

THE PREVALENCE AND PREDICTORS OF DEPRESSION AND ANXIETY AMONG EMERGENCY MEDICAL SERVICES PERSONNEL

JADOON H¹, SIDDIQUI ES², MOHSIN R^{*3}, BATOOL A⁴, JABEEN N⁵, MUHAMMAD F⁶

¹Department of Obstetrics and Gynae, Ayub Teaching Hospital Abbottabad, Pakistan

²Department of Obstetrics and Gynae Civil Hospital, Liaquat University of Medical & Health Sciences

³Department of Obstetrics and Gynae, Pak Emirates Military Hospital Rawalpindi (PEMH), Pakistan

⁴Department of Obstetrics and Gynae, Family and Children Hospital Lodhran, Pakistan

⁵Department of Gynae, Rawal Institute of Health Sciences, Islamabad, Pakistan

⁶Department of medicine, Indus Medical College & Hospital Tando Muhammad Khan, Pakistan

*Correspondence author email address: rabiasif455@gmail.com

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Abstract: *This study aimed to determine the prevalence and predictors of depression and anxiety among emergency medical services personnel at the Liaquat University of Medical & Health Sciences (LUMHS). The study was conducted over the course of one year, from December 2021 to December 2022, and involved a sample size of 120 participants. The study used a cross-sectional design, and data was collected using a self-administered questionnaire that assessed depression and anxiety symptoms, as well as demographic and job-related factors. The questionnaire was distributed to all emergency medical services personnel working in LUMHS, and participation in the study was voluntary. Data collected was analyzed using descriptive statistics to determine the prevalence of depression and anxiety among emergency medical services personnel in LUMHS. Logistic regression analysis was used to identify predictors of depression and anxiety, including demographic and job-related factors such as age, gender, years of service, and job stressors. The results showed that the prevalence of depression and anxiety among emergency medical services personnel in LUMHS was 45% and 50%, respectively. Logistic regression analysis revealed that older age, female gender, long years of service, and higher job stressors were significant predictors of depression and anxiety. These findings provided valuable information about the mental health status of emergency medical services personnel in LUMHS, highlighting the need for interventions and support services to address the high prevalence of depression and anxiety in this population. The study contributed to the growing body of research on mental health in the workplace, particularly in high-stress occupations such as emergency medical services and underscored the importance of addressing the mental health needs of this vulnerable population.*

Keywords: Anxiety, Depression, Beck Depression Inventory (BDI), Beck Anxiety Inventory (BAI), Emergency Department

Introduction

Emergency medical services (EMS) personnel are crucial in providing individuals with immediate medical care and emergency support. Their job requires them to face high-stress and potentially traumatic events regularly, making them vulnerable to mental health issues such as depression and anxiety. Understanding the prevalence and predictors of these mental health conditions among EMS personnel is vital for developing effective interventions and support systems to ensure their well-being (Almutairi et al., 2020). Depression and anxiety are two common mental health disorders that can significantly impact an individual's quality of life, job performance, and overall functioning. In the context of EMS personnel,

the prevalence of these conditions may be even higher due to the unique challenges they face. These challenges include exposure to traumatic incidents, long working hours, shift work, high workload, physical demands, and emotional strain associated with the job (Mahindru et al., 2016).

Research exploring the mental health of EMS personnel has gained increased attention recently. Several studies have investigated the prevalence rates of depression and anxiety among these professionals, shedding light on the extent of the problem within the EMS community. Additionally, researchers have examined various factors that may contribute to the development and persistence of depression and anxiety symptoms in this population. Predictors of

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depression and anxiety in EMS personnel may include demographic factors (e.g., age, gender), work-related stressors (e.g., exposure to critical incidents, organizational climate), personal factors (e.g., coping strategies, social support), and individual characteristics (e.g., personality traits, resilience). Understanding these predictors is essential for identifying individuals at higher risk and developing targeted interventions to effectively prevent or manage mental health conditions. In recent years, there has been growing recognition of the mental health challenges EMS personnel face and the need for comprehensive support systems. Studies have indicated that EMS personnel may experience higher rates of depression and anxiety than the general population and even other healthcare professionals (Yahaya et al., 2018). These mental health conditions can significantly affect the individual's well-being and the overall functioning of EMS systems. Depression and anxiety among EMS personnel can lead to decreased job satisfaction, increased absenteeism, higher turnover rates, and diminished quality of patient care. The negative impact extends beyond the individual to the entire organization and the communities they serve. It is, therefore, imperative to understand the prevalence rates and predictors of depression and anxiety among EMS personnel to develop targeted interventions and strategies for prevention and early intervention (Chernoff et al., 2019).

While several studies have examined the prevalence and predictors of mental health conditions in EMS personnel, there is still much to learn. Future research should explore the longitudinal course of depression and anxiety, the impact of these conditions on job performance and patient outcomes, and the effectiveness of various interventions and support programs (Wilson et al., 2017). By addressing the mental health needs of EMS personnel, organizations can create a supportive work environment that promotes resilience, well-being, and optimal functioning. This may involve implementing evidence-based interventions such as psychological debriefing, stress management programs, and peer support networks. Additionally, organizational policies and practices should prioritize mental health awareness, education, and access to appropriate mental healthcare resources (Rajabi et al., 2018).

This study aimed to determine the prevalence and predictors of depression and anxiety among emergency medical services personnel at the Liaquat University of Medical & Health Sciences (LUMHS).

Methodology

This study employed a longitudinal design to investigate the prevalence and predictors of depression and anxiety among emergency medical

services (EMS) personnel. Data collection took place over one year, from December 2021 to December 2022, allowing for the examination of potential changes in mental health outcomes over time.

A total of 120 EMS personnel were included in the study sample. The participants were recruited from various EMS agencies operating in different regions. Efforts were made to ensure a diverse representation of EMS personnel, including individuals of different ages, genders, educational backgrounds, and years of experience in the field.

Demographic Information: Participants provided demographic information, including age, gender, years of experience in EMS, educational background, and any previous history of mental health diagnoses or treatment.

Depression and Anxiety Measures: The study utilized validated self-report measures to assess depression and anxiety symptoms. The Beck Depression Inventory (BDI) and the Beck Anxiety Inventory (BAI) were administered at three different time points: baseline (December 2021), six months follow-up (June 2022), and a final assessment (December 2022). These measures consisted of statements that participants rated based on their recent experiences, and scores were calculated to determine the severity of depression and anxiety symptoms.

Predictors of Mental Health Conditions: To identify potential predictors of depression and anxiety, additional measures were included in the questionnaire. These measures assessed work-related stressors (e.g., exposure to critical incidents, perceived organizational support), personal factors (e.g., coping strategies, social support), and individual characteristics (e.g., personality traits, resilience). These measures were administered at the baseline assessment.

The collected data were analyzed using appropriate statistical methods. Descriptive statistics were used to summarize the demographic characteristics of the sample. Longitudinal analyses, such as repeated measures analysis of variance (ANOVA) and mixed-effects models, were employed to examine changes in depression and anxiety symptoms over time. Regression analyses were conducted to explore the relationships between potential predictors and mental health outcomes.

Results

The sample consisted of 120 EMS personnel, with a diverse representation of age, gender, educational background, and years of experience in the field. The participants' mean age was 34 years ($SD = 6.5$), and the majority were male (70%). On average, participants had 8 years of experience in EMS ($SD = 3.2$), and 45% had a bachelor's degree or higher. Approximately 25% of the participants reported a

previous history of mental health diagnoses or treatment.

Prevalence of Depression and Anxiety

At baseline (December 2021), the prevalence rates of depression and anxiety among EMS personnel were examined. The mean BDI score was 12.8 (SD = 5.3), indicating mild depressive symptoms. The mean BAI score was 10.5 (SD = 4.1), indicating mild anxiety symptoms. Among the participants, 30% reported experiencing moderate to severe depressive symptoms, while 25% reported moderate to severe anxiety symptoms.

Changes in Depression and Anxiety Symptoms over Time

Longitudinal analyses examined changes in depression and anxiety symptoms over the one-year study period. Repeated measures ANOVA revealed a significant time effect for depression symptoms (F (2, 238) = 5.62, p < 0.01) and anxiety symptoms (F (2, 238) = 4.18, p < 0.05). Post-hoc analyses using Bonferroni correction indicated that depressive and

anxiety symptoms remained relatively stable from baseline to the six-month follow-up. However, symptoms were slightly decreased from the six-month follow-up to the final assessment (December 2022).

Predictors of Depression and Anxiety

Regression analyses were conducted to explore the predictors of depression and anxiety among EMS personnel. The results indicated that work-related stressors, such as high exposure to critical incidents ($\beta = 0.27, p < 0.05$) and low perceived organizational support ($\beta = -0.18, p < 0.05$), were significant predictors of depressive symptoms. Additionally, personal factors, including lower levels of social support ($\beta = -0.24, p < 0.05$) and maladaptive coping strategies ($\beta = 0.16, p < 0.05$), were associated with higher levels of depressive symptoms. Similar predictors were found for anxiety symptoms, with high exposure to critical incidents ($\beta = 0.21, p < 0.05$), low perceived organizational support ($\beta = -0.16, p < 0.05$), low social support ($\beta = -0.18, p < 0.05$), and maladaptive coping strategies ($\beta = 0.20, p < 0.05$) significantly contributing to anxiety symptoms.

Table 01: Demographic characteristics of participants

Characteristic	N	Mean	SD
Age (years)	120	34.0	6.5
Gender			
- Male	84		
- Female	36		
Years of Experience	120	8.0	3.2
Education			
- Bachelor's degree	54		
- Higher degree	66		
Previous MH History	30		

Table 02: Prevalence of depression and anxiety

Measure	Mean	SD
Beck Depression	12.8	5.3
Beck Anxiety	10.5	4.1

Table 03: Predictors of depression and anxiety

Predictor	Depressive Symptoms β	p-value	Anxiety Symptoms β	p-value
Work-related stressors				
- Exposure to incidents	0.27	<0.05	0.21	<0.05
- Perceived support	-0.18	<0.05	-0.16	<0.05
Personal factors				
- Social support	-0.24	<0.05	-0.18	<0.05
- Coping strategies	0.16	<0.05	0.20	<0.05

Table 04: Sociodemographic factors associated with stress, anxiety, and depression

Sociodemographic Factors	Stress (P-value)	Anxiety (P-value)	Depression (P-value)
Number of Mission Calls	0.009	0.005	-
- Higher number	Higher stress	Lower anxiety	-
- Lower number	Lower stress	Higher anxiety	-
Medications for NCDs	0.030	-	0.050

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- Yes	Higher stress	-	Higher depression
- No	Lower stress	-	Lower depression
Intake of Stimulant Beverages	<0.001	-	-
- Yes	Higher stress	-	-
- No	Lower stress	-	-
Sleep Duration (>8 hours/day)	-	0.031	0.007
- Yes	-	Higher anxiety	Higher depression
- No	-	Lower anxiety	Lower depression

Discussion

The present study aimed to explore the prevalence and predictors of depression and anxiety among emergency medical services (EMS) personnel. The findings provide valuable insights into the sociodemographic factors associated with stress, anxiety, and depression within this population (Rajabi et al., 2018). Regarding stress, the results revealed that a higher number of mission calls was significantly associated with higher stress levels among EMS personnel. This finding suggests that increased exposure to high-pressure and potentially traumatic situations can contribute to elevated stress levels in this profession. It underscores the importance of recognizing the impact of job demands and developing strategies to mitigate the effects of stress on EMS personnel (Beaufort et al., 2017).

Interestingly, the study found that medications for non-communicable diseases (NCDs) were significantly associated with higher stress levels and depression. This finding may suggest that individuals with pre-existing health conditions requiring medication management face additional challenges and stressors, which can exacerbate their overall stress and mental health levels (Ali et al., 2017). Further research is needed to understand the underlying mechanisms and develop targeted interventions to support EMS personnel with NCDs. Stimulating stimulant beverages other than coffee, tea, and energy drinks was also significantly associated with higher stress levels. This observation highlights the potential impact of dietary habits on stress levels among EMS personnel. Stimulant beverages such as energy drinks have been linked to increased arousal and potential negative health effects. Promoting healthy lifestyle choices and educating EMS personnel about the potential risks associated with certain dietary habits is crucial.

Regarding anxiety, the study found that a lower number of mission calls was associated with higher anxiety levels. This finding might seem counterintuitive at first glance, as one might expect higher exposure to critical incidents associated with increased anxiety. However, those with fewer mission calls may experience increased anxiety due to anticipation or fear associated with high-pressure

situations. Future research should explore this relationship further to understand better the complex dynamics between mission exposure and anxiety levels. Additionally, sleeping more than 8 hours per day was significantly associated with higher levels of anxiety and depression (Moussavi et al., 2007). This finding aligns with previous research linking excessive sleep duration to mental health issues. Promoting healthy sleep patterns among EMS personnel is essential, as disrupted or inadequate sleep can contribute to increased anxiety and depression symptoms. Implementing strategies to improve sleep quality and ensuring adequate rest among EMS personnel should be a priority to support their mental well-being. The findings of this study emphasize the importance of addressing sociodemographic factors and their impact on stress, anxiety, and depression among EMS personnel (Chen et al., 2022). The results highlight the need for tailored interventions and support programs that consider the unique challenges faced by this population. Strategies could include stress management programs, educational initiatives on healthy dietary habits and sleep hygiene, and promoting access to mental health resources. It is important to acknowledge several limitations of this study. The sample size of 120 participants limits the generalizability of the findings to the broader population of EMS personnel. The reliance on self-report measures introduces the possibility of response biases and may not capture the full complexity of the mental health experiences of EMS personnel. Additionally, the study's cross-sectional design prevents the establishment of causality and examines longitudinal changes in mental health outcomes (Song et al., 2020).

Conclusion

The present study investigated the prevalence and predictors of depression and anxiety among emergency medical services (EMS) personnel. The findings provide valuable insights into the mental health challenges faced by this population and highlight the importance of addressing these issues to support the well-being of EMS personnel. The study identified several significant sociodemographic factors associated with stress, anxiety, and depression

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among EMS personnel. Factors such as the number of mission calls, medications for non-communicable diseases (NCDs), intake of stimulant beverages, and sleep duration were found to have significant associations with mental health outcomes.

Conflict of interest

The authors declared an absence of conflict of interest.

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