



Assessing self-reported emotional anxiety post Simulation Activity amongst Emergency Medical Professionals of Pune, India

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ABSTRACT

INTRODUCTION:

People working in the emergency department are subjected to high levels of stress regularly. This kind of stressful environment can adversely impact the clinical performance of Emergency Medical Services (EMS) professional. High-fidelity simulation has emerged as a pivotal tool in imparting healthcare education wherein the learners can enhance their skills across all the domains i.e. cognitive, psychomotor and affective EMS Professionals are expected to perform and demonstrate their skills in very dynamic and high pressure situation with limited resources at hand. Hence, they undergo tremendous amount of stress both during the training and clinical practice.

OBJECTIVE:

To assess the self-reported emotional anxiety of the Emergency Medical Professionals, post a single high fidelity simulation encounter.

METHODOLOGY:

This study was conducted amongst 200 Emergency Medical Professionals from across India over a span of 3 months. To assess self-reported emotional anxiety, a pretested and validated State-Trait Anxiety Inventory (STAI) questionnaire developed by Spielberger et al was utilized for this study. The learners were required to fill the questionnaire in a period of 45 minutes. Any queries pertaining to the questionnaire were clarified during data collection process. Informed consent

was taken from the learners prior to the administration of the questionnaire. The data was tabulated and statistically analyzed with the help of SPSS version 23.

RESULTS:

Majority of learners exhibited high level of both trait and state anxiety post the simulation session. State anxiety can be overcome by repetitive exposure to real life clinical situations in simulated environments. But trait anxiety would require medical interventions like cognitive behavioural therapy to prevent performance issues and burnout.

CONCLUSION:

Trait anxiety is largely modifiable and can be overcome by regular exposure to high fidelity simulation. Further large scale studies are required to understand other factors that could contribute to the high levels of trait and state anxiety found in our study.

KEYWORDS:

Stressors, State Anxiety, Trait Anxiety, EMS Professions, Simulation

INTRODUCTION:

One way to define Stress is the imbalance in body's ability to cope up with external stimulus. External Stimuli include those factors which are beyond control eg: high stress job, urgent deadlines etc¹. Amongst healthcare professionals, people working in the emergency department are subjected to high levels of stress regularly². This kind of stressful environment can adversely impact the clinical performance of Emergency Medical Services (EMS) professional. Apart from being deleterious to the health of the EMS professional stress can have grave consequences on patient safety³.

Numerous studies have concluded that, timely intervention and management of the patient at prehospital level can significantly improve patient outcomes and thereby increase the patient's chances of survival.^{4,5,6} This underscores the importance of optimal performance level of EMS professionals

A study by RM Yerkes et al⁸ in 1908 depicted relation between stress and performance as an inverted U- shaped curve. This concept was further elaborated by Duffy E⁹ in 1957 wherein he concluded that performance increases up to a certain optimum level of stress, however, in presence of a great magnitude of stress performance level drastically drops. Few of the reasons

of adverse patient outcomes can be attributed to human errors and system failure in presence of excessive stress⁷.

Simulation is a safe mode of teaching and has been found as an effective and innovative teaching strategy for training all cadres of healthcare professionals¹⁰. Several studies have corroborated the fact that despite being in a conducive and safe environment, knowledge transfer can still trigger a certain amount of stress and anxiety amongst the learners. Yet when learners are exposed to such optimal levels of stress on a regular basis, it has the potential to improve their performance in actual patient management in the long run.^{11,12}

High-fidelity simulation has emerged as a pivotal tool in imparting healthcare education wherein the learners can enhance their skills across all the domains i.e. cognitive, psychomotor and affective. High fidelity simulation can provide immersive experience to learners without causing any harm to real patients¹³.

Managing a patient is a team effort and an efficient team is identified as a unit encompassing an able team leader and members who have thorough knowledge and have mastery over procedural skills and display effective communication amongst themselves¹⁴. Such a team can perform the clinical tasks with precision and help in reducing medical errors.¹⁵ Nevertheless, all that all the team members irrespective of their roles face the same amount of stress the measurements of stress and learning do not differ by individual role of the team member¹⁶

Several studies have reiterated to the fact that decision-making and memory abilities of learners remain intact under acute stress situations^{17,18,19} EMS Professionals are expected to perform and demonstrate their skills in very dynamic and high pressure situation with limited resources at hand. Hence, they undergo tremendous amount of stress both during the training and clinical practice²¹

This study is an attempt to assess the self-reported emotional anxiety of the Emergency Medical Professionals post a single high fidelity simulation encounter.

OBJECTIVE:

To assess the self-reported emotional anxiety of the Emergency Medical Professionals, post a single high fidelity simulation encounter.

METHODOLOGY:

This study was conducted amongst 200 Emergency Medical Professionals from across India over a span of 3 months. The learners were divided into 20 groups of 10 each. This was done to ensure that learners get maximum exposure to high fidelity simulation as their group size is limited. The learners underwent an orientation session regarding theory of clinical simulation and features of high fidelity simulation manikin.

Each group was then provided a simulation scenario comprising of both Medical and Trauma emergencies. Following an initial Prebriefing session of 15 minutes, the learners participated in the simulation scenario which lasted for 10 minutes. A focused debriefing session of 30 minutes was conducted immediately after the simulation exposure. The entire session was video recorded with the consent of the learners. The same facilitator debriefed all the groups to avoid any bias.

To assess self-reported emotional anxiety, a pretested and validated State-Trait Anxiety Inventory (STAI) questionnaire developed by Speilberger etal²² was utilized for this study. The 40 item questionnaire consisted of two components with 20 items each: STAI- S (state anxiety) and STAI-T (trait anxiety). State anxiety reflects the psychological and physiological transient reactions directly related to adverse situations in a specific moment whereas term trait anxiety refers to a trait of personality, describing individual differences related to a tendency to present state anxiety²³.

Each item comprised could be responded **on a 4-point Likert scale** (not at all, somewhat, moderately so, very much so). The lowest score possible on a item was 1 and maximum 4.

Based on the final scores obtained, the learners could be classified as having “no or low anxiety” (20-37), “moderate anxiety” (38-44), and “high anxiety” (45-80) on any of the two subscales.

The learners were required to fill the questionnaire in a period of 45 minutes. Any queries pertaining to the questionnaire were clarified during data collection process. Informed consent was taken from the learners prior to the administration of the questionnaire. The data was tabulated and statistically analyzed with the help of SPSS version 23.

RESULTS AND DISCUSSION

Table 1: DEMOGRAPHIC DATA

Demographic	Total (n=200)
Age	21-25 years: 92 (46%) 26-30 years: 78 (39%) 31-35 years: 30 (15%)
Sex	Female: 164 (82%) Male: 36 (18%)
Work Experience	Less than 1 year; 118 (59%) More than 1 Year: 82 (41%)

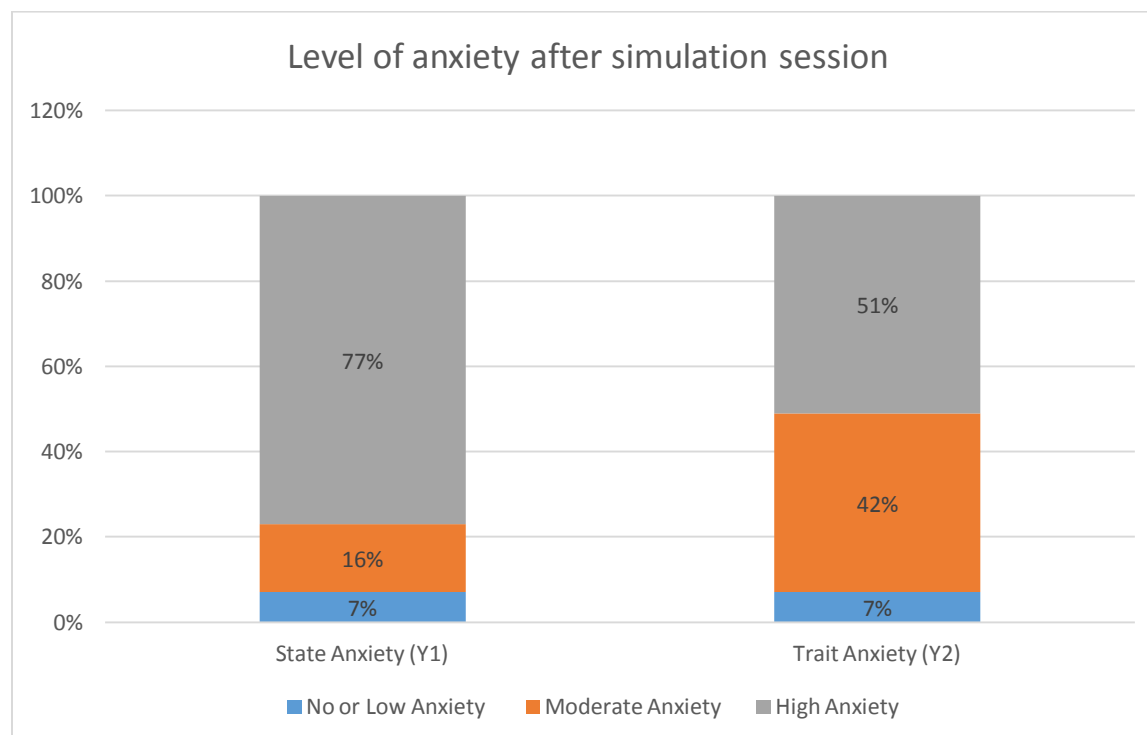


Figure 1.

As shown in figure 1, majority of learners exhibited high level of both strait and trait anxiety post the simulation session.

State anxiety refers to a temporary or short term emotional state of apprehension or uneasiness in response to a specific situation or event. It is a normal response to stress and can be triggered by events like public speaking, taking an exam or facing a difficult medical case in a new setting as in our study. Hence the high levels of state anxiety can be attributed to the fact that most of the learners were experiencing simulation for the first time.

Trait anxiety, on the other hand, refers to a longer term or chronic tendency to experience anxiety in response to various situations or events, It is a personality trait that is relatively stable over time and across different situations. Nearly half the learners exhibited high levels of trait anxiety.

State anxiety can be overcome by repetitive exposure to real life clinical situations in simulated environments. But trait anxiety would require medical interventions like cognitive behavioural therapy to prevent performance issues and burnout.

TABLE 2: Correlation between work experience and Anxiety levels

Parameter	Work experience below 1 year	Work experience above 1 year	T test
Trait Anxiety	Mean: 54.70338983 St Deviation: 5.90	Mean: 33.0375 St Deviation: 7.03	p= 0.00000*

TO further understand the relationship of work experience with trait anxiety, independent sample t test was applied to two groups (the first consisting of 118 learners with work experience of less than 1 year and 84 learners with work experience of more than 1 year). The results clearly indicate that work experience in Emergency Department can significantly impact levels of trait anxiety. This is in line with previous studies that have shown that physicians who have more work experience tend to have lower anxiety levels than those who have less work experience^{24,25}. EMS professionals with greater work experience are more likely to have developed resilience, coping mechanisms and a better understanding of how to handle the stressors of the job.

The healthcare system in which EMS professionals work can impact the relationship between work experience and trait anxiety levels. EMS professionals who work in systems with high levels of administrative burden, long working hours and lack of autonomy are more likely to experience greater levels of trait anxiety.

CONCLUSION:

Trait anxiety is largely modifiable and can be overcome by regular exposure to high fidelity simulation. Further large scale studies are required to understand other factors that could contribute to the high levels of trait and state anxiety found in our study.

CONFLICT OF INTEREST: Nil

SOURCE OF FUNDING: Self

ETHICAL CLEARANCE: Independent Ethics Committee, SIU

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