




BMJ Open Relationship between job stress and work-related quality of life among emergency medical technicians: a cross-sectional study

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ABSTRACT

Objective This study was aimed to determine the relationship between job stress and work-related quality of life (WRQoL) among emergency medical technicians (EMTs) in Lorestan province, Western Iran.

Design This was a cross-sectional study.

Methods Totally 430 EMTs who had been engaged in their respective units for more than 6 months from all emergency facilities in Lorestan province were selected using single stage cluster sampling method. Data were collected from April to July 2019 using two standard questionnaires: job stress (Health and Safety Executive (HSE)) and WRQoL. The OR with 95% CI was used to declare the statistical association ($p < 0.05$).

Results All participants were exclusively males, with a mean age of 32 ± 6.87 years. The overall average score of job stress using the HSE scale was 2.69 ± 0.43 ; while the overall quality of working life score was 2.48 ± 1.01 . The type of working shift was found to have a significant impact on the HSE-average score ($F(3,417) = 5.26, p = 0.01$); and on the WRQoL-average score ($F(3,417) = 6.89, p < 0.01$).

Conclusion Two-thirds of EMTs working in governmental hospitals had job stress and a low quality of work-related life. Additionally, work shift was statistically significant associated with EMTs' job stress and WRQoL.

INTRODUCTION

Working in emergency medicine can be challenging, and healthcare workers are subjected to a variety of pressures.¹ Critical incident exposure, workplace aggression, unpredictability, workload and time pressure are among them. Additional environmental stressors in the prehospital context include traffic safety concerns and unexpected accident scenes.² Several studies have demonstrated the alarming prevalence of burnout syndrome, post-traumatic stress disorder, and other related health difficulties among first responders and emergency medical service personnel.^{3–7} Furthermore, those stressors might cause hostility, aggression, absenteeism

STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ First study to examine job stress and work-related quality of life (WRQoL) among emergency medical technicians (EMTs) in a specific region.
- ⇒ Validated questionnaires used for data collection.
- ⇒ Sample size sufficient for examining job stress and WRQoL relationship.
- ⇒ Cross-sectional design limits temporal association determination.
- ⇒ Qualitative methods can provide reliable and rich information on EMTs' experiences with stress.

and turnover among emergency medical technicians (EMTs).

Job stress refers to the psychological stress caused by the imbalance between the needs of the target and the individual's ability to adapt to specific job conditions.⁸ Job stress is one of the most important workplace health risks among employees worldwide.⁹ One of the complications of modern life is the presence of stress in the workplace.¹⁰ It is a common condition of the 21st century that affects people in a variety of conditions and is responsible for absenteeism among healthcare workers.¹¹ 137.3 million working days were lost due to sickness and injury as it is estimated by the UK national statistics.¹² This is only the material dimension of the issue of stress; in addition, stress has a significant impact on employees, their families and patients.⁹

In 2021, job stress (new or long-standing) was the biggest work-related health issue in the UK, which accounted for 50% of all job-related illnesses with an incidence rate of 2480 per 100 000.¹³ The cost of sickness and stress-related absenteeism is estimated at 4 billion pounds a year.¹² Numerous studies have shown that the job stress experienced by the prehospital emergency staff is



significantly higher than that of other healthcare workers because they are the first people to be present in a variety of emergencies, from fatal accidents to minor injuries and illnesses.^{14 15} Meanwhile, EMTs face stressful environments such as congested areas and critically ill patients where it is difficult to work.¹⁶

Neglecting the ongoing stress that is inflicted on employees, particularly healthcare workers, would eventually result in a lack of motivation and morale in the staff.¹⁷ There is enormous capital lost annually due to the lack of physical and mental health of employees, impaired performance, quitting and changing jobs due to job stress. Stress and its complications result in the loss of hundreds of working days each year. About 30% of the workforce in developed countries suffers from job stress. The International Labour Organization also estimates that the costs incurred by countries due to job stress are about 1%–3.5% of GDP and are currently increasing.^{18 19}

Work-related quality of life (WRQoL) is an organisational culture or management style in which employees feel ownership, self-reliance, responsibility and self-esteem.²⁰ WRQoL is a multidimensional structure that includes several concepts such as welfare measures, health services, incentive plans, job fit, job security, job design, importance to the role and position of the individual in the organisation, providing growth and development, participation in decision making, reducing job conflicts and ambiguities and education.²¹ According to the research, companies that provide a better work quality of life for their employees are more successful in retaining their valuable employees and have higher profitability.²² However, job stress reduces the WRQoL and increases the risk of work-related injuries. The WRQoL is critical for organisations to be able to attract and retain human resources.²³

Job stress in EMTs is typically higher than in other professionals, and since they are often the first healthcare team exposed to different stressful conditions and sick patients, the nature of the job and its contents are in a high level of stress. Research evidence related to job stress among EMTs is limited in the study area.

Lorestan province in Western Iran is a region that faces numerous challenges, including remote and deprived villages, dilapidated road structures and the presence of dangerous occupations. EMTs in this region are particularly vulnerable to these challenges, which can have a significant impact on their job stress and WRQoL. Despite the importance of this topic, there have been limited studies that have investigated the relationship between job stress and WRQoL among EMTs in this region. Therefore, the present study aims to fill this gap by examining the relationship between job stress and WRQoL among EMTs in Lorestan province. By doing so, we hope to provide new insights into the factors that affect the well-being of EMTs in this region and contribute to the development of effective interventions to improve their working conditions and overall quality of life.

MATERIAL AND METHODS

Participants

Single stage cluster approach was used to conduct a cross-sectional survey among 430 EMTs who had been engaged in their respective units for more than 6 months from all emergency facilities in Lorestan province. In this study, single stage cluster sampling method was used. In this way, each city in Lorestan province was considered as a cluster and participants were selected by simple random sampling based on the proportion of the desired sample in each city. The number of participants was 25, 37, 22, 38, 21, 19, 115, 61, 28, 54 and 10 from Alashtar, Aligoudarz, Azna, Broujerd, Doroud, Dooreh, Khorramabad, Kouhdasht, Nourabad, Poldokhtar and Sepiddasht, respectively.

Data were collected from April to July 2019 using two standard questionnaires: job stress (Health and Safety Executive (HSE)) and WRQoL. Data were collected during all shifts (morning, evening and night), when the (EMTs) were at work at the time being to answer the questions. Eligible EMTs were those who had been working in their respective units for at least 6 months and were willing to participate in the study. EMTs who had been working for less than 6 months or who did not meet the inclusion criteria were excluded. Using Cochran's sample size formula ($n = \frac{Nz^2pq}{Nd^2+z^2pq} = 430$) where ($z=1.96$, $N=450$, $p=q=0.5$, $d=0.01$), we selected a total of 430 EMTs who met the inclusion criteria.

During our study, there were no female employees or dispatch codes, and the administrative and dispatch and MCHC (Medical Care Monitoring Centre) personnel were predominantly female, rendering them ineligible for inclusion in our study. While the Sanjeh Organisation has been recruiting female emergency medicine students in large cities like Tehran and has female personnel in dispatch codes in these areas, there are presently no female personnel in dispatch codes in Lorestan province due to cultural and operational limitations, precluding us from including female patients in our study.

Job stress questionnaire

The management standard was assessed using a 35-item indicator tool created by the HSE to measure work-related stress among employees. The tool consists of seven items. These items are: (1) demands (including such issues as workload, work patterns and the working environment); (2) control (how much say the person has in the way they do their work); (3 and 4) manager and peers' support (including the encouragement, sponsorship and resources provided by the organisation, line management and colleagues); (5) relationships at work (including promoting positive working practices to avoid conflict and dealing with unacceptable behaviour); (6) role (whether people understand their role within the organisation and whether the organisation ensures that the person does not have conflicting roles); (7) change (how organisational change (large or small) is managed

Table 1 Demographic characteristics of the emergency medical technicians (N=430)

Variables (N*)	Categories	n (%)
Age (years) (427)	20–30	222 (51.5)
	30–40	146 (33.9)
	40–50	56 (13.0)
	50–60	3 (0.7)
Education level (406)	Diploma	78 (19.2)
	Associated degree	235 (57.9)
	Bachelor	90 (22.2)
	Master	3 (0.7)
Marital status (406)	Single	167 (41.1)
	Married	239 (58.9)
Employment history (years) (410)	0–5	162 (37.6)
	6–10	190 (44.2)
	11–15	13 (3.1)
	>15	45 (10.5)
Native status (412)	Native to the city	225 (52.3)
	Native to the province	127 (29.5)
	Non-indigenous	60 (14.0)
Working shift status (421)	Constant morning shift	6 (1.4)
	Circulating shift	51 (11.9)
	24-hour shift	228 (53.0)
	48-hour shift	136 (31.6)
Major (390)	Public health	3 (0.7)
	Medical emergencies	269 (62.6)
	Accounting	6 (1.4)
	Anaesthesia	17 (4.0)
	Mechanics	3 (0.7)
	Crisis management	5 (1.2)
	Emergency and disaster management	8 (1.9)
	Humanities	52 (12.1)
	Science	8 (1.9)
	Operating room technology	6 (1.4)
Number of shifts (per month) (401)	<10	36 (9.0)
	10–12	293 (73.0)
	≤13	72 (18.0)
Locale of service (404)	Urban bases	150 (37.1)
	Road stations	179 (44.3)
	Urban and road bases	75 (18.6)
Type of bases location (367)	Canopies	55 (15.0)
	Building	312 (85.0)

*Number of responses for each variables.

and communicated in the organisation). The validity of the HSE scale was 83% ($\alpha=0.83$). This questionnaire contains 35 questions with seven subscales. The subscales are: 1—Demand: questions number (3, 6, 9, 12, 16, 18,

20, 22), 2—Control (2, 10, 15, 19, 25, 30), 3—Officials support (7, 24, 27, 31), 4—Colleagues support (8, 23, 29, 33, 35), 5—Relationship (5, 14, 21, 34), 6—Role (1, 7, 11, 13, 17) and 7—Changes (26, 28, 32). The Likert scale was defined as strongly disagree: 0, disagree: 1, no opinion: 2, agree: 3, strongly agree: 4. All seven stress items were scored on a scale of 1–4 ranged between 7 and 28. Those above and those below the median value 16, were signified as more and less job stress, respectively.²⁴ The validity and reliability of the Persian version of the questionnaire was 78% and 65% using Cronbach's alpha and split-half method, respectively and HSE is a valid and reliable questionnaire for studying job stress.²⁵

WRQoL questionnaire

This is a multidimensional concept that includes job and professional satisfaction factors, working conditions, general health status, home–work relationship, work stress and work control. The questionnaire comprises a 5-Likert scale from strongly disagree to strongly agree 1–5.²⁵ The validity of the questionnaire was confirmed by experts, and its reliability was determined by the test–retest method. The questions had a 95% correlation value, while Cronbach's alpha coefficient for determining the internal relevance of the questions was 78%. The scale's reliability was 79% ($\alpha=0.79$). Subscale scores are as: Job and Career Satisfaction with a subscale reliability of 0–86 (item 5), General Well-Being 0–82 (item 18), Home–Work Interface 0–82 (item 17), Stress at Work 0–81 (item 7), Control at Work 0–81 (item 12) and Working Conditions 0–75 (item 9).²⁶ The validity and reliability of the Persian version of the questionnaire was 95% and 78% using Cronbach's alpha and it is a valid and reliable questionnaire.²⁷

Patient and public involvement

This was a cross-sectional study that meaningfully engaged all EMTs working in different cities of Lorestan province in identifying priority research questions, research training, all facets of recruitment and data collection, and in interpreting the results and coauthoring this manuscript. Additionally, we trained them in the informal settlements of the study conducted in their workplaces, who contributed likewise to informing the study focus, and data collection efforts.

Statistical analysis

Descriptive statistics were used to determine the characteristics of participants and the overall scores of job stress and WRQoL. Pearson correlation was used to assess the correlation between the domains of the two questionnaires (HSE and WRQoL). The OR at (95% CI, p value ≤ 0.05) was used to declare the statistical association. All analyses were done using IBM SPSS Statistics for Windows, V.25.0. Armonk, NY: IBM Corp.

RESULTS

All 430 EMTs who participated in this study were exclusively male (100%), with a mean age of 32 ± 6.87 years.

Table 2 Stressor domain scores and work related quality of life scores by factors among the emergency medical technicians (N=430)

Domains and factors	n	Score Mean (SD)	95% CI
Stressor domains			
Demand	405	2.11 (0.56)	1.93 to 2.08
Control	402	2.54 (0.60)	2.44 to 2.59
Manager's support	410	2.58 (0.82)	2.48 to 2.67
Peer's support	413	2.89 (0.63)	2.82 to 2.98
Relationship	414	1.75 (0.81)	1.58 to 1.78
Role	415	3.12 (0.64)	3.00 to 3.16
Change	411	2.61 (0.80)	2.62 to 2.71
Overall HSE (N)	430	2.69 (0.43)	2.65 to 2.73
WRQoL-factors			
Job career satisfaction	410	2.39 (0.77)	2.30 to 2.48
Control at work	413	2.47 (0.90)	2.37 to 2.58
General well-being	393	2.45 (0.54)	2.38 to 2.51
Home-work interface	422	2.44 (1.01)	2.32 to 2.55
Stress at work	420	1.96 (1.00)	1.84 to 2.08
Working conditions	423	2.12 (0.98)	2.00 to 2.23
Overall quality of working life	424	2.48 (1.01)	2.35 to 2.60
HSE, Health and Safety Executive; WRQoL, work-related quality of life.			

Based on their educational level, 19.2% held a diploma while the rest (80.8%) had an academic education degree, additionally 58.9% of them were married. Totally 115 (30.5%) of them were students while they were working simultaneously and 395 (91.9%) of them were officially hired by the organisation. All other sociodemographic characteristics of the participant are provided in [table 1](#).

EMTs with a master's degree had the highest HSE (3.5 ± 0.01) and WRQoL (4.0 ± 0.01) average scores. Regarding marital status, native status and length of service, there were no significant differences between them, neither with HSE nor with WRQoL average scores. However, the type of working shift had a significant impact on the HSE-average score, $F(3,417)=5.26$, $p=0.01$; and on the WRQoL-average score, $F(3,417)=6.89$, $p<0.01$, as the highest average scores were reported among those who worked on the 48-hour shift (2.79 ± 0.46) of the HSE, and the fixed morning shift (2.87 ± 0.01) of the WRQoL.

The overall average score of job stress using the HSE scale was (2.69 ± 0.43), with peer support as the highest stressor domain among EMTs (2.89 ± 0.63). While the overall quality of working life score was (2.48 ± 1.01), with control at work as the highest factor that might impact the quality of working life (2.47 ± 0.90) (see [table 2](#) for more details). Generally, 73.5% of respondents reported having work-related stress, with 46% having a low WRQoL (lower than the overall mean). The response rate for each

Table 3 Difference in HSE and WRQoL scores between demographic variables

Variable	Category	n	Sum. HSE	Sum. WRQoL
			Mean \pm SD	Mean \pm SD
Education level	Diploma	78	60.70 \pm 10.90	56.78 \pm 15.42
	Associated degree	235	61.84 \pm 7.93	57.88 \pm 14.62
	Bachelor	90	60.76 \pm 9.36	57.28 \pm 15.50
	Master	3	80.00 \pm 0.00	91.66 \pm 0.00
Marital status	Single	167	61.28 \pm 9.83	57.62 \pm 13.38
	Married	239	62.27 \pm 8.85	58.50 \pm 15.55
Native status	Native to the city	225	61.95 \pm 9.41	57.80 \pm 14.50
	Native to the province	127	61.31 \pm 7.59	56.31 \pm 14.30
	Non-indigenous	60	62.78 \pm 11.21	61.51 \pm 18.68
Working shift status	Constant morning shift	6	60.71 \pm 5.47	74.47 \pm 2.85
	Circulating shift	51	63.54 \pm 5.72	55.65 \pm 4.93
	24-hour shift	228	60.91 \pm 10.13	56.29 \pm 14.58
	48-hour shift	136	62.01 \pm 9.00	60.08 \pm 18.20
Locale of service	Urban bases	150	65.17 \pm 7.49	62.16 \pm 13.26
	Road stations	179	61.24 \pm 9.83	56.79 \pm 15.92
	Urban and road bases	75	57.77 \pm 8.25	52.77 \pm 14.99
Type of bases location	Canopies	55	63.24 \pm 11.09	56.57 \pm 18.99
	Building	312	62.25 \pm 8.89	58.52 \pm 13.96
HSE, Health and Safety Executive; WRQoL, work-related quality of life.				

specific question of the HES and WRQoL standards was provided in online supplemental tables 1 and 2.

The difference in scores between demographic variables are shown in [table 3](#).

Among the participants, 1.4% had between 0 and 5 shifts, 52.8% between 6 and 10 shifts and 39.1% between 11 and 15 shifts per month. Based on the results, most of the EMTs 337 (78.37%) had a moderate level of job stress, 48 (11.16%) low and 45 (10.46%) had severe job stress. Based on Tukey's result, there was no significant relationship between job stress and none of the subgroups related to employment type ($p>0.05$) ([table 4](#)).

To assess the linear relationship between stressor domains and WRQoL factors, Pearson correlation was used ([table 4](#)). There was a strong positive relationship between two domains of HSE, which are peer support and the change ($r=0.72$, $N=394$, $p<0.001$). In other words,

increasing the peers' support in work environment the higher the change might apply. Regarding the WRQoL factors, however, job career satisfaction was found to have a significant positive impact on control at work ($r=0.72$, $N=395$, $p<0.001$), general well-being ($r=0.72$, $N=379$, $p<0.001$), home-work interference ($r=0.77$, $N=407$, $p<0.001$) and working conditions ($r=0.77$, $N=407$, $p<0.001$) (see online supplemental table 1).

DISCUSSION

Emergency medical personnel work in an inherently stressful environment, as they are often the first health-care team to respond to critical and traumatic incidents. This constant exposure to high-pressure situations and sick patients can result in significant levels of job stress. Despite the challenges faced by EMTs, research on job stress in this profession is limited in the study area. Therefore, to bridge this gap in the literature, we conducted a study aimed at exploring the relationship between job stress and the quality of work-life among EMT personnel in Lorestan province. By understanding the impact of job stress on the quality of work-life, we can identify strategies and interventions that promote better mental health and well-being for EMTs.

The findings of the present study indicate that a substantial proportion of EMTs, comprising 337 (78.37%), experienced moderate levels of job stress (M, 2.69; IC, 2.65–2.73). This result aligns with a previous study conducted by Eshgh *et al*, which reported that male emergency employees in Golestan province experienced moderate work stress.²⁸ Similarly, a study on emergency physicians demonstrated that repetitive exposure to critical incidents, such as the death of a child or adolescent, can result in a subclinical level of anxiety.⁷ Regarding WRQoL, the overall quality of work life among EMTs was found to be slightly lower than moderate (M, 2.48; IC, 2.35–2.60). This result is consistent with the findings of a cross-sectional analysis of 908 health employees from 15 hospitals, which revealed that a majority of participants reported dissatisfaction with occupational health and safety and uninteresting work.²¹ Moreover, high levels of WRQoL were found to have a protective effect, as high levels of stress and low levels of WRQoL not only impact EMTs but also negatively affect patient care.⁷

In the present study, a significant association was found between work shift and work-related stress. Rotating shift EMTs were more stressed than fixed-shift EMTs. This finding was consistent with research reported in Ethiopia²⁹ and Jordan,³⁰ which indicated that employees working on rotating shifts were more stressed than their counterparts who worked on fixed shifts; however, those studies were done on nurses. Rotating shift work can disrupt the natural circadian rhythm of the body, leading to sleep deprivation and exhaustion. This can increase the likelihood of errors and decrease work performance, causing more stress for the EMTs. Additionally, rotating shift work can make it difficult to maintain a healthy

Table 4 Correlation between job stress and demographic factors on quality of work life among emergency medical technicians based on multiple regression model (n=234)

Variable	Mean±SD	β	t	P value
Educational level	2.09±0.66	-0.53	-0.39	0.69
Marital status	1.57±0.49	0.69	0.35	0.72
Job status	8.19±5.97	0.71	3.16	0.002
Shifts per month	11.03±2.36	0.57	1.58	0.11
Job stress score (HSE)	62.14±8.64	0.76	7.98	<0.001
Quality of work life score (QWL)	58.80±13.92			

HSE, Health and Safety Executive.

work-life balance, which can also contribute to higher levels of stress.³¹ It may be helpful to include suggestions for potential solutions, such as offering more flexible scheduling options or providing resources for stress management and coping strategies. Therefore, working on a fixed shift might be beneficial in improving the WRQoL, as the current study reported.

Change in the work place from emergency wards to other wards suited to the employee, by their choice, was found to be related to the peers' and managers' support. A lack of social support among emergency care personnel is a well-known predictor of occupational stress.⁷ A study found that facilitating social support from coworkers can help in the rehabilitation process after being confronted with traumatic experiences and occupational dangers among those who work in EM.⁷ Yang *et al* also reported similar results on the difference between job stress of nurses in the emergency department compared with other departments.³² Employees working in different departments of the hospital experience different degrees of job stress due to their types of activities.³³ However, few studies reported a low level of job stress for nurses in comparison to other employees³⁴; perhaps it is due to, in addition to the differences in the populations studied, the adjustment of nurses to severe and chronic conditions with stressful working conditions compared with other employees. In the present study, it was found that there was no significant difference between the mean score of job stress and marital status, education level, native status, type of employment and type of base location, while the relationship between the mean of job stress score and working shift status and employment history were significant. According to a study conducted by Golshiri *et al*,³⁵ it was found that there is a significant reverse relationship between the employment history and the level of job stress; in other words, the higher job experience, the lower job stress is. Accordingly, it can be concluded that the most compatibility of nurses with the unique status of the medical emergency department and the increase in work skills and work experience as a result of increasing the job record is one that can explain this relationship.³⁵



In the study of Khodaveysi *et al*, they approved that the increase in skills and work experience due to the increase in job records was mentioned as the most important factors in job stress.³⁶

The present study is not without limitations. First, the cross-sectional study design used in this investigation precludes us from determining a temporal association between stress and WRQoL. Augmenting the quantitative approach with qualitative methods, which offer in-depth and trustworthy information on EMTs' stress experiences and related concepts, may have enhanced the study's findings. Semistructured interviews or focus groups could be used to obtain detailed information on specific stressors and coping strategies experienced by EMTs. Additionally, the use of observational methods could provide insights into the nonverbal behaviours and interactions that occur between EMTs and their patients, which may impact their stress levels and WRQoL. By incorporating such qualitative methods, the study could have achieved a more nuanced understanding of the complex and multidimensional nature of stress and its impact on EMTs. Finally, an important limitation is the gender bias in the Emergency Medical Services centres in Lorestan province. During our study, there were no female employees or dispatch codes, and the administrative and dispatch and MCHC (Medical Care Monitoring Centre) personnel were predominantly female, rendering them ineligible for inclusion criteria. While the Sanjeh Organisation has been recruiting female emergency medicine students in large cities like Tehran and has female personnel in dispatch codes in these areas, there are presently no female personnel in dispatch codes in Lorestan province due to cultural and operational limitations, precluding us from including female patients in our study. Furthermore, the study did not provide detailed information about the conditions of the research environment, such as the types of emergencies that the workers were responding to or the work schedules and procedures. These conditions may have affected the level of job stress and the quality of work life of the EMTs. Therefore, future studies should take into account the specific characteristics of the work environment to better understand the factors that contribute to job stress and work quality of life among EMTs. In addition, future research could explore the perspectives of EMTs themselves, as well as those of their supervisors and colleagues, to gain a more comprehensive understanding of the work-related stressors and their impact on the quality of work life in this profession. By addressing these limitations, future studies can help to inform the development of effective interventions and policies aimed at reducing job stress and improving the quality of work life among EMT personnel.

CONCLUSION

This study determined the level of job stress and its relation to the WRQoL among EMT personnel working in government hospitals in Lorestan, Iran. Based on the

evidence provided from the current analysis, two-thirds of EMTs working in governmental hospitals had work-related stress. Work shift was statistically significantly associated with EMTs' work-related stress and WRQoL. In this study, peer support was found to be the most stressful domain among EMTs; while the control domain at work was the highest factor that might impact the quality of working life. It is likely that EMT personnel may have a tremendous role in the healthcare delivery system world wide, especially in emergency situations. Critical incident exposure, workplace aggression, unpredictability, workload and time pressure are among the challenges that EMTs may face during their work. In the mean time, EMTs' experienced work-related stress and low WRQoL may affect not only the healthcare services but also might increase medical errors and resource expenditure. It would seem that to improve the quality of work among EMTs, the urgent need for organisational interventions aim to diminish work-related stress could be used as a comprehensive assessment. Moreover, rescheduling should be explored as a strategy for reducing stress caused by shift work. To demonstrate a true cause-and-effect link, more research employing a mixed-method and analytical design in government and commercial health institutions is recommended.

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Contributors SH and FG conceptualised and designed the main idea of this study. SH, MR and PA designed the data extraction file, extracted data and interpreted data. MM and MB analysed the data. All authors wrote the initial draft of the manuscript and approved the final manuscript as submitted and agreed to be accountable for all aspects of the work. SH is responsible for the overall content as the guarantor.

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Patient and public involvement Patients and/or the public were involved in the design, or conduct, or reporting, or dissemination plans of this research. Refer to the Methods section for further details.

Patient consent for publication Consent obtained directly from patient(s).

Ethics approval This study involves human participants and was approved by Lorestan University of Medical Sciences Committee ID: IR.LUMS.REC.1397-1-99-1254. Written informed consent and verbal agreement was taken from all technicians before participating in the study. The confidentiality principle was maintained so that there was no need to mention the names of the individuals in the questionnaires, and it was assured that the information was just provided to the researcher and used in the study.

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Data availability statement Data are available upon reasonable request.

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