigate and compare the effectiveness and advantages of debriefing in two distinct settings and methodologies. Debriefing plays a pivotal role in enabling learners to comprehend their roles and analyze the actions taken during simulation scenarios. It serves as a valuable tool for self-reflection and self-improvement.

The study's outcomes strongly favor the debriefing experience in the context of Standardized Patient (SP) simulation over remote manikin simulation. This preference can be attributed in part to the in-person setting and the facilitator's techniques employed in SP simulation. The Debriefing Experience Scale, encompassing four subscales, namely Analyzing thoughts and feelings, Learning and making connections, Facilitator skill in conducting the Debriefing, and Appropriate facilitator guidance, served as a comprehensive framework for assessment.

Participants in the SP simulation were found to be more actively engaged, and this setting closely mirrored real-life situations. Conversely, Group B participants engaged in online sessions and did not physically visit the Simulation Lab, thereby affecting the environmental fidelity. The debriefing session's effectiveness was significantly influenced by physical environmental factors, participant comfort levels, and open interaction opportunities.

The subscale related to 'Facilitator Skill in Conducting Debriefing' is significant, comprising of five items that emphasize the competence and capabilities of the facilitator. While satisfaction levels with the facilitator were high in both groups, Group A participants assigned a higher score to the item regarding the time allocated for reflective debriefing. SP simulation, with its greater facilitator-participant interaction and in-person environment, fosters stronger camaraderie between the facilitator and the learners.

Furthermore, when it comes to evaluations provided during debriefing, learners in Group A demonstrated higher satisfaction levels, reflecting a constructive approach. Across all items and subscales, a significant difference was observed in the experiences of learners in both groups, with all indicators favoring the in-person SP simulation approach. These findings underscore the notable benefits of in-person SP simulation over remote manikin simulation in the context of debriefing experiences.

CONCLUSION:

The introduction of Remote Simulation was a crucial adaptation in response to the imperative need for continuity in education during the COVID-19 era. Our study reaffirms its success, as evidenced by the consistently high satisfaction scores observed among participants. However, it is important to acknowledge that in-person Standardized Patient (SP) simulation emerged as the superior choice, offering a more enriching and fulfilling debriefing experience for the learners.

It is worth noting that this study has its limitations, primarily stemming from its relatively small sample size and the comparison of a single event. To gain more comprehensive insights into the dynamics of these educational approaches, future research should consider conducting longer-term studies with larger sample sizes. Such endeavors have the potential to provide a more nuanced understanding of the advantages and limitations of both remote and in-person simulation settings, thereby contributing to the refinement of educational practices in the field.

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