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Original Research Article

Levels of Depression, Anxiety and Stress among Emergency Department Personnel and Trainees in a Tertiary Care Hospital in Navi Mumbai: A Cross- Sectional Study

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Abstract

Background: Stress, anxiety, and depression are some of the most prevalent mental health conditions in the world and have been found to significantly increase the burden of disease, especially among medical professionals who work in demanding settings like emergency rooms. Due to their long workdays, lack of sleep, and frequent exposure to stressful, life-threatening situations, emergency healthcare workers are particularly vulnerable to psychological distress and burnout. Despite how serious this problem is, not much research has been done on Indian emergency medical personnel. Using the DASS-21 questionnaire, this study sought to determine the prevalence and severity of stress, anxiety, and depression among medical staff in the emergency medicine department of a tertiary care facility in Navi Mumbai.

Materials and Methods: In the Emergency Medicine Department of a tertiary hospital in Navi Mumbai, 30 medical professionals—including physicians, nurses, and paramedics—participated in a cross-sectional, observational study. Those on long-term leave or with a history of psychiatric diagnoses were not allowed to participate, but those with at least six months of experience were. The Depression Anxiety Stress Scale-21 (DASS-21) and a sociodemographic and occupational profile sheet were used to gather data. Normal, mild, moderate, severe, and extremely severe levels were assigned to the self-administered, scored responses. SPSS version 27 was used for the statistical analysis, and $p < 0.05$ was deemed significant.

Results: The majority of the 30 participants were under 30 years old, with 53.33% being female. 53.33% had normal stress, 60% had normal anxiety, and 56.67% had normal depression, according to DASS-21 scores. Significant percentages, however, showed clinically relevant distress: 33.33% had moderate to extremely severe anxiety, 36.66% had moderate to extremely severe stress, and 30% had moderate to extremely severe depression. In all three domains, female participants reported scores that were noticeably higher. Compared to their older counterparts, younger professionals (≤25 years) displayed more depressive symptoms. Compared to nurses, paramedics, and students, assistant professors, senior residents, and junior residents reported higher levels of anxiety and depression. Higher stress, anxiety, and depression scores were linked to sedative use, lack of regular exercise, and sleep deprivation (less than 7 hours per night).

Conclusion: This study emphasizes the significant psychological toll that emergency medical personnel bear, which is influenced by lifestyle, occupational, and demographic factors. Particularly at risk were women, younger workers, and physicians in positions of greater responsibility. Distress was also influenced by modifiable risk factors, such as insufficient sleep and inactivity. These results highlight the critical need for institutional interventions like structured wellness programs, access to mental health services, and controlled working hours. In addition to being vital for the wellbeing of the providers, addressing mental health in this workforce is also critical for patient safety and care quality.

Keywords: Depression, Anxiety, Stress, Emergency Medicine, Healthcare Professionals, DASS-21, Burnout, Mental Health.

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Introduction

Depression and anxiety are among the most prevalent mental health disorders worldwide, affecting more than 300 million individuals each and representing approximately 4–5% of the global population. [1] Depression alone is projected to become the leading cause of global disease burden by 2030. [2] The burden is disproportionately higher in economically disadvantaged and developing countries. [3] Healthcare professionals are particularly vulnerable to psychological distress, with those working in emergency medicine facing unique occupational challenges.

The emergency department (ED) is a high-intensity environment where physicians, nurses, and paramedics provide acute care under conditions of unpredictability, heavy workload, and frequent exposure to life-threatening emergencies. Prolonged and irregular working hours, sleep deprivation, resource constraints, and exposure to traumatic events compound stress levels, increasing the risk of emotional disturbances, burnout, and compassion fatigue. [4,5] These conditions adversely affect not only provider well-being but also the safety and quality of patient care. [6]

Sustained exposure to such stressors may impair judgment, slow decision-making, and increase the likelihood of medical errors. [6,7] Emergency healthcare providers must maintain peak clinical performance while also demonstrating interpersonal and cognitive skills such as empathy, clear communication, and collaborative teamwork. The unrelenting demand for high performance in such contexts places significant physical and psychological strain on professionals, predisposing them to burnout and reduced quality of life. [7,8] The COVID-19 pandemic has further exacerbated these challenges, introducing abrupt role changes, isolation from family, and heightened risk of infection, all of which intensified mental health concerns among frontline workers. [9]

Evidence suggests that emergency healthcare workers consistently report higher levels of stress compared to their peers in other specialties, highlighting the disproportionate psychological burden within this group.[10] Individual psychological traits, such as optimism, may act as protective factors by enhancing coping mechanisms and reducing susceptibility to depression, anxiety, and burnout. [11] Nevertheless, the prevalence of stress and related disorders among emergency personnel remains notably high. [12]

The Depression Anxiety and Stress Scales (DASS-21) is a validated tool widely used to measure these psychological constructs in both clinical and community settings. [13] Despite the substantial mental health burden among healthcare professionals, limited research has been conducted in India, particularly among those working in emergency medicine.

Therefore, the present study aimed to assess the levels of depression, anxiety, and stress among healthcare professionals working in the Emergency Medicine Department of a tertiary healthcare center in Navi Mumbai.

Materials and Methods

Study Design and Setting: This cross-sectional, observational study was conducted in the Emergency Medicine Department of a tertiary care hospital in Navi Mumbai.

Study Duration and Population: The study included physicians, nurses, and paramedics working in the emergency medicine department during the study period. Eligible participants were those with at least six months of work experience in the department and who provided written informed consent. Staff on leave due to illness, maternity, or personal reasons, as well as those with a known psychiatric illness prior to joining the department, were excluded.

Sampling Technique: Participants were recruited using a convenience sampling method until the desired sample size was achieved.

Data Collection Tools

Data were collected using two instruments:

1. A sociodemographic and occupational questionnaire that recorded details such as age, gender, marital status, designation, years of experience, and average working hours per week.
2. The Depression Anxiety Stress Scale–21 (DASS-21), a validated self-report instrument comprising 21 items equally distributed across three subscales: depression, anxiety, and stress. [13] Each item is rated on a four-point Likert scale (0–3). Subscale scores are multiplied by two to yield final scores, which are categorized into normal, mild, moderate, severe, and extremely severe levels.

Procedure: Eligible participants were approached during duty hours or break times. The study purpose was explained, and informed consent was obtained. The self-administered questionnaire required approximately 10–15 minutes to complete. Completed forms were checked for completeness before coding and data entry.

Data Analysis: Data were entered in Microsoft Excel and analyzed using SPSS version 27 (IBM Corp., Armonk, NY). Descriptive statistics including mean, standard deviation, frequencies,

and percentages were calculated. A p-value of <0.05 was considered statistically significant.

Ethical Considerations: The study protocol was approved by the Institutional Ethics Committee of the tertiary care hospital. Participation was voluntary, written informed consent was obtained from all participants, and confidentiality and anonymity of responses were maintained.

Results

Table 1: Distribution of Sociodemographic variables

Variables	n	%
Gender		
Male	14	46.67
Female	16	53.33
AGE		
≤25	13	43.33
26-30	16	53.33
≥31	1	3.33
Profession		
AP/SR/JR	15	50.00
Nurse Prac/Physician Assis/EMT	9	30.00
B.Sc. Student	6	20.00
DID YOU COME TO WORK AT THIS PROFESSION BY CHOICE?		
Yes	24	80.00
No	3	10.00
Forced	3	10.00
HOURS SPENT AT WORK ON AN AVERAGE THIS PAST WEEK		
< 48 hrs	6	20.00
48 - 72 hrs	16	53.33
> 72 hrs	8	26.67
NUMBER OF HOURS OF SLEEP EVERYDAY ON AN AVERAGE FOR THIS PAST WEEK		
< 7hrs	17	56.67
≥ 7 hrs	13	43.33
DO YOU EXERCISE REGULARLY?		
Yes/ few times a week	8	26.67
Sometimes	15	50.00
Never	7	23.33
DO YOU MEDITATE OR FOLLOW ANY TOOLS LIKE MINDFULNESS?		
Yes/Sometimes	8	26.67
No	21	70.00
What is that?	1	3.33
DO YOU CONSIDER YOURSELF OPTIMISTIC OR PESSIMISTIC		
Optimistic	16	53.33
Pessimistic	1	3.33
neither	13	43.33
DO YOU FEEL THE NEED TO CONSUME STIMULANTS LIKE CAFFIENE, NICOTINE, TOBACCO, OTHERS, TO FEEL ALERT & ACTIVE?		
Yes	5	16.67
Only sometimes	8	26.67
No	17	56.67
DO YOU FEEL THE NEED TO CONSUME SEDATIVES / OTHER CNS DEPRESSANTS TO GET A RESTFUL SLEEP?		
Yes	1	3.33
Only sometimes	3	10.00
No	26	86.67

A total of 30 healthcare professionals from the Emergency Medicine Department participated in the study. Out of the 30 participants, 14 (46.7%) were males, while 16 (53.3%) were females. The

majority of the participants were aged between 26 and 30 years (53.3%, n=16), followed by those aged 25 years or less (43.3%, n=13), and one participant aged 31 years or older (3.3%). Half of the respondents (50%, n=15) were doctors (Assistant Professors, Senior Residents, or Junior Residents), 30% (n=9) were nurses, physician assistants, or emergency medical technicians (EMTs), and 20% (n=6) were B.Sc. students (Table 1). Based on the DASS-21 assessment, the majority scored within normal limits for stress (53.3%, n=16), anxiety (60.0%, n=18), and depression (56.7%, n=17). Stress levels ranged from mild (10%, n=3) to extremely severe (13.3%, n=4). Anxiety levels varied from mild (6.7% or 2 participants) to extremely severe (16.7%, n=5). For depression, 13.3% (n=4) were mild, 6.7% (n=2) moderate, 3.3% (n=1) severe, and 20% (n=6) extremely severe. Overall, 30% demonstrated moderate to extremely severe depression and 33.3% moderate to extremely severe anxiety (Table 2; Figure 1).

Table 2: Prevalence of Depression, Stress and Anxiety

Level	Stress		Anxiety		Depression	
	n	%	n	%	n	%
Normal	16	**53.33**	18	**60**	17	**56.67**
Mild	3	10	2	6.67	4	13.33
Moderate	3	10	4	13.33	2	6.67
Severe	4	13.33	1	3.33	1	3.33
Extremely Severe	4	13.33	5	16.67	6	20

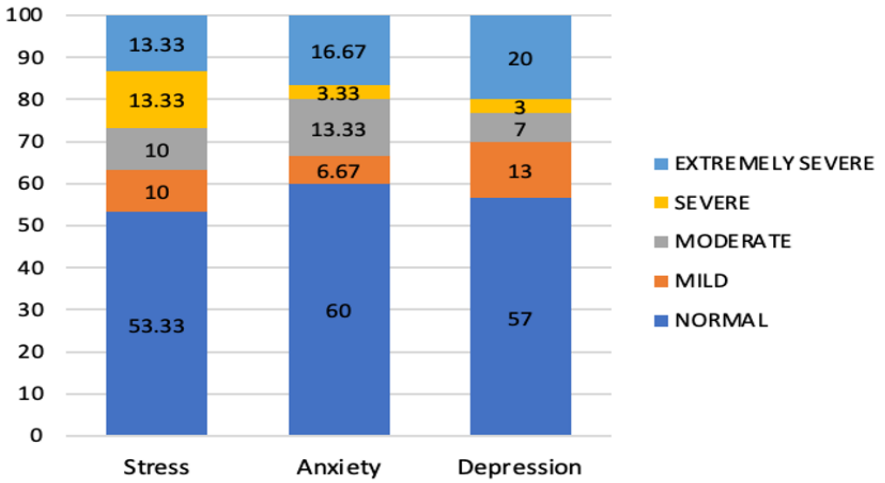

Figure 1: Prevalence of Depression, Stress and Anxiety

Subgroup analysis showed that female participants reported significantly higher stress, anxiety, and depression compared to males ($p<0.05$). Younger participants (≤25 years) had significantly higher depression scores than those aged 26–30 years ($p<0.05$). Professional category was significantly associated with anxiety and depression, with doctors (AP/SR/JR) reporting higher levels than nurses, paramedics, and students. Stress showed a non-significant trend toward higher levels among doctors. Sleep <7 hours per night was significantly associated with higher depression scores ($p<0.05$). Participants who reported no regular exercise demonstrated higher stress and anxiety compared to those who exercised regularly ($p<0.05$). Use of sedatives or CNS depressants was significantly associated with higher stress and depression ($p<0.05$) (Table 3).

Table no 3: Association of Stress, Anxiety and Depression with different variables

Variables	n	%	Stress		Anxiety		Depression	
			χ^2	p	χ^2	p	χ^2	p
GENDER								
Male	14	46.67	12.2545	0.005	12.1429	0.004	9.3621	0.021
Female	16	53.33						
AGE								
≤25	13	43.33	7.4495	0.489	9.1418	0.33	16.3405	0.038
26-30	16	53.33						
≥31	1	3.33						
PROFESSION								

AP/SR/JR	15	50.00	13.3833	0.099	22.4074	0.004	22.1046	0.005
Nurse Prac/Physician Assis/EMT	9	30.00						
Bsc Student	6	20.00						
DID YOU COME TO WORK AT THIS PROFESSION BY CHOICE?								
Yes	24	80.00	11.8958	0.156	10.0625	0.261	10.9804	0.203
No	3	10.00						
Forced	3	10.00						
HOURS SPENT AT WORK ON AN AVERAGE THIS PAST WEEK								
< 48 hrs	6	20.00	12.3333	0.137	7.9375	0.44	9.1605	0.329
48 - 72 hrs	16	53.33						
> 72 hrs	8	26.67						
NUMBER OF HOURS OF SLEEP EVERYDAY ON AN AVERAGE FOR THIS PAST WEEK								
< 7hrs	17	56.67	9.2986	0.054	2.3077	0.679	12.232	0.016
≥ 7 hrs	13	43.33						
DO YOU EXERCISE REGULARLY?								
Yes/ few times a week	8	26.67	17.6161	0.024	19.395	0.013	15.2314	0.055
Sometimes	15	50.00						
Never	7	23.33						
DO YOU MEDITATE OR FOLLOW ANY TOOLS LIKE MINDFULNESS?								
Yes/Sometimes	8	26.67	8.7232	0.366	3.4484	0.903	2.1914	0.974
No	21	70.00						
What is that ?	1	3.33						
DO YOU CONSIDER YOURSELF OPTIMISTIC OR PESSIMISTIC								
Optimistic	16	53.33	9.7356	0.284	6.4896	0.593	5.6738	0.684
Pessimistic	1	3.33						
neither	13	43.33						
DO YOU FEEL THE NEED TO CONSUME STIMULANTS LIKE CAFFIENE, NICOTINE, TOBACCO, OTHERS, TO FEEL ALERT & ACTIVE?								
Yes	5	16.67	13.1941	0.105	5.0125	0.756	9.411	0.309
Only sometimes	8	26.67						
No	17	56.67						
DO YOU FEEL THE NEED TO CONSUME SEDATIVES / OTHER CNS DEPRESSANTS TO GET A RESTFUL SLEEP?								
Yes	1	3.33	17.667	0.024	8.8269	0.357	16.1859	0.04
Only sometimes	3	10.00						
No	26	86.67						

Discussion

The present study highlights the multifactorial nature of psychological distress among healthcare professionals and trainees, underscoring the influence of demographic factors, occupational roles, lifestyle behaviours, and coping mechanisms. The observed prevalence of depression, anxiety, and stress among emergency medicine staff aligns with prior studies reporting high psychological burden in frontline healthcare workers globally and in India. [4,40,41]

Gender differences were evident, with female participants reporting significantly higher stress, anxiety, and depression scores compared to their male counterparts. This finding is consistent with earlier research demonstrating that women in healthcare are more vulnerable to psychological distress, possibly due to combined effects of workplace pressures, social role expectations, and coping styles. [6,19] Age did not show significant associations with stress or anxiety but was related to depressive symptoms, particularly among younger participants (≤25 years). Similar findings have been reported in prior Indian and international studies, suggesting that early-career healthcare professionals experience higher vulnerability due to professional uncertainty, academic demands, and limited coping resources. [38,52] This underscores the importance of mentorship and early psychological support for trainees.

The professional category was another key determinant. Assistant Professors, Senior Residents, and Junior Residents reported higher levels of anxiety and depression than nurses, paramedics, and students. Previous literature has similarly highlighted that physicians in training face greater mental health challenges compared to other staff, attributable to longer working hours, higher patient-care responsibilities, and career pressures. [8,23,24] Although stress did not reach

statistical significance in our study, the near-threshold association mirrors trends observed elsewhere. [12,40]

Lifestyle behaviours played a critical role. Participants reporting fewer than seven hours of sleep per night demonstrated significantly higher depression, reinforcing the well-documented bidirectional relationship between inadequate sleep and mood disturbances [16,27]. Similarly, lack of regular exercise was associated with elevated stress and anxiety. This aligns with evidence that physical activity exerts protective effects on mental health through neurochemical, hormonal, and behavioural mechanisms. [34,52] A noteworthy clinical observation was the association between sedative use and elevated stress and depression scores.

Although causality cannot be inferred due to the cross-sectional design, this finding is concerning and may reflect maladaptive coping strategies previously described in healthcare workers. [1,43] Proactive mental health support and awareness about healthier coping mechanisms are essential to prevent escalation of distress.

Taken together, these findings emphasize the need for workplace interventions targeting modifiable risk factors, including improved sleep hygiene, promotion of physical activity, and structured peer and counselling support. Special attention is warranted for vulnerable subgroups such as women, early-career professionals, and doctors in training.

This study has some limitations. The cross-sectional design limits causal inference, and the use of convenience sampling from a single centre reduces generalizability. Reliance on self-report measures may also introduce bias.

Nevertheless, strengths include the use of a validated tool (DASS-21) [13,45], the inclusion of multiple healthcare professional categories, and a focus on emergency medicine staff—a group consistently shown to experience disproportionate psychological burden. [4,19,40]

Conclusion:

This study underscores the considerable burden of psychological distress—manifesting as stress, anxiety, and depression—among healthcare professionals and trainees in the Emergency Medicine department of a tertiary care centre in Navi Mumbai. Mental health outcomes in this group were shaped by demographic, occupational, and lifestyle factors rather than occurring randomly.

Female professionals consistently reported higher distress, highlighting gendered vulnerabilities influenced by societal expectations and dual work–family responsibilities.

Younger participants, particularly those at the start of their careers, were more prone to depressive symptoms, reflecting challenges of professional uncertainty and adaptation to demanding clinical environments. Physicians in training and early faculty roles demonstrated higher anxiety and depression, underscoring the psychological toll of long hours, decision-making pressures, and academic responsibilities. Modifiable risk factors such as inadequate sleep, lack of physical activity, and sedative use were strongly associated with poor mental health outcomes. These findings highlight the urgent need for institutional wellness initiatives, including measures to promote adequate rest, encourage physical activity, and provide healthier coping strategies.

Overall, while individual resilience remains important, systemic and organizational interventions are essential to mitigate mental health risks.

Protecting the psychological well-being of emergency healthcare professionals is not only critical for staff retention and career sustainability but also for ensuring patient safety and maintaining the efficiency of healthcare systems.

Limitations:

Cross-sectional Design: Precludes inference of causality between variables.

Small Sample Size: May have limited statistical power to detect associations, particularly those near the significance threshold.

Self-reported Data: Subject to recall bias and social desirability bias, potentially underestimating sensitive behaviours such as sedative use.

Single-centre Study: Findings may not be generalizable to all healthcare settings or geographic regions.

Unmeasured Confounders: Factors such as personal life stressors, financial burden, or pre-existing psychiatric conditions were not assessed but may influence outcomes.

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