ORIGINAL ARTICLE

COMPARING STRESS LEVELS AMONG MEDICAL EMERGENCY UNIT WORKERS IN TEACHING HOSPITALS ACROSS LAHORE: A QUANTITATIVE ANALYSIS OF PRECISION

Fizzah Ali[1], Fatima Suhaib[1], Hajra Talat[2], Malik Zain Ul Abideen[3], Uzair Abu Bakar[1], Maria Javaid[4]

[1]Lahore Medical & Dental College, Lahore-Pakistan
[2]Fatima Memorial Hospital Medical & Dental College, Lahore-Pakistan
[3]College of Dentistry, Bakhtawar Amin, Medical & Dental College, Multan-Pakistan
[4]Hameed Latif Teaching Hospital, Lahore-Pakistan

Background: Stress is characterized as a condition of anxiety or tension spurred on by challenging circumstances. Stress is a normal human reaction that motivates us to deal with obstacles and dangers in our lives. The study aimed to investigate the levels of stress that employees in the medical emergency unit (MEU) industry face and any possible relationship between work satisfaction, and perceived stress. The objective of the study was to assess and compare the stress levels of MEU workers in different teaching hospitals in Lahore using the PSS-10 stress scale. Our research aims to examine and compare the perceived stress based on gender, profession, and marital status. **Methods:** The study employed a quantitative cross-sectional design to assess and compare stress levels among MEU workers in teaching hospitals across Lahore. The target population consisted of MEU workers in teaching hospitals across Lahore. The perceived stress levels were measured using the PSS-10 (Perceived Stress Scale) questionnaire, a widely accepted, validated, and reliable instrument for assessing stress perception in individuals. The data was subjected to both descriptive and inferential statistical analyses using the SPSS. Descriptive statistics, including means and standard deviations, were employed to summarize stress levels among medical emergency unit workers in different teaching hospitals. Independent t-tests and ANOVA were utilized to compare stress levels across teaching hospitals. **Results:** In this study involving 304 medical professionals, participants, on average, were 29.95 years old with a mean stress score of 20.99. The majority were female (62.8%), married (50.7%), and affiliated with Mayo Hospital (17.4%). Occupation-wise, 66.45% were doctors, and no significant difference in perceived stress was observed among professional categories. However, there was a significant difference in stress scores among hospitals, with FMH participants exhibiting lower stress compared to others (p<0.005). **Conclusion:** The study found significant differences in stress among medical emergency unit staff in teaching hospitals in Lahore. The results highlight the significance of targeted interventions and support initiatives to improve worker resilience and well-being in high-stress healthcare settings. It provides valuable information for improving stress management and preventive tactics.

Keywords: Stress; Precision; Medical emergency unit workers; Perceived stress scale (PSS-10); Lahore

Citation: Ali F, Suhaib F, Talat H, Abideen MZU, Bakar UA, Javaid M. Comparing stress levels among medical emergency unit workers in Teaching Hospitals across Lahore: A quantitative analysis of precision. J Ayub Med Coll Abbottabad 2024;36(1):150–4.

DOI: 10.55519/JAMC-01-12860

INTRODUCTION

Stress is characterized as a condition of anxiety or tension spurred on by challenging circumstances. Stress is a normal human reaction that motivates us to deal with obstacles and dangers in our lives.[1] Everyone goes through periods of stress, however, how we handle stress has a significant impact on our general well-being. Employees in the medical emergency unit (MEU) are subjected to high levels of stress due to the nature of their employment, which includes handling life-threatening situations, irregular work patterns, and limited resources.[2] A person's subjective assessment of an imbalance between the demands placed on them and their perceived ability to cope with those expectations is known as perceived stress, which is a psychological phenomenon.[3]

One major occupational health concern has been the link of MEU workers with numerous negative outcomes, such as burnout, decreased job satisfaction, and possible physical health difficulties.[4] According to a recent study, certain elements have been identified as significant contributors to the perception of stress among workers in the MEU sector.[5] These traits include having an abundance of work, lack of time,

and less control over their tasks. Additionally, it has been noted that social support plays an integral part in reducing the negative effects of stress.[6] Nevertheless, despite the increasing acknowledgement of perceived stress among workers in the MEU, there is a scarcity of studies investigating the determinants of perceived stress and its ramifications specifically among MEU personnel within the hospital system.

A survey was conducted during COVID-19 across different countries and with the changes occurring throughout the healthcare system, healthcare professionals are considered a high-risk category.[7] Results indicate that there is no statistically significant difference in stress levels between HCWs and the overall population. One possible explanation for this could be that due to the nature of their work or a denial strategy, these experts are better accustomed to handling higher amounts of stress.[8] Another study conducted among Chinese medical workers confirms the relationship between self-compassion and anxiety and depression in medical professionals, which is influenced by perceived stress. The results showed high levels of stress and anxiety.[9]

It is crucial to investigate physician burnout in different regions because it can vary depending on profession and location. Research on the likelihood of burnout has been conducted in well-off countries, and national statistics vary.[26] The prevalence of physician burnout in various locations and specializations emphasizes how critical it is to address risk factors at the individual and organizational levels to lower physician burnout. The study's conclusions highlight the necessity of allocating resources according to regional and specialist disparities to the areas where they are most required.[27]

In the context of workplace wellness, the problem of workers' perceived stress at MEU is crucial since it can have a detrimental effect on their general well-being and ability to function professionally. Considering the critical role of MEU workers, it is imperative to identify the elements that contribute to perceived stress and its effects. By examining the felt stress levels of employees in a MEU setting and examining the relationships between perceived stress, job satisfaction, and social support, the current study seeks to close the research void.

The study aimed to investigate the levels of stress that employees in the MEU industry face and any possible relationship between work satisfaction, and perceived stress. The objective of the study was to assess and compare the stress levels of MEU workers in different teaching hospitals in Lahore using the PSS-10 stress scale. Our research aims to examine and compare the perceived stress based on gender, profession, and marital status. By looking at the variables that contribute to perceived stress and its consequences, this research seeks to enhance the well-being of MEU employees and the standard of care they provide.

MATERIAL AND METHODS

The study employed a quantitative cross-sectional design to assess and compare stress levels among MEU workers in teaching hospitals across Lahore. The target population consisted of MEU workers in teaching hospitals across Lahore. The teaching hospitals included Ghurki Trust Teaching Hospital (Lahore Medical & Dental College), Fatima Memorial Hospital (FMH), Services Institute of Medical Sciences (SIMS), and Mayo Hospital Lahore. The duration of the study was 3 months, i.e., from September to November 2023. Doctors, nurses, interns, and ward aids were included as professionals, and as marital status, single, married, and divorced were added. Non-medical hospital staff and the ones who did not give consent were excluded. Stratification was based on hospitals, and a random sample of workers was selected from each stratum. This approach aimed to ensure the representativeness of the sample across different hospitals and achieve equal representation from each.

The perceived stress levels were measured using the PSS-10 (Perceived Stress Scale) questionnaire, a widely accepted, validated, and reliable instrument for assessing stress perception in individuals.[10] The questionnaire comprised 10 items, each rated on a 5-point Likert scale ranging from 0 (never) to 4 (very often).

Data collection was conducted through Google Forms, providing a convenient and secure platform for participants to respond to the PSS-10 questionnaire. Ethical approval for this study was obtained Ref. No. LMDC: FD/3544/23, ensuring compliance with ethical standards in research. Informed consent was obtained from participants, emphasizing the voluntary nature of their participation. The survey was administered electronically to the selected medical emergency unit workers. Sufficient sample size was determined to enhance the precision, accuracy, and reliability of the study results.

The data was subjected to both descriptive and inferential statistical analyses using the Statistical Package for Social Sciences (SPSS). Descriptive statistics, including means and standard deviations, were employed to summarize stress levels among medical emergency unit workers in different teaching hospitals. Independent t-tests and ANOVA were utilized to compare stress levels across teaching hospitals. The significance level was set at 0.005.

RESULTS

In this study, a total of 304 participants from the medical profession were included. The respondents had an average age of 29.95±4.67 years and the mean stress score of the participants was 20.99±4.57. Out of all the participants, 113 (37.2%) were male, and 191 (62.8%) were female. In our research, 132 (43.4%) of the respondents reported being single, 154 (50.7%) were married and 18 (5.9%) were divorced. According to the findings of this investigation, 53 (17.4%) were affiliated with Mayo Hospital, 69 (22.7%) with Ghurki Hospital, and 105 (34.5%) and 77 (5.3%) were associated with FMH and SIMS Hospital, respectively as shown in Table-1. In this study, the majority of participants, 202 (66.45%) were doctors, followed by 38 (12.50%) interns, 42 (13.82%) nurses, and 22 (7.24%) ward aides. The distribution is represented in Figure-1. According to the results, male participants had a mean PS10 score of 21.14±4.51, and in females, the mean score was 20.91±4.62 (p = 0.672). The mean PS10 score of single participants was 20.40±4.77, married participants were 21.39±4.17, and divorced participants were 22±6.02 (*p*=0.1202). Amongst doctors, the mean PS10 score was 20.87±4.33, interns were 20.45±5.93, in nurses was 21.88±4.38 and for inward aid, its value was 21.36±4.60 (*p*=0.496). Statistically, there was no significant difference amongst all the professionals in terms of perceived stress (*p*>0.005). In hospitals, the mean PS10 score of Mayo Hospital participants was 21.67±3.34, the mean PS10 score of Ghurki hospital participants was 21.91±5.03, the mean PS10 score of FMH respondents was 19.69±3.43 and the mean value in SIMS respondents was 21.48±5.31(*p*-value=0.004). One-way ANOVA showed significantly lower stress scores in FMH participants as compared to the other hospitals (*p*<0.005).

Table-1: Distribution of demographic variables and PS 10 scores of the respondents

		Frequency	Percent
Gender	Male	113	37.2
	Female	191	62.8
Marital Status	Single	132	43.4
	Married	154	50.7
	Divorced	18	5.9
Hospital Names	Mayo	53	17.4
	Ghurki	69	22.7
	FMH	105	34.5
	SIMS	77	25.3

Table-2: Comparison of PS10 score between different demographic and professional factors

		n	Mean	SD	*p*-value
Gender	Male	113	21.14	4.51	0.672 NS
	Female	191	20.91	4.62	
Marital Status	Single	132	20.40	4.77	0.120 NS
	Married	154	21.39	4.17	
	Divorced	18	22.00	6.02	
Profession	Doctor	202	20.87	4.33	0.496 NS
	Intern	38	20.45	5.93	
	Nurse	42	21.88	4.38	
	Ward Aid	22	21.36	4.60	
Hospital Name	Mayo	53	21.67	4.34	0.004*
	Ghurki	69	21.91	5.03	
	FMH	105	19.69	3.43	
	SIMS	77	21.48	5.31	

*=Significant. NS=Not significant

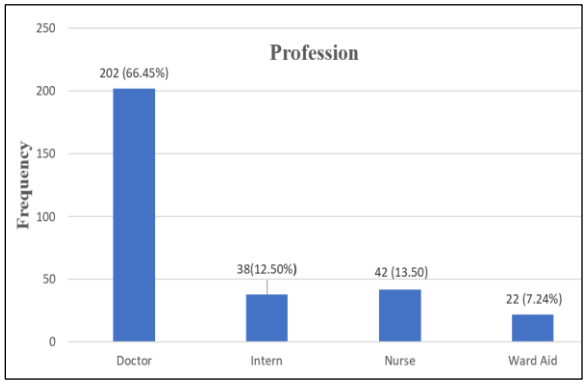

Figure-1: Frequency distribution of profession of the respondents

DISCUSSION

The present study aimed to compare stress levels among MEU workers in teaching hospitals in Lahore using the PSS-10 stress scale. The mean stress score of the participants was 20.99±4.57 out of which males had a higher score although the difference was not statistically significant (*p*>0.005). This suggests that females may have a better stress-coping mechanism as compared to males.[11]

The results of the study showed increased stress levels in divorced people and least in single individuals although the difference was not significant (*p*>0.005) suggesting a link between perceived stress and personal life.[12] There was a clear majority of

doctors in the study, but their mean score was not significantly different from the other participants (p>0.005) suggesting that the stress scores were not related to profession and position in the hospital. Another possible explanation for the differences in stress levels could be related to individual factors such as age, gender, and years of experience. Research in the UK has suggested that younger or less experienced healthcare workers may be more susceptible to stress due to their lack of coping skills or resilience.[13]

The results showed that the mean stress scores were significantly different among the four teaching hospitals (p=0.004), with Ghurki Hospital having the highest mean stress score (21.91±5.03) followed by Mayo Hospital (21.67±3.34), SIMS (21.48±5.31) and least in FMH (19.69±3.43). These findings suggest that there may be differences in stress levels among emergency unit workers in different hospital settings based on their work environment which could have important implications on employee health, job satisfaction, and patient outcomes.[14]

One possible explanation for the differences in stress levels among the hospitals is variations in workloads and job demands.[15] Emergency unit workers in Ghurki may face higher workloads or more challenging cases than the other hospitals, which could lead to higher stress levels.[16] Moreover, the organizational culture and management practices in each hospital management style could create greater stress for employees who feel less empowered or supported in their work.[17]

Fauzia *et al*. stated that burnout is a state of tiredness or dissatisfaction brought on by an association that falls short of expectations and can happen after ongoing stress. There is proof that doctors who are burned out make more medical mistakes. For the best working conditions and longevity of experts in the sector, workplace stress must be reduced.[26] Additionally, there are significant variations between physicians in Europe and the Americas. European doctors may be more adept at managing burnout risk factors than their American counterparts since they tend to be older. Among doctors in America, work-life conflict seems to be more closely associated with burnout, which may indicate regional variations in support networks. To successfully customize interventions and enhance physician well-being, it is imperative to consider these regional variations when treating physician burnout.[27]

Overall, the findings of this study underscore the importance of monitoring and managing stress levels among medical emergency unit workers, particularly in high-stress environments like teaching hospitals.[18–20] By identifying differences in stress levels among hospitals, healthcare organizations can develop targeted interventions and support programs to help employees cope with job demands and reduce the risk of turnover.[21,22] For example, hospitals could offer stress-management training or counselling services or implement policies to promote work-life balance or reduce workloads.[23,24]

One limitation of this study was the use of a convenience sampling strategy, which may limit the generalizability of the findings to other populations or hospital settings. Additionally, the cross-sectional design of the study makes it difficult to establish causal relationships between stress levels and hospital settings. Therefore, it would be important to control these variables in future studies to better understand their impact on stress levels among MEU workers.[25] Future research using longitudinal designs and larger, more diverse samples would be necessary to confirm the findings of this study and explore the mechanisms underlying differences in stress levels among emergency unit workers.

CONCLUSION

The study shed light on significant variations in stress levels among medical emergency unit workers across teaching hospitals in Lahore. The implications of these findings emphasized the need for healthcare organizations to implement targeted interventions and support programs, promoting employee well-being and fostering a resilient workforce. To properly monitor and handle stressors, future recommendations include setting up stress management classes, offering counselling services, and putting in place frequent stress evaluations. In addition, more investigation might examine the long-term impacts of stress on healthcare professionals and assess the efficacy of therapeutic initiatives over time.

AUTHORS' CONTRIBUTION

FA: literature search, conceptualization of study design, data collection, data analysis, write-up, proofreading. FS: Data analysis, data interpretation, write-up, proofreading. HT: literature search, data collection, proofreading. ZUAM: literature search, data analysis, write-up, proofreading. UA: literature search, write-up, proofreading. MJ: literature search, data collection, proofreading.

REFERENCES

1. Stress. [Internet]. [cited 2023 Nov 21]. Available from: https://www.who.int/news-room/questions-and-answers/item/stress
2. García-Tudela Á, Simonelli-Muñoz AJ, Rivera-Caravaca JM, Fortea MI, Simón-Sánchez L, González-Moro MTR, *et al*. Stress in Emergency Healthcare Professionals: The Stress Factors and Manifestations Scale. Int J Environ Res Public Health 2022;19(7):4342.
3. Bhui K, Dinos S, Galant-Miecznikowska M, de Jongh B, Stansfeld S. Perceptions of work stress causes and effective interventions in employees working in public, private and non-

governmental organisations: a qualitative study. BJPsych Bull 2016;40(6):318–25.
4. Adriaenssens J, De Gucht V, Maes S. Determinants and prevalence of burnout in emergency nurses: a systematic review of 25 years of research. Int J Nurs Stud 2015;52(2):649–61.
5. Chang AM, Aeschbach D, Duffy JF, Czeisler CA. Evening use of light-emitting eReaders negatively affects sleep, circadian timing, and next-morning alertness. Proc Natl Acad Sci U S A 2015;112(4):1232–7.
6. Kang Y, Strecher VJ, Kim E, Falk EB. Purpose in life and conflict-related neural responses during health decision-making. Health Psychol 2019;38(6):545–52.
7. Yubonpunt P, Kunno J, Supawattanabodee B, Sumanasrethakul C, Wiriyasirivaj B. Prevalence of perceived stress and coping strategies among healthcare workers during the COVID-19 outbreak at Bangkok metropolitan, Thailand. PLoS One 2022;17(7):e0270924.
8. Gamonal-Limcaoco S, Montero-Mateos E, Lozano-López MT, Maciá-Casas A, Matías-Fernández J, Roncero C. Perceived stress in different countries at the beginning of the coronavirus pandemic. Int J Psychiatry Med 2022;57(4):309–22.
9. Meng R, Luo X, Du S, Luo Y, Liu D, Chen J, *et al*. The Mediating Role of Perceived Stress in Associations Between Self-Compassion and Anxiety and Depression: Further Evidence from Chinese Medical Workers. Risk Manag Healthcare Policy 2020;13:2729–41.
10. Cohen S, Kamarck T, Mermelstein R. A global measure of perceived stress. J Health Soc Behav 1983;24(4):385–96.
11. Graves BS, Hall ME, Dias-Karch C, Haischer MH, Apter C. Gender differences in perceived stress and coping among college students. PLoS One 2021;16(8):e255634.
12. Bodenmann G, Charvoz L, Bradbury TN, Bertoni A, Iafrate R, Giuliani C, *et al*. The role of stress in divorce: A three-nation retrospective study. J Soc Pers Relatsh 2007;24(5):707–28.
13. Maben J, Bridges J. Covid- 19: Supporting nurses' psychological and mental health. J Clin Nurs 2020;29(15-16):2742–50.
14. Birhanu M, Gebrekidan B, Tesefa G, Tareke M. Workload Determines Workplace Stress among Health Professionals Working in Felege-Hiwot Referral Hospital, Bahir Dar, Northwest Ethiopia. J Environ Public Health 2018;2018:6286010.
15. Locke R, Lees A. A literature review of interventions to reduce stress in doctors. Perspect Public Health 2020;140(1):38–53.
16. Rayirala A, Shankar U. Stress and coping strategies among nurses working in psychiatric tertiary care hospital - A cross sectional study. Indian J Psychiatry 2022;64(Suppl 3):591.
17. Maharaj S, Lees T, Lal S. Prevalence and Risk Factors of Depression, Anxiety, and Stress in a Cohort of Australian Nurses. Int J Environ Res Public Health 2018;16(1):61.
18. Huang W, Li L, Zhuo Y, Zhang J. Analysis of Resilience, Coping Style, Anxiety, and Depression Among Rescue Nurses on EMTs During the Disaster Preparedness Stage in Sichuan, China: A Descriptive Cross-Sectional Survey. Disaster Med Public Health Prep 2022;17:e268.
19. Gholamzadeh S, Sharif F, Rad FD. Sources of occupational stress and coping strategies among nurses who work in Admission and Emergency Departments of Hospitals related to Shiraz University of Medical Sciences. Iran J Nurs Midwifery Res 2011;16(1):41–6.
20. Kerai SM, Khan UR, Islam M, Asad N, Razzak J, Pasha O. Post-traumatic stress disorder and its predictors in emergency medical service personnel: a cross-sectional study from Karachi, Pakistan. BMC Emerg Med 2017;17(1):26.
21. Naz S, Hashmi AM, Asif A. Introduction Subjects and Methods Burnout and quality of life in nurses of a tertiary care hospital in Pakistan. J Pak Med Assoc 2016;66(5):532–6.
22. Akram Z, Sethi A, Khan AM, Zaidi FZ. Assessment of burnout and associated factors among medical educators. Pak J Med Sci 2021;37(3):827–32.
23. Alqahtani AM, Awadalla NJ, Alsaleem SA, Alsamghan AS, Alsaleem MA. Burnout Syndrome among Emergency Physicians and Nurses in Abha and Khamis Mushait Cities, Aseer Region, Southwestern Saudi Arabia. ScientificWorldJournal 2019;2019:4515972.
24. Lawn S, Roberts L, Willis E, Couzner L, Mohammadi L, Goble E. The effects of emergency medical service work on the psychological, physical, and social well-being of ambulance personnel: A systematic review of qualitative research. BMC Psychiatry 2020;20(1):348.
25. Portero de la Cruz S, Cebrino J, Herruzo J, Vaquero-Abellán M. A Multicenter Study into Burnout, Perceived Stress, Job Satisfaction, Coping Strategies, and General Health among Emergency Department Nursing Staff. J Clin Med 2020;9(4):1007.
26. Khan FA, Shamim MH, Ali L, Taqi A. Evaluation of Job Stress and Burnout Among Anesthesiologists Working in Academic Institutions in 2 Major Cities in Pakistan. Anesth Analg 2019;128(4):789–95.
27. Lee RT, Seo B, Hladkyj S, Lovell BL, Schwartzmann L. Correlates of physician burnout across regions and specialties: a meta-analysis. Hum Resour Health 2013;11(1):48.

Submitted: January 18, 2024	*Revised: March 13, 2024*	*Accepted: March 14, 2024*

Address for Correspondence:

Dr. Fizzah Ali, Dental Education Department, Lahore Medical & Dental College, Lahore-Pakistan
Cell: +92 321 486 1137
Email: fizzah.ali16@gmail.com