

Stress among Doctors in the Emergency Department in the Medical City Baghdad, Iraq 2024

Tammara Alaa Abdulzahra, Falah Hassan Karim

Department of Community and Family Medicine, College of Medicine, University of Baghdad, Baghdad, Iraq

Abstract

Background: Stress occurs when environmental demands exceed an individual's adaptive capacity, resulting in biological and psychological changes. **Aim of the Study:** The aim of this study was to evaluate the level of stress among doctors in the emergency department of medical city and to identify factors associated with stress. **Subjects and Methods:** Convenience sampling was implemented. Questionnaires were implemented to inquire about the data of 348 medical professionals. The research was conducted in the emergency departments of Baghdad's Medical City complex from October 1, 2023, to July 31, 2024, during working hours, which were predicated on 2–3 days per week. **Results:** Out of 72.1% of the participants reported moderate stress levels, While 11.5% having low stress levels, and high perceived stress was noted in 16.4%. Risk factors for stress included sex, degree, and a specific designation. Males exhibited higher stress levels, which were statistically significant increase stress. Doctors with a board as a postgraduate degree and those with a specific designation demonstrated a significant association with high-stress levels. Marital status and ethnicity showed no association with stress levels. No significant association was observed between medical history and the levels of stress. There was no significant association between stress levels, work experience, and place of residence. **Conclusion:** Nearly three-quarters of the physicians reported moderate levels of stress.

Keywords: Emergency physicians, medical city complex, stress

INTRODUCTION

Stress occurs when environmental demands exceed an individual's adaptive capacity, resulting in biological and psychological changes.^[1]

Emergency departments are notoriously high-stress work environments, and are frequently confronted with acute or chronic stressors daily; without adequate support, emergency department personnel can suffer detrimental effects on their physical, psychological, and emotional health.^[2,3]

Stress among physicians is global issue. As a result of the constant stress that comes with their jobs, healthcare workers' mental health may take a severe hit. Past studies have shown that this persistent stress has a detrimental effect on their mental health.^[3]

Hence, the study aimed to determine the level of stress among doctors in all emergency departments and to identify factors associated with stress.

SUBJECTS AND METHODS

This cross-sectional study was conducted in Baghdad's Medical City complex (emergency departments) from November 1, 2023, to July 31, 2024. The study included 348 doctors in emergency departments between 21 and 50 years old. The study included doctors who worked in the emergency units of the hospital during the study period. It excluded participants who were not willing to participate in the study. During their shift, the emergency department doctors fill out a self-administered questionnaire. They would not lose any time on the task since this procedure would not take more than 15 min. This was carried out on a weekly basis, namely, 3 days each week, for 5 months. They

Address for correspondence: Dr. Tammara Alaa Abdulzahra, Department of Community and Family Medicine, College of Medicine, University of Baghdad, Baghdad 10011, Iraq. E-mail: tamaraalaa95@gmail.com

Submitted: 05-Aug-2024 Revised: 06-Sep-2024 Accepted: 10-Sep-2024 Published: 24-Feb-2025

This is an open access article distributed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 License (CC BY-NC-ND), where it is permissible to download and share the work provided it is properly cited. The work cannot be changed in any way or used commercially without permission from the journal.

For reprints contact: WKHLRPMedknow_reprints@wolterskluwer.com

How to cite this article: Abdulzahra TA, Karim FH. Stress among doctors in the emergency department in the Medical City Baghdad, Iraq 2024. *Mustansiriya Med J* 2026;24:44-9.

Access this article online

Quick Response Code:



Website:
<http://www.mmjonweb.org>

DOI:
10.4103/mj.mj_37_24

would grab the form during their break, fill it out, and then give it back to me if there was a lot of work to do during their shift.

There is no information provided. The necessary sample size for this research was determined using the usual formula for calculating the sample size of cross-sectional studies.^[4]

$$n = \frac{(Z_{1-\alpha/2})^2 P(1-P)}{d^2}$$

Where:

- N is the sample size
- $Z_{1-\alpha/2}$ is the standard deviation at a confidence level of 95%, which is 1.96
- P is the estimated percentage of probability for the event to be measured; $P = 0.5$
- $1 - P$ is the probability for the event not to occur
- d is the percentage of the acceptable error equal to 0.05.

The sample size was calculated by applying the following assumption:

$$N = \frac{(1.96)^2 \cdot 0.5(1-0.5)}{0.05^2} = \frac{(3.84)(0.5)(0.5)}{0.0025} = 384$$

We anticipate that 384 people will be the bare minimum for our sample size. The original sample size was 404. However, it was increased by 5% to account for the nonresponse. Verbal consent was obtained from each patient before data collection. Official agreements will be obtained from the Ethical Scientific Committee at the Department of Family and Community Medicine, College of Medicine, University of Baghdad. The data were collected through a self-administered questionnaire during their shift in the emergency department that covered various aspects as the following:

Demographic data included age, sex, marital status, number of children, ethnicity, degree, medical history, specialization, and work experience/years.

Participants were evaluated for having stress using a Perceived Stress Scale (PSS).

Statistical analysis

The analysis was conducted using Statistical Packages for Social Sciences-version 26 (IBM, Armonk, New York, USA). The statistical significance of the association was assessed using the Pearson Chi-square test.

RESULTS

In this study, 348 participants were interviewed. The majority, comprising 219 individuals (62.9%), fell into the age range of (21–30) years. Women, totaling 228 participants (55.5%), outnumbered men, who accounted for 120 individuals (34.5%). Unmarried doctors comprised approximately 57.5% of the sample, totaling around 200 individuals. In addition, more than half of the participants, specifically 231 individuals (66.4%), did not have children.

Regarding ethnic background, Arab doctors comprised the largest group, with 322 individuals (92.5%). Over three-quarters of the participants, 265 (76.1%) possessed a board certification as a postgraduate qualification. Furthermore, 292 individuals (83.9%) were free from chronic diseases, as indicated in Table 1.

The breakdown of doctor designations shows that 215 participants (61.78%) held board certifications, 69 individuals (19.83%) were classified as junior doctors, and a mere 64 individuals (18.39%) were categorized as senior doctors.

Regarding the specialization of participants, 94 doctors (34%) were from the internal medicine department, while 81 doctors (29%) belonged to the surgical department. On the other hand, 50 doctors (18%) were involved in the pediatric departments. Twenty-nine participants (10%) were involved in the emergency department, while only 25 doctors (9%) were involved in the family department.

A majority (58.9%) of the doctors included in this study had <5 years of work experience, and approximately three-quarters (73%) were homeowners, as detailed in Table 2.

Table 3 elucidates that there is no significant association between the age of participants and their stress levels ($P = 0.361$). However, males exhibited higher stress levels, which were statistically significant ($P = 0.015$). Conversely, the

Table 1: Demographic distribution of the participants

Variables	<i>n</i> (%)
Age group/years	
21–30	219 (62.9)
31–40	119 (34.2)
41–50	10 (2.9)
Sex	
Male	120 (34.5)
Female	228 (65.5)
Marital status	
Married	146 (42.0)
Single	200 (57.5)
Divorced	2 (0.6)
Number of children	
Only one child	59 (50.4)
More than one	58 (49.6)
Ethnicity	
Arabs	322 (92.5)
Kurds	16 (4.6)
Turkmen	10 (2.9)
Degree	
Resident doctor	69 (19.8)
Postgraduate (Diploma)	14 (4.1)
Postgraduate (Board)	265 (76.1)
Medical history	
Free	292 (83.9)
Chronic	56 (16.1)
Total	348 (100.0)

participant's marital status [Table 4] and ethnicity showed no association with stress levels ($P = 0.930$).

Interestingly, doctors with a board as a postgraduate degree and those with a specific designation demonstrated a significant association with high-stress levels ($P = 0.012$ and $P = 0.013$,

respectively). In addition, no significant association was observed between medical history and the levels of stress among the participants ($P = 0.537$).

Table 5 indicated that there was no significant association between the stress levels and the specialization of the participants ($P = 0.527$).

Table 6 reveals no significant association between stress levels, work experience, and place of residence ($P = 0.104$, $P = 0.090$), respectively.

Table 2: Location and practice characteristics of the participants

Variables	n (%)
Work experience/years	
≤5	205 (58.9)
6–15	132 (37.9)
16–25	11 (3.2)
Place of residence	
Owned	254 (73.0)
Rented	94 (27.0)
Total	348 (100)

Table 3: Distribution of total stress scores

Stress levels	n (%)
Low (0–13)	40 (11.5)
Moderate (14–26)	251 (72.1)
High (27–40)	57 (16.4)
Total	348 (100.0)

DISCUSSION

Seventy-one percent of the participants in our study reported experiencing moderate levels of stress. On the contrary, high perceived stress was reported by 16.4% of medical personnel, whereas low-stress levels were reported by 11.5%. In Kamimura's 2018 study, which exams stress and job satisfaction among physicians in Iraq. The average stress score was 21.72, which means moderate stress levels according to the PSS-10. Their results found significant associations between lower job satisfaction and higher stress levels.^[5] In Srilanka, a comparable rate of 51.3% scored low and medium stress among healthcare workers based on the Organizational Role Stress Scale.^[6]

However, other studies found lower percentages, within Egypt, 11.89%.^[7] About 17.8% in Oman,^[8] 19.8% in

Table 4: Association between the stress scores with the demographic variables of the participants

Variables	Low, n (%)	Moderate, n (%)	High, n (%)	Total, n (%)	P
Age group/years					
21–30	30 (13.7)	157 (71.7)	32 (14.6)	219 (62.9)	0.361
31–40	9 (7.6)	86 (72.3)	24 (20.2)	119 (34.2)	
41–50	1 (10.0)	8 (80.0)	1 (10.0)	10 (2.9)	
Sex					
Male	11 (9.2)	80 (66.7)	29 (24.2)	120 (34.5)	0.015
Female	29 (12.7)	171 (75.0)	28 (12.3)	228 (65.5)	
Marital status					
Married	17 (11.6)	104 (71.2)	25 (17.1)	146 (42.0)	0.930
Single	23 (11.5)	145 (72.5)	32 (16.0)	200 (57.5)	
Divorced	0	2 (100.0)	0	2 (0.6)	
Ethnicity					
Arabs	36 (11.2)	233 (72.4)	53 (16.5)	322 (92.5)	0.908
Kurds	2 (12.5)	11 (68.8)	3 (18.8)	16 (4.6)	
Turkmen	2 (20.0)	7 (70.0)	1 (10.0)	10 (2.9)	
Degree					
Resident doctor	16 (23.2)	42 (60.9)	11 (15.9)	69 (19.8)	0.012
Postgraduate (Diploma)	1 (7.1)	12 (85.7)	1 (7.1)	14 (4.1)	
Postgraduate (Board)	23 (8.7)	197 (74.3)	45 (17.0)	265 (76.1)	
Designation					
Junior	16 (23.2)	42 (60.9)	11 (15.9)	69 (19.8)	0.013
Board	20 (9.3)	158 (73.5)	37 (17.2)	215 (61.8)	
Senior	4 (6.3)	51 (79.7)	9 (14.1)	64 (18.4)	
Medical history					
Free	34 (11.6)	213 (72.9)	45 (15.4)	292 (83.9)	0.537
Chronic	6 (10.7)	38 (67.9)	12 (21.4)	56 (16.1)	

Australia,^[9] and these improvements may be attributed to improved organizational practices, stable conditions, less stress on doctors, and a smaller customer base. Similarly, a cross-sectional study measuring stress levels in a tertiary care hospital in North India reported that most participants (79.8%) had moderate stress levels, according to the PSS-10.^[10]

Our research discovered a substantial association between gender, degree, and designation among the sociodemographic characteristics associated with stress. Stress levels did not vary significantly according to age, marital status, the existence of a chronic condition, or occupational specialty. Younis *et al.*'s study found that around half of the participants were female doctors <40 years old.^[11] This is consistent with many previous local studies among medical students as girls in Iraq aspire to medical careers.^[12,13]

Conversely, in his Jordanian Arabian research on the causes of stress in the workplace, Alhamad *et al.* found no correlation between staff stress and factors such as education level, gender, marital status, or language.^[14]

Our research showed younger doctors' stress ratings were more fantastic than older doctors. This aligns well with prior research among physicians and other healthcare providers in Iraq.^[15] The most likely possibility was that older doctors would be less prone to stress due to deeper personal ties and more job satisfaction. Nevertheless, the results of Johns and Osoff do not support this view. Their investigation of academic chairs of otolaryngology (head-and-neck surgery), with an average age of 56 years, revealed only moderate stress levels.^[16] According to the gender-based data study, 75.0% of female physicians often report moderate levels of stress compared to their male counterparts. Overall, male and female physicians reported substantially different levels of stress, which were

statistically significant ($P = 0.015$). One possible explanation is that men and women react to situations differently due to inherent and structural differences. This distinction becomes even more apparent when dealing with a high-stress industry like healthcare. In addition, Mohammed *et al.* found that there was also a statistically significant association between depression, anxiety levels, and gender, where females were more vulnerable to mental symptoms due to heavier work and family load than men.^[17]

European research found that female physicians were much more likely than male doctors to report severe levels of emotional tiredness.^[18]

Our study showed the participants' marital status showed no association with stress levels ($P = 0.930$).

In a separate research conducted by Adam *et al.*, it was shown that those who were not married had a higher probability of satisfying the criteria for burnout.^[18] This occurs due to the conflicting demands of domestic responsibilities and job obligations, resulting in time-related challenges or extended working hours that disrupt their personal and professional lives.

Previous studies have shown conflicting results; for example, Shanafelt *et al.* failed to establish any correlation between married status and sex.^[19]

Factors related to practice may impact the levels of stress experienced by physicians. This phenomenon may be significantly influenced by position and specialization. The stress ratings among the board doctors were much higher than those of specialists and juniors. This observation may be explained by the fact that board doctors were recently introduced to providing patient care and being held responsible by their more experienced colleagues. The transition from being a passive student to actively pursuing a job may increase individuals' stress levels. Sixty-one percent of the residents were trainees enrolled in either the Iraqi or the Arab postgraduate training programs at one of the four phases of study in various medical and surgical specialties, as offered by the Arab Board for Medical Specializations and the Iraqi Board for Medical Specializations. Therefore carrying the additional burden of intense studying results in their high level of stress. Based on our observation, the physicians persist in their current position for an extended duration, experiencing a sense of being trapped in their duty. This leads to elevated levels of

Table 5: Association between the stress scores with the specialization of the participants (n=279)

Variables	Low, n (%)	Moderate, n (%)	High, n (%)	Total, n (%)	P
Specialization					
Medicine	6 (12.0)	39 (78.0)	5 (10.0)	50 (14.3)	0.527
Surgery	8 (9.9)	54 (66.7)	19 (23.5)	81 (23.3)	
Emergency	3 (10.3)	22 (75.9)	4 (13.8)	29 (8.3)	
Family	1 (4.0)	20 (80.0)	4 (16.0)	25 (7.1)	
Pediatric	6 (6.4)	74 (78.7)	14 (14.9)	94 (27.1)	

Table 6: Association between the stress scores with the location and practice characteristics of the participants

Variables	Low, n (%)	Moderate, n (%)	High, n (%)	Total, n (%)	P
Work experience/years					
≤5	31 (15.1)	144 (70.2)	30 (14.6)	205 (58.9)	0.104
6–15	8 (6.1)	100 (75.8)	24 (18.2)	132 (37.9)	
16–25	1 (9.1)	7 (63.6)	3 (27.3)	11 (3.2)	
Place of residence					
Owned	34 (13.4)	183 (72.0)	37 (14.6)	254 (73.0)	0.090
Rented	6 (6.4)	68 (72.3)	20 (21.3)	94 (27.0)	

stress among both residents and physicians. Furthermore, much work must be completed, and very little time is available for recreational pursuits. Consequently, we saw a significant prevalence of stress among them.

In our study, junior doctors tend to have a high level of stress in 15.9% of participants, possibly explaining that junior doctors are more involved in medical errors than senior doctors. A study conducted in a medical city complex showed that when juniors did not access senior help, the burden on doctors increased, and there was a possibility of errors. Subsequently, patient care was decreased.^[20]

One intriguing finding in our research was that pediatricians had the highest average stress score, followed by surgical specialists, while family specialists had the lowest levels. Nevertheless, these disparities did not provide significant results when analyzed statistically.

Previous research has shown variations in stress levels among doctors from various specialties. However, these differences were statistically inconsequential. Monteiro's research revealed that the burnout rate across all fields was 50%, with the greatest rates seen in obstetrics–gynecology (75%). Stress levels were lower in general surgery, psychiatry, and family medicine rankings. The observed variance among specializations was not found to be statistically significant.^[21]

Other research has shown that psychiatry residents face extra stresses, such as anxiety and being exposed to patient violence and suicide. This might be because of selective attention, which is when someone has an idea and a perception, and when he sees a case, he either thinks it is because of his perception or pays more attention to it. This idea might also come from focusing on mental health professionals' actions. Many people will blame their field, mental diseases, or the nature of their work if they give a different opinion, make a mistake, or have a personality trait that does not seem normal.^[22]

Emergency medicine physicians have the highest rates of burnout among all physician specialties, as reported in Medscape's 2022 Physician Burnout and Depression survey. A possible explanation for this association is the emergency nature of these specialties, which often involve dealing with life-threatening situations, complex cases, heavy patient loads, and an overload of shifts. In addition, these physicians may experience sleep disturbance and have less time with their families.^[23]

Since most study participants in Kamimura's research expressed interest in practicing outside of Iraq, without interventions to improve physician job satisfaction and well-being, Iraq will not have enough physicians to maintain current levels of healthcare delivery. It will face a critical physician shortage in the future.^[5]

A German study shows surgeons deal with more work-related stress than average. Numerous intraoperative stimuli may negatively affect surgeon performance.^[24]

One study was conducted in 2003 in Jeddah, Saudi Arabia, to estimate the prevalence of burnout among family medicine residents and practicing family physicians in the Joint Program of Family and Community Medicine. The study found that 14.8% and 26.1% of family medicine residents and postgraduate physicians had burnout and modified burnout, respectively.^[25]

Among our study population, doctors with negative past medical histories were usually expected to take more responsibility for their jobs than those with chronic diseases. Thus, they were inevitably fastened on more work tasks because of their higher ability than expected. On the other hand, the lower expectations for job responsibilities are typically concentrated on healthy doctors. As a result, we observed more stress scores on healthy doctors.

Current research found that individuals with more years of job experience were less susceptible to pressures compared to younger individuals. The observed variation could be attributed to physicians' internal struggle between professional and personal responsibilities. Younger physicians are acquiring knowledge and must exert daily effort to achieve excellence in their respective fields of expertise. At least twice per week, night duties are listed on their duty rosters. In a previous study conducted in Baghdad by Riyadh, the result is that doctors are not protected from the occurrence and consequences of mental disorders such as anxiety, depression, and occupational burnout, likely owing to their exposure to high levels of occupational stress. This indicates that the high prevalence among junior doctors is not just part of the general unstable condition in the country but that additional pressure on this stratum makes the problem an issue.^[26] A similar finding by Parr *et al.* emphasized that burnout increases during the 1st year of postgraduate employment. Research has shown a correlation between heightened levels of burnout among physicians and increased medical mistakes and substandard patient care. Approximately 75% of participants experience the highest occurrence of burnout at the 9-month mark during their internship in Australia.^[27]

In the end, we can say that low financial rewards and limited leisure time were the primary occupational stressors, according to the Law research.^[28] There is one limitation in this research. Due to the cross-sectional design, it is not feasible to establish any causal relationship between stress and its associated components. Subsequent longitudinal investigations should be undertaken to validate the findings reported in our research.

CONCLUSION

Nearly three-quarters of the physicians surveyed reported moderate levels of stress, indicating a widespread problem at Baghdad's Medical City complex's emergency rooms. Over half of the female physicians who participated in this research were <30 years old, and multiple factors were found to be more strongly linked to the high-stress score, with sex- and board-certified physicians being the most prominent.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Abd-Ali GB, Mohammed SJ. Prevalence and severity of stress among undergraduate medical students after application of integrated curriculum in University of Kufa. *Int Proc Med J* 2022;21:213.
2. Xie W, Liu M, Okoli CT, Zeng L, Huang S, Ye X, *et al.* Construction and evaluation of a predictive model for compassion fatigue among emergency department nurses: A cross-sectional study. *Int J Nurs Stud* 2023;148:104613.
3. Chen J, Li J, Cao B, Wang F, Luo L, Xu J. Mediating effects of self-efficacy, coping, burnout, and social support between job stress and mental health among young Chinese nurses. *J Adv Nurs* 2020;76:163-73.
4. Kang H. Sample size determination and power analysis using the G*power software. *J Educ Eval Health Prof* 2021;18:17.
5. Kamimura A, Chen J, Nourian MM, Stoddard M, Al-Sarray A. Stress, depression and job satisfaction among physicians in Iraq. *Divers Health Care* 2018;15:79-86.
6. Gunawardane DA, Mallawaarachchi SI, Herath PH, Anwarama RS, Warnasuriya WP. Role stress among doctors working in a teaching hospital in Sri Lanka. *J Community Health Sci* 2020;19:25.
7. Latief OK, Abd EL, Mahfouz EM, Ewis AA, Seedhom AE. Burnout syndrome among healthcare providers in different hospitals in Minia City, Egypt. *J Occup Med* 2018;42:21-31.
8. Al-Hashemi T, Al-Huseini S, Al-Alawi M, Al-Balushi N, Al-Senawi H, Al-Balushi M, *et al.* Burnout syndrome among primary care physicians in Oman. *Oman Med J* 2019;34:205-11.
9. Ifediora CO. Burnout among after-hours home visit doctors in Australia. *BMC Fam Pract* 2016;17:2.
10. Sidhu TK, Kaur P, Kaur H, Kaur K. Stress among doctors: A cross-sectional study in a tertiary care hospital. *J Res Med Sci* 2021;22:18-24.
11. Younis MS, Touma BM, Khunda SS, Arafat SM. Prevalence and associated factors of burnout syndrome among doctors. *Arch Gen Psychiatry* 2024;7:33-43.
12. Shawi AF, Abdullateef AN, Khedher MA, Rejab MS, Khaleel RN. Assessing stress among medical students in Anbar governorate, Iraq: A cross-sectional study. *Pan Afr Med J* 2018;31:96.
13. Alqahtani A. The influence of cultural and psychological factors on mental health status during COVID-19 in Saudi Arabia. *Open Psychol J* 2022;15.
14. Alhamad R, Suleiman A, Bsisu I, Santarisi A, Al Owaidat A, Sabri A, *et al.* Violence against physicians in Jordan: An analytical cross-sectional study. *PLoS One* 2021;16:e0245192.
15. Ali SA, Aljunid SM, Dastan I, Tawfeeq RS, Mustafa MA, Ganasegeran K, *et al.* Job satisfaction and turnover intention among Iraqi doctors. *Health Res Policy Syst* 2015;13:1.
16. Lawlor SK, Low CM, Carlson ML, Rajasekaran K, Choby G. Burnout and well-being in otolaryngology trainees: A systematic review. *World J Otorhinolaryngol Head Neck Surg* 2022;8:118-25.
17. Mohammed IA, Hamdan AS, Jaber OA, Abbas GH. Assessment of anxiety and depression status among health care workers from Baghdad post cure from COVID-19. *J Fac Med Baghdad* 2021;63:113.
18. Adam S, Mohos A, Kalabay L, Torzsa P. Potential correlates of burnout among general practitioners and residents in Hungary: The significant role of gender, age, dependant care and experience. *BMC Fam Pract* 2018;19:193.
19. Shanafelt TD, Makowski MS, Wang H, Bohman B, Leonard M, Harrington RA, *et al.* Association of burnout, professional fulfillment, and self-care practices of physician leaders with their independently rated leadership effectiveness. *JAMA Netw Open* 2020;3:e207961.
20. Almothaffar A, Mahmood D, Kareem N, Abed M. Medical errors among postgraduate medical students joining the Iraqi and Arab councils for medical specializations-medical city complex. *medRxiv* 2023:2023-1.
21. Carneiro Monteiro GM, Passos IC, Baeza FL, Hauck S. Burnout in psychiatry residents: The role of relations with peers, preceptors, and the institution. *Braz J Psychiatry* 2020;42:227-8.
22. Nagasaki K, Kobayashi H. The effects of resident work hours on well-being, performance, and education: A review from a Japanese perspective. *J Gen Fam Med* 2023;24:323-31.
23. Yuryeva L. Mental Health Problems and Burnout in Medical Professionals Working in Emergency Situations: Prevention and Correction. In: *The III International Scientific and Practical Conference "Latest Directions of Modern Science"*. Vancouver, Canada; 2023. p. 154.
24. Kuvshinnikov O, Rybalchenko S, Shestakova TJ. Public health promotion as a priority for regional governmental policy. *Eur Sci J* 2023;89:2.
25. Obeidat BY, Alzaidi FF, Shannak RO, Al-Jarrah IM, Al-Zu'bi MF. The impact of healthcare quality controls on patient safety in Ministry of Health (MOH) hospitals in Kingdom of Saudi Arabia. *Int J Res* 2012;94-111.
26. Lafta R, Dhiaa S, Tawfeeq W, Al-Shawi A. Association of violence with anxiety and depression among Iraqi junior doctors. *Int J Appl Psychol* 2016;6:163-70.
27. Parr JM, Pinto N, Hanson M, Meehan A, Moore PT. Medical graduates, tertiary hospitals, and burnout: A longitudinal cohort study. *Ochsner J* 2016;16:22-6.
28. Law PC, Too LS, Butterworth P, Witt K, Reavley N, Milner AJ. A systematic review on the effect of work-related stressors on mental health of young workers. *Int Arch Occup Environ Health* 2020;93:611-22.