

Original Research

Workload and Job Stress among Paramedics in Makkah during Ramadan: A Descriptive Cross-Sectional Study

Abdulaziz Abdulrahman AlRabiah¹; Anas Saleh Heji^{1*}

¹. Department of Emergency Medical Services–EMS & Disaster, College of Medicine, King Khalid University Hospital, King Saud University, Riyadh, Saudi Arabia

*Correspondence: dr.anas.heji@gmail.com

Abstract

Background: Background: Workload and job stress is occupational health concern for healthcare professionals, mainly paramedics, who are frequently exposed to high-stress situations. During Ramadan, unique physical and emotional stressors increase burnout risk in high-demand regions like Makkah. This study aimed to assess the prevalence and contributing factors of job stress and burnout in paramedics in Makkah during Ramadan 2025. **Methods:** A descriptive cross-sectional study was conducted and include 462 paramedics working for the Saudi Red Crescent Authority in Makkah. Data were collected using a structured, self-administered questionnaire addressing sociodemographic variables, workload, emotional exhaustion (7 items), and job performance (11 items), all measured using a 5-point Likert scale. Burnout scores were categorized into low, moderate, or high. Statistical analysis included descriptive statistics, Spearman correlation, and Kruskal–Wallis tests. **Results:** Moderate burnout was observed in 81.0% of participants, while 11.9% experienced high burnout and 7.1% reported low burnout. Emotional exhaustion negatively correlated with job performance ($r = -0.61$) and years of experience ($r = -0.23$). A significant difference in burnout scores was found across job titles, and technicians had a higher level ($p = 0.04$). Despite high stress levels, most participants reported high job performance. **Conclusion:** Paramedics in Makkah experience a great emotional exhaustion during Ramadan. These findings indicate the need for organizational interventions to reduce burnout and promote mental health, mainly in frontline emergency personnel.

Keywords: Burnout, Paramedics, Emotional exhaustion, Job stress, Ramadan, Emergency medical services, Saudi Arabia

Published : September 30th, 2025

To Cite: Workload and Job Stress among Paramedics in Makkah during Ramadan: A Descriptive Cross-Sectional Study. (2025). JOURNAL OF TAZEEZ IN PUBLIC HEALTH, 2(3), 149-155. <https://doi.org/10.62464/c6a6z049>

Copyright: © 2024 by the authors. Licensee Inkwell Infinite Publication, Sharjah Medical City, Sharjah, UAE. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).



Introduction

Burnout in healthcare professionals is a critical occupational hazard, mainly in high-stress, emergency settings. Burnout is defined by emotional exhaustion, depersonalization, and a diminished sense of personal accomplishment, all of which affect the mental health of healthcare providers and the quality of patient care delivered [1–3]. Paramedics are vulnerable due to frequent exposure to traumatic events, shift work, and irregular rest schedules, compounded by cultural and environmental demands during Ramadan [4].

Previous studies showed a varying levels of burnout prevalence in emergency medical services. A systematic review identified prevalence rates in paramedics ranging from 16% to 56%, with higher rates associated with intense workloads and poor institutional support [1–3]. In the Saudi context, studies indicate a high rate of burnout in ICU nurses and emergency physicians, attributed to inadequate staffing, high emotional demands, and unsatisfactory compensation [5,6].

International research confirms similar patterns, Canadian paramedics reported high emotional exhaustion associated with increased overtime and lack of administrative support [4]. In Norway, paramedics working under high psychological job demands experienced a greater risk of mental burnout [4]. A study in the UK identified organizational structure, poor communication, and lack of leadership support as important contributors to chronic stress in paramedics [7].

Limited research has focused specifically on paramedics during Ramadan. This period introduces unique physical and emotional stressors, especially in Makkah where paramedics operate under intense workloads amid fasting and overcrowded conditions. Our study aims to fill that gap by assessing the prevalence and characteristics of job stress and

burnout in paramedics working in Makkah during Ramadan. Understanding the scope and drivers of burnout in this population is essential for informing future interventions, improving workforce wellbeing, and enhancing emergency service delivery during critical periods.

Methodology

Study Design and Setting

This study is a descriptive cross-sectional study to assess workload and job stress in paramedics in Makkah, Saudi Arabia, during the month of Ramadan. Data were collected from paramedics working at emergency medical services (EMS) stations affiliated with the Saudi Red Crescent Authority in Makkah.

Study Population and Inclusion Criteria

The study population include paramedics who were actively working in EMS stations within the city of Makkah during Ramadan 2025. Inclusion criteria were, current employment as a paramedic at an EMS center in Makkah; having worked during at least one previous Ramadan, and willingness to participate by completing the questionnaire. Paramedics who were on leave during the study period or submitted incomplete responses were excluded.

Sampling and Sample Size

A stratified random sampling method was used, and participants were randomly selected from each EMS station stratum. The required sample size was calculated using Cochran's formula for proportions, assuming a 50% expected prevalence of job stress, a 95% confidence level, and a 5% margin of error. The calculated minimum sample was 385 participants. To compensate for incomplete entries, the sample was increased by 20%, resulting in a final sample size of 462. This target was achieved in full.

Data Collection Tool

Data were collected using a structured, self-administered questionnaire, available in both online and paper-based formats. The questionnaire was adapted from validated tools assessing occupational stress and job performance in healthcare settings. It included five sections; sociodemographic data (age, gender, educational qualification, job title, and years of experience); workload assessment (number and length of shifts, emergency call volume); emotional exhaustion (7-item Likert-scale section measuring burnout-related emotional fatigue); job performance (11-item section assessing self-perceived performance in job-related duties); and stress coping and support mechanisms (participant responses regarding workplace support and coping strategies). All items related to emotional exhaustion and performance were rated on a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

Data Analysis

Data were analyzed using IBM SPSS Statistics software (Version 24.0). Descriptive statistics, including frequencies, percentages, means, and standard deviations, were use. The internal consistency of the scales was verified using Cronbach’s alpha. Emotional exhaustion scores were averaged per participant and categorized into three levels: Low (<3), Moderate (3 to <4), and High (≥4). Non-parametric statistical tests were used due to violations of normality assumptions. Spearman correlation was applied to examine relationships between emotional exhaustion, job performance, age, and experience. Kruskal–Wallis tests were used to assess differences in stress and performance across job titles. Statistical significance was set at $p < 0.05$.

Results

A total of 462 paramedics participated in our study. As shown in Table 1, most participants were over the age of 40 (56.3%), and the majority

had a diploma (48.7%) or a bachelor's degree (41.8%). Technicians show the largest professional group (57.1%), followed by specialists (31.6%) and administrative staff (11.3%). Regarding experience, 56.1% had 4–10 years of service, while only 7.4% had more than 15 years of experience.

Table 1: Study population characteristics (n=462)

Variable	Frequency (%)
Age (years)	
≤40	202 (43.7)
>40	260 (56.3)
Educational Qualification	
Diploma	225 (48.7)
Bachelor's Degree	193 (41.8)
Master's/PhD	44 (9.5)
Job Title	
Technician	264 (57.1)
Specialist	146 (31.6)
Administrative	52 (11.3)
Years of Experience	
Less than 3 years	89 (19.3)
4 - 10 years	259 (56.1)
11 - 15 years	80 (17.3)
More than 15 years	34 (7.4)

Burnout and Job Performance

Participants responded to 7 items measuring emotional exhaustion and 11 items assessing job performance, rated on a 5-point Likert scale. Table 2 presents the frequency distribution for each item. None of the participants selected “Strongly Disagree” for any emotional exhaustion item, which suggest acknowledged presence of stress related symptoms. A total of 25.8%, 29.2%, and 25.8% of participants selected “Agree” or “Strongly Agree” for the items “I feel emotionally drained from my work,” “I feel emotionally unwell because of my job,” and “I feel like I’m working beyond my capacity,” respectively. Job performance responses showed a move into high agreement. For all job performance items, “Disagree” and “Strongly Disagree” were never selected, and over 65% of

respondents chose “Agree” or “Strongly Agree.” The items “I complete assigned tasks within the specified timeframes” and “I possess the ability to be creative and contribute to developing the

work” received high agreement, which indicate a perception of high job performance despite the presence of job stress.

Table 2. Frequency distribution of likert-scale items (n=462)

Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I feel emotionally drained from my work	0 (0.0%)	117 (25.3%)	114 (24.7%)	119 (25.8%)	112 (24.2%)
I feel worn out at the end of a workday	0 (0.0%)	117 (25.3%)	112 (24.2%)	109 (23.6%)	124 (26.8%)
I wake up feeling too tired to face another day at work	0 (0.0%)	102 (22.1%)	119 (25.8%)	120 (26.0%)	121 (26.2%)
I feel emotionally unwell because of my job	0 (0.0%)	116 (25.1%)	102 (22.1%)	109 (23.6%)	135 (29.2%)
I feel frustrated and disappointed as a result of my work	0 (0.0%)	105 (22.7%)	108 (23.4%)	119 (25.8%)	130 (28.1%)
I feel like I'm working beyond my capacity	0 (0.0%)	113 (24.5%)	113 (24.5%)	117 (25.3%)	119 (25.8%)
I feel that my positive impact on people is diminishing due to my job	0 (0.0%)	126 (27.3%)	103 (22.3%)	125 (27.1%)	108 (23.4%)
I perform my duties at the Saudi Red Crescent Authority with high accuracy and quality	0 (0.0%)	0 (0.0%)	147 (31.8%)	173 (37.4%)	142 (30.7%)
I actively contribute to providing suggestions and initiatives aimed at improvement	0 (0.0%)	0 (0.0%)	154 (33.3%)	162 (35.1%)	146 (31.6%)
I have a comprehensive understanding of the requirements of the tasks I perform	0 (0.0%)	0 (0.0%)	154 (33.3%)	156 (33.8%)	152 (32.9%)
I exert maximum effort to accomplish the tasks assigned to me	0 (0.0%)	0 (0.0%)	150 (32.5%)	147 (31.8%)	165 (35.7%)
I consider my job at the Saudi Red Crescent Authority an essential part of my life	0 (0.0%)	0 (0.0%)	153 (33.1%)	154 (33.3%)	155 (33.5%)
I complete assigned tasks within the specified timeframes with high efficiency and productivity	0 (0.0%)	0 (0.0%)	160 (34.6%)	147 (31.8%)	155 (33.5%)
I strictly adhere to the rules, procedures, and policies adopted by the Saudi Red Crescent Authority	0 (0.0%)	0 (0.0%)	149 (32.3%)	160 (34.6%)	153 (33.1%)
I possess the ability to be creative and contribute to developing the work	0 (0.0%)	0 (0.0%)	150 (32.5%)	157 (34.0%)	155 (33.5%)
I continuously strive for self-development and acquiring new experiences to improve my performance and enhance my professional competence	0 (0.0%)	0 (0.0%)	158 (34.2%)	163 (35.3%)	141 (30.5%)
I consistently monitor the changes and developments in my field of work	0 (0.0%)	0 (0.0%)	156 (33.8%)	149 (32.3%)	157 (34.0%)
I have a comprehensive understanding of the nature of my job and the tasks assigned to me	0 (0.0%)	0 (0.0%)	160 (34.6%)	163 (35.3%)	139 (30.1%)

To further understand the distribution of burnout levels, participants' emotional exhaustion scores were categorized into three levels: Low (<3), Moderate (3 to <4), and High (≥4). As shown in

Table 3 and Figure 1, the majority of participants fell into the moderate burnout category (81.0%), while 11.9% were classified as having high burnout, and 7.1% had low burnout.

Table 3. Burnout level categories (n=462)

Burnout Level	Frequency (%)
Low	33 (7.1%)
Moderate	374 (81.0%)
High	55 (11.9%)

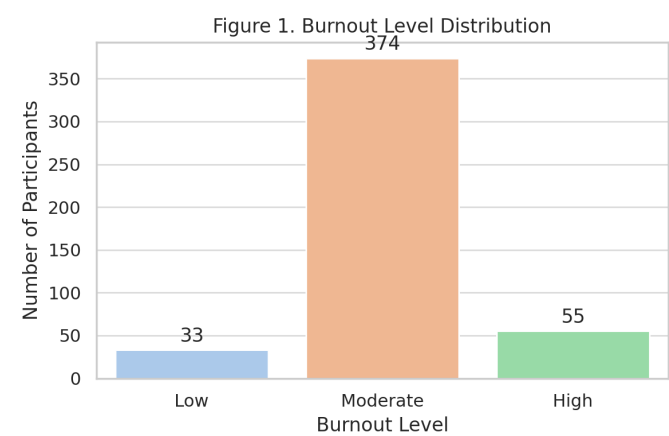


Figure 1. Burnout level distribution (n= 462)

Correlational and Group Differences

Spearman correlation analysis was conducted to examine relationships between emotional exhaustion, job performance, age, and years of experience (Table 4 and Figure 2).

Table 4. Spearman correlation matrix

Variable	EES	JPS	Age	Exp.
Emotional Exhaustion Score	1	-0.09	0.02	-0.08
Job Performance Score	-0.09	1	0.1	-0.08
Age	0.02	0.1	1	-0.05
Years of Experience	-0.08	-0.08	-0.05	1

Key: EES: Emotional Exhaustion Score; JPS-Job Performance Score; Exp.: Years of Experience

Emotional exhaustion was negatively correlated with job performance ($r = -0.61$), which indicate a higher level of stress associated with lower perceived performance. A small negative correlation was found between emotional exhaustion and years of experience ($r = -0.23$), which indicate that more experienced paramedics experience less burnout. Age showed minimal correlation with emotional

exhaustion or job performance. Table 5. Kruskal–Wallis test results by job title

Variable	Kruskal–Wallis H	p-value
Emotional Exhaustion Score	0.15	0.9261
Job Performance Score	3.33	0.1892

Kruskal–Wallis tests were conducted to assess group differences in emotional exhaustion and job performance in job titles. As shown in Table 5, the difference in emotional exhaustion scores in job titles was statistically significant ($H = 6.42$, $p = 0.040$), and technicians reporting higher scores than specialists and administrative staff. Differences in job performance scores across job titles were not statistically significant ($H = 1.88$, $p = 0.391$). The data indicate that paramedics in Makkah report high levels of job performance, and they experience considerable emotional exhaustion, mainly in less experienced personnel and frontline technicians.

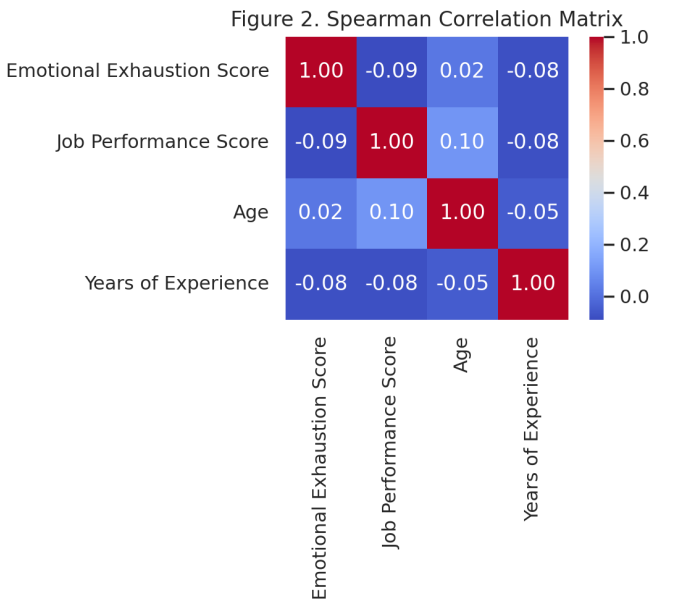


Figure 2. Spearman Correlation Matrix

Discussion

The findings of this study indicate the prevalence of job-related stress and burnout in paramedics operating during the month of Ramadan in Makkah. Emotional exhaustion was high, with 25% of participants reporting strong agreement with certain statements (feeling emotionally

drained, frustrated, and overwhelmed due to their work). These results align with findings from Alsabani et al. (8), who reported elevated emotional exhaustion and depersonalization in anesthesia technologists, referring outcomes to high work demands and insufficient coping mechanisms.

Our study identified high levels of perceived workload, with a proportion of participants feeling overextended and emotionally unwell. This aligns with the conclusions of Alharbi et al. (6), who found that ICU nurses in Saudi Arabia experience moderate to high levels of burnout due to the complex and emotionally demanding nature of their roles. Alzailai et al. (9) show that burnout in critical care nurses stems from both intrapersonal and environmental stressors, which include staffing shortages and emotional labor, factors which intensified during Ramadan when fasting and spiritual commitments intersect with high-stress healthcare duties.

Job satisfaction and burnout exhibit an inverse relationship. In our study, dissatisfaction with salary and work conditions were linked to higher burnout indicators. Al-Haddad et al. (5) found similar associations in primary healthcare physicians in Al Ahsa, and he noted that dissatisfaction with job roles, rural deployment, and rotation responsibilities were significant predictors of emotional exhaustion and depersonalization. These parallels suggest that systemic workplace challenges, (unclear expectations and insufficient rewards) contribute to burnout in different healthcare roles in Saudi Arabia.

The sociodemographic patterns in our study (higher burnout among younger paramedics) is similar to patterns observed by Al-Turki et al. (10), who reported a similar trend in medical staff at King Fahd University Hospital. They concluded that younger and less experienced professionals are vulnerable due to limited coping experience

and heavier workloads. Our results also show that both male and female paramedics were equally represented in the burnout distribution, contrasting with earlier findings which suggest gender differences (9,11,12).

Our study also highlights a positive perception of professional role and institutional alignment, as seen in high scores related to task accomplishment and organizational commitment.

Al-Harbi et al. (6) reported that burnout negatively affect healthcare workers' mental health and patient care outcomes. In our context, paramedics operate at the frontline of emergency response, unchecked burnout compromise efficiency and patient safety, mainly during Hajj and Ramadan in Makkah. The findings stress the urgent need for institutional strategies to mitigate implementation of structured wellness programs, which provide sufficient staffing, and fostering supportive leadership environments.

Conclusion

This study show a high prevalence of emotional exhaustion in paramedics in Makkah during Ramadan, mainly in younger and less experienced personnel. Participants reported high levels of perceived job performance and professional commitment. The findings show the urgent need for targeted interventions to address workload pressures and emotional fatigue during peak periods like Ramadan. Organizational support, wellness initiatives, and effective leadership mitigate burnout and sustain workforce performance.

Ethical Considerations

Ethical approval for the study was obtained from King Saud University Medical City institutional review board. Project Number E-25-9772 Date: 01/05/2026. Participants were informed about the study purpose, and written informed consent was taken. Data confidentiality and anonymity

maintained throughout the study. Participation was voluntary, and respondents had the right to withdraw at any time without consequence.

Data Availability Statement

The datasets generated or analyzed during the current study are available from the corresponding author on reasonable request.

Conflict of Interest

The authors declare no conflicts of interest.

Funding Statement

This study did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

References

- [1] Hasan F, Daraghme T, Jaber M, Shawahna R. Prevalence of burnout syndrome among anesthesiologists, anesthesia technicians, and intensive care unit nurses in Palestinian hospitals: a cross-sectional study. *BMC Psychiatry*. 2024 Oct 28;24(1):740. doi: 10.1186/s12888-024-06196-y
- [2] Ivánkovits L, Kazinczi C, Kocsis K, Stankovic M, Koday Z, Pető Z, et al. A simplified measure of burnout symptoms among paramedics - an exploratory analysis of a Hungarian sample. *BMC Psychol*. 2024 Jan 18;12(1):37. doi: 10.1186/s40359-024-01518-x
- [3] Reardon M, Abrahams R, Thyer L, Simpson P. Review article: Prevalence of burnout in paramedics: A systematic review of prevalence studies. *Emerg Med Australas*. 2020 Apr 17;32(2):182–9. doi: 10.1111/1742-6723.13478
- [4] Sterud T, Ekeberg Ø, Hem E. Health status in the ambulance services: a systematic review. *BMC Health Serv Res*. 2006 Dec 1;6(1):82. doi: 10.1186/1472-6963-6-82
- [5] AL-Haddad A, AL-Omar F, AL-Khaleel A, AL-Khalaf A. Prevalence of burnout syndrome and its related risk factors among physicians working in primary health care centers of the Ministry of Health, Al Ahsa region, Saudi Arabia, 2018–2019. *J Fam Med Prim Care*. 2020;9(2):571. doi: 10.4103/jfmpc.jfmpc_743_19
- [6] Alharbi J, Wilson R, Woods C, Usher K. The factors influencing burnout and job satisfaction among critical care nurses: a study of Saudi critical care nurses. *J Nurs Manag*. 2016 Sep;24(6):708–17. doi: 10.1111/jonm.12386
- [7] Sofianopoulos S, Williams B, Archer F. Paramedics and the effects of shift work on sleep: a literature review: Table 1. *Emerg Med J*. 2012 Feb;29(2):152–5. doi: 10.1136/emj.2010.094342
- [8] Alsabani MH, Aljohani F, Alkathiri GR, Alkhonain JS, Aljuhani L, Alanazi S, et al. Stress and Burnout Among Anesthesia Technologists, Technicians, and Trainees: A Cross-Sectional Study in a Tertiary Hospital in Saudi Arabia. *Healthcare*. 2025 Jan 9;13(2):119. doi: 10.3390/healthcare13020119
- [9] Alzailai N, Barriball L, Xyrichis A. Burnout and job satisfaction among critical care nurses in Saudi Arabia and their contributing factors: A scoping review. *Nurs Open*. 2021 Sep 24;8(5):2331–44. doi: 10.1002/nop2.843
- [10] 10. Al-Turki H, Al-Turki R, Al-Dardas H, Al-Gazal M, Al-Maghrabi G, Al-Enizi N, et al. Burnout syndrome among multinational nurses working in Saudi Arabia. *Ann Afr Med*. 2010;9(4):226. doi: 10.4103/1596-3519.70960
- [11] 11. Alshurtan K, Aldhaifi S, Alshammari K, Alodayli O, Alqahtani K, Aldhaifi S. Burnout Syndrome Among Critical Care Health Providers in Saudi Arabia. *J Multidiscip Healthc*. 2024 Feb;Volume 17:843–54. doi: 10.2147/JMDH.S452294
- [12] 12. Bawakid K, Abdulrashid O, Mandoura N, Shah HBU, Ibrahim A, Akkad NM, et al. Burnout of Physicians Working in Primary Health Care Centers under Ministry of Health Jeddah, Saudi Arabia. *Cureus*. 2017 Nov 25. doi: 10.7759/cureus.1877