

## Clinical research

# Assessment of psychological stress in emergency nurses: a descriptive study

Ahmed Faisal Kareem Alkaabi<sup>1</sup>, Emrah Caylak<sup>2</sup>, Yasar Kemal Yazgan<sup>3</sup>, Ali Kareem Al-Juboori<sup>4</sup>

<sup>1</sup>Faculty of Health Sciences, Karatekin University, Cankiri, Turkey

<sup>2</sup>Faculty of Medicine, Girne American University, Kyrenia, Cyprus

<sup>3</sup>Faculty of Dentistry, Karatekin University, Cankiri, Turkey

<sup>4</sup>Faculty of Nursing, University of Karbala, Karbala, Iraq

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**Corresponding author:**

Emrah Caylak PhD  
Faculty of Medicine  
Girne American University  
Kyrenia, Cyprus  
Phone: +90 544 613 4 999  
E-mail: emrah333@hotmail.com

## Abstract

**Introduction:** Emergency unit nurses face many stress factors at the same time. The mood of nurses who frequently face unforeseen difficulties and crisis situations such as sudden death, serious illness, trauma, overcrowding, exposure to violence is also highly affected by these negative developments. This research was conducted descriptively to examine the stress and related psychological problems experienced by nurses working in emergency units.

**Material and methods:** A data collection form with 50 questions was prepared by the researchers to examine the psychological effects of work stress on nurses. The authors chose 120 nurses and 120 administrative worker working in Hospital Emergency Department of Shatrah, Dhi-Qar City in Iraq to answer questions about the psychological effects of emergency service work, and to complete the Rapid Stress Assessment scale. Then, the individual experienced stress was evaluated with the Perceived Stress Status (PSS) scale, which was translated and validated in Arabic language.

**Results:** The nurses had higher scores of stress measured by the RSA scale, anxiety, depression, and somatization than administrative workers ( $p < 0.05$ ). The total score of PSS in nurses ( $26.57 \pm 3.82$ ) was slightly higher compared with that among the administrative employees ( $21.42 \pm 3.64$ ); this difference was statistically significant between the groups ( $p = 0.036$ ).

**Conclusions:** Improving work conditions could decrease the stress felt by emergency nurses. It is necessary to improve the conditions and to reduce the duration of nurses' work, to increase the number of nurses in emergency departments, to institutionalize the nursing profession, to pay attention to specialized education, and to improve economic conditions.

**Key words:** nurse, emergency unit, job stress, psychological effects, Iraq.

## Introduction

The emergency department is the first place where people who suddenly become ill turn to for help, and it specializes in acute care for patients, providing a wide range of medical treatments and interventions, such as resuscitating patients, limb recovery, and symptom relief [1]. Emergency unit nurses face many stress factors at the same time. The mood of nurses who frequently face unforeseen difficulties and crisis situations such as sudden death, serious illness, trauma, overcrowding, and exposure to violence is also highly affected by these negative de-

velopments [2]. The fact that the emergency department is equipped and well-managed allows the public to receive good-quality medical assistance from an existing emergency room. However, because the emergency room is a place of rapid medical intervention rather than treatment, this has created a knowledge gap and caused growing misunderstandings and conflicts between emergency room nurses and patients [1, 2]. Disrespect, contempt, lack of support, harsh behaviour, and excessive workload are the variables that cause physical and mental fatigue in emergency room nurses and affect job satisfaction and job retention [3].

In this study, the psychological effects of work stress on nurses will be examined, working in the Emergency Department of Shatrah General Hospital in the southern Iraqi city of Di-Qar.

**Material and methods**

**Design**

A descriptive approach was used to examine the stress and related psychological problems experienced by nurses working in the Emergency Unit.

**Sample strategy and sampling**

120 nurses and 120 administrative employees working in the Emergency Department of Shatrah General Hospital in Iraq were included in the study to fill in the questionnaires. The exposed and control subjects were compared by age, gender, marital status, work experience, and experience in the emergency department, with no statistically significant differences between sexes. The inclusion criterion was working in the emergency department, and the research was conducted from 1 August to 30 September 2021.

In our research, we created a questionnaire to assess the variables. This survey consists of 3 parts. The first stage was developed to obtain demographic data consisting of 5 items: age, gender, marital status, work experience, and experience in the emergency department (Table I).

**Ethical considerations**

Before commencing the data collection, the research protocol was reviewed by the Research Ethics Standing Committee at Karbala University (Ethics Approval No. ERC\_SU\_2021010). Adequate information about the study and full disclosure of the participants’ rights were provided before signing an informed consent form. Code names were used in the study instead of the names of the participants to protect their identity. Confidentiality of data was also ensured by protecting the data from being shared or reported, so that the participants could not be identified, by keeping all the materials used in the interview in a password-protected computer, and by deleting the recordings after the study concluded. No incentive was offered for participation. Finally, consent to record the interview was sought from each participant.

**Data analysis**

Firstly, the preparation of a candidate scale model was carried out. It was developed using the modified Lawshe technique [4, 5]. A board consisting of 6 experts from the faculty members at Baghdad University was established. The candidate scale model was prepared, and expert opinions were obtained. The qualitative data obtained in line with the expert opinions on the scale were transformed by calculating the content sustainability rates (KGO) and content mobility index (CGI) to determine the scope validity of the items to be included in the quantitative data.

$$KGO = \frac{Nu - N/2}{N/2} \text{ or } KGO = \frac{Nu}{N/2} - 1$$

In this case, *Nu* represents the number of experts who responded “Valid” for the item, and *N* represents the total number of experts who expressed opinions on the item.

When we tested the validity of the Arabic questionnaire used in our study, we obtained an intra-correlation coefficient of 0.89 and 0.8. The

**Table I.** Sociodemographic characteristics of nurses and workers

Demographics	Parameters	Nurses (n; %)	Workers (n; %)
Age [year]	≤ 25	65; 54.2	55; 45.8
	26–35	47; 39.2	37; 30.8
	36–45	7; 5.8	18; 15
Gender	Male/female	45; 37.5/75; 62.5	43; 36.5/77; 63.5
Marital status	Married/single	101; 84.2/19; 15.8	101; 84.2/19; 15.8
Uptime	0–5/6–10/11–15/16–20/ more years	55; 45.8/21; 17.5/18; 15/11; 9.2/15; 12.5	54; 45.2/20; 17/19; 15.4/10; 9.6/17; 13.5
Working in Emergency Unit	0–5/6–10/11–15/16–20/ more years	55; 45.8/21; 17.5/18; 15/11; 9.2/15; 12.5	54; 45.2/20; 17/19; 15.4/10; 9.6/17; 13.5

content validity of the Arabic questionnaire was reviewed by a panel of experts. The required changes were made to clear any ambiguity and ensure comprehension by Iraqi participants after the pilot study. A reliability test was performed for the overall Arabic version of the questionnaire items, where the values of Cronbach's  $\alpha$  test for the questionnaire was 0.725, which indicates high and acceptable internal consistency of the data and its validity for model analysis.

Secondly, the following questions were prepared in Arabic by the researchers to determine the level of psychological health and stress in the nurses

and controls; each of these items was answered as yes/no (Y/N) or with data (Tables II and III).

Thirdly, we evaluated the psychological stress experienced by the nurses and workers through the administration of a subjective questionnaire: the Rapid Stress Assessment scale (RSA) [6]. This self-report measure allows 4 possible answers rated from 0 to 3, measuring depression, anxiety, somatization, aggressiveness, and lack of social support, each consisting of 15 items. The total score can range between 0 and 45 points, and the test proved to have good reliability and validity. Then, the second phase of the study was focused on the

**Table II.** Assessment of stress levels in nurses and workers

Scale	Nurses (n; %)	Mean $\pm$ SD	Workers (n; %)	Mean $\pm$ SD
Daily cases (100/more)	45/75; 37.5/62.5	1.62 $\pm$ 0.73	65/55; 54.2/45.8	1.54 $\pm$ 0.64
Daily opening hours (7/12 h)	37/83; 30.8/69.2	1.69 $\pm$ 0.46	65/55; 54.2/45.8	1.54 $\pm$ 0.64
Did he/she choose to work in the Emergency Department? (Y/N)	74/46; 61.7/38.3	1.62 $\pm$ 0.48	47/73; 30.8/69.7	1.45 $\pm$ 0.86
Fulfillment in working in the Emergency Department (Y/N)	22/98; 18.3/81.7	1.81 $\pm$ 0.38	45/75; 37.5/62.5	1.81 $\pm$ 0.38
The main motivation for working in the Emergency Department (economic/moral/professional/none)	9/15/52/44; 5/7.5/44.6/36.7	3.09 $\pm$ 0.88	12/12/49/41; 10.8/10.8/40.7/38.7	2.21 $\pm$ 0.53
Sharing the professional question in the Emergency Department (spouse/co-worker/manager/nobody)	50/14/22/14; 40.8/11.7/18.3/11.7	2.43 $\pm$ 0.84	60/14/12/14; 50/11.7/10.6/11.7	2.43 $\pm$ 0.84
The impact of the occupational problem on the family (often/sometimes/rarely/never)	14/55/22/29; 11.7/45.8/18.3/24.2	2.55 $\pm$ 0.98	53/20/15/12; 44.8/17/18.6/10.6	3.02 $\pm$ 0.67
The impact of the family problem on working in the Emergency Department (often/occasionally/rarely/never)	19/20/34/47; 15.8/16.7/28.3/39.2	2.90 $\pm$ 1.0	15/24/52/9; 12.4/22.6/45/5	1.96 $\pm$ 1.0
Sum		17.71 $\pm$ 5.75		15.96 $\pm$ 5.56

**Table III.** Assessment of psychological health levels in nurses and workers

Scale	Nurses (n; %)	Mean $\pm$ SD	Workers (n; %)	Mean $\pm$ SD
Poor mental health (Y/N)	82/38; 68.3/31.7	1.3 $\pm$ 0.46	90/30; 75/25	1.7 $\pm$ 0.43
The need to use antidepressant drugs (Y/N)	105/15; 87.5/12.5	1.1 $\pm$ 0.33	117/3; 97.5/2.5	1.0 $\pm$ 0.15
Use of antidepressant medications (Y/N)	117/3; 97.5/2.5	1.0 $\pm$ 0.25	63/57; 52.5/47.5	1.4 $\pm$ 0.50
Alcohol intake (Y/N)	117/3; 97.5/2.5	1.0 $\pm$ 0.15	90/30; 25/68.3	1.2 $\pm$ 0.43
Smoking (Y/N)	109/11; 90.8/9.2	1.0 $\pm$ 0.28	117/3; 97.5/2.5	1.4 $\pm$ 0.49
Use of drugs/stimulants (Y/N)	117/3; 97.5/2.5	1.0 $\pm$ 0.15	66/54; 55/45	1.4 $\pm$ 0.49
Verbal or physical violence by patients and their relatives (often/occasionally/rarely/never)	15/56/26/23; 12.5/46.7/21.7/19.2	2.4 $\pm$ 0.94	112/8; 93.3/6.7	1.9 $\pm$ 0.25
Sleep disturbance (Y/N)	63/57; 52.5/47.5	1.4 $\pm$ 0.50	90/30; 25/68.3	1.2 $\pm$ 0.43
Salary eligibility for the task (Y/N)	90/30; 25/68.3	1.2 $\pm$ 0.43	14/106; 11.7/88.3	1.8 $\pm$ 0.32
Pre-retirement work departure plans (Y/N)	82/38; 68.3/31.7	1.3 $\pm$ 0.46	108/12; 90/10	1.9 $\pm$ 0.30
Plans to retire when the time comes (Y/N)	45/75; 37.5/62.5	1.6 $\pm$ 0.48	117/3; 97.5/2.5	1.0 $\pm$ 0.25
Finding yourself successful (Y/N)	14/106; 11.7/88.3	1.8 $\pm$ 0.32	108/12; 90/10	1.9 $\pm$ 0.30

Table III. Cont.

Scale	Nurses (n; %)	Mean ± SD	Workers (n; %)	Mean ± SD
Loving children who want to do the same job in the future (Y/N)	65/55; 56/44	1.9 ±0.30	90/30; 25/68.3	1.2 ±0.43
Having the opportunity to choose the profession again (Y/N)	66/54; 55/45	1.4 ±0.49	113/7; 94.2/5.8	1.9 ±0.21
Getting a psychology-based education (Y/N)	71/49; 59.2/40.8	1.5 ±0.49	117/3; 97.5/2.5	1.4 ±0.49
Believing to develop psychological disorders due to their work (Y/N)	90/30; 75/25	1.7 ±0.43	90/30; 25/68.3	1.2 ±0.43
Feeling to help people while working in the emergency (Y/N)	108/12; 90/10	1.9 ±0.23	109/11; 90.8/9.2	1.0 ±0.28
Finding working in the Emergency Unit routine and boring (Y/N)	117/3; 97.5/2.5	1.4 ±0.49	106/14; 88.3/11.7	1.8 ±0.32
Finding working in the Emergency Unit exciting (Y/N)	108/12; 90/10	1.9 ±0.30	117/3; 97.5/2.5	1.0 ±0.25
Finding working in the Emergency Unit scary (Y/N)	120/0; 100/0	2.0 ± 0.00	90/30; 25/68.3	1.2 ±0.43
Being satisfied with your managers (Y/N)	58/62; 48.3/51.7	1.4 ±0.50	66/54; 55/45	1.4 ±0.49
Being satisfied with your co-workers (Y/N)	90/30; 75/25	1.7 ±0.43	112/8; 93.3/6.7	1.9 ±0.25
Being satisfied with the relationship with the patient (Y/N)	1/119; 0.8/99.2	1.0 ±0.09	109/11; 90.8/9.2	1.0 ±0.28
Being satisfied with the relationship with the patient's relatives (Y/N)	102/85; 85/15	1.8 ±0.35	106/14; 88.3/11.7	1.8 ±0.32
Being satisfied with the relationship with the auxiliary staff (Y/N)	100/20; 83.3/16.7	1.8 ±0.37	90/30; 25/68.3	1.2 ±0.43
Being satisfied with working conditions (Y/N)	108/12; 90/10	1.9 ±0.30	14/106; 11.7/88.3	1.8 ±0.32
Leading while working (Y/N)	101/19; 84.2/15.8	1.8 ±0.36	82/38; 68.3/31.7	1.3 ±0.46
Getting the recognition you deserve for the work you do (Y/N)	106/14; 88.3/11.7	1.8 ±0.32	108/12; 90/10	1.9 ±0.30
Believing in control of private life (Y/N)	101/19; 84.2/15.8	1.8 ±0.36	112/8; 93.3/6.7	1.9 ±0.25
Feeling stressed (Y/N)	115/5; 95.8/4.2	1.9 ±0.20	66/54; 55/45	1.4 ±0.49
Feeling good when dealing with problems (Y/N)	115/5; 95.8/4.2	1.7 ±0.43	112/8; 93.3/6.7	1.9 ±0.25
Feeling tired and finished at the end of the shift (Y/N)	114/6; 95/5	1.9 ±0.21	117/3; 97.5/2.5	1.0 ±0.25
Feeling reluctant to come to work or before (Y/N)	118/2; 98.3/1.7	1.9 ±0.15	115/5; 95.8/4.2	1.7 ±0.43
Finding annual leave and weekly leave sufficient (Y/N)	107/13; 89.2/10.8	1.8 ±0.31	117/3; 97.5/2.5	1.4 ±0.49
Feeling energetic while working (Y/N)	113/7; 94.2/5.8	1.9 ±0.23	112/8; 93.3/6.7	1.9 ±0.25
Comfortable thinking about the approach to patients (Y/N)	112/8; 93.3/6.7	1.9 ±0.25	14/106; 11.7/88.3	1.8 ±0.32
Feeling hopeless (Y/N)	114/6; 95/5	1.9 ±0.21	117/3; 97.5/2.5	1.0 ±0.25
Feeling guilty about negative experiences (Y/N)	113/7; 94.2/5.8	1.9 ±0.21	82/38; 68.3/31.7	1.3 ±0.46
To think that you are calmly meeting the problems (Y/N)	114/6; 95/5	1.9 ±0.20	66/54; 55/45	1.4 ±0.49
Thinking that it adds value to the emergency room (Y/N)	115/5; 95.8/4.2	1.9 ±0.18	106/14; 88.3/11.7	1.8 ±0.32
Thinking that you have made invaluable gains (Y/N)	115/5; 95.8/4.2	1.9 ±0.20	117/3; 97.5/2.5	1.4 ±0.49
Sum		69.7 ±18.34		62.0 ±14.29

evaluation of individual experienced stress and was conducted according to the Perceived Stress Status (PSS) tool developed by Almadhi *et al.* [7] The PSS, which has been translated and validated in Arabic language, measures the degree to which an individual experienced stress during the previous month. It is a 14-item, 5-point scale (0, never; 1, almost never; 2, sometimes; 3, quite often; and 4, often). The range of possible PSS scores were from 0 to 56.

### Statistical analysis

A reliability test was performed for the overall Arabic version of the questionnaire items, where the values of the Cronbach's  $\alpha$  test for RSA and PSS were 0.79 and 0.81, respectively, which indicates high and acceptable internal consistency of the data and its validity for model analysis. All analyses were performed on SPSS v26 (SPSS Inc., Chicago, USA). The statistical analysis of the data is based on the analysis of the differences between the nurses and the control groups, regarding sociodemographic variables, using Pearson's  $\chi^2$  test, Fisher's exact test, and independent samples *t* test. Then, mixed ANOVAs were carried out to explore a possible effect of the interaction between the nurses' and workers' variables on the scores of RSA, and PSS.

### Results

In our study the sociodemographic characteristics of participants were analysed and determined as 54.2% (65) of the participants under the age of 25 years, 62.0% (75) of whom were male and 84.2% (101) of whom were married. When the duration of the work and emergency services was examined, it was seen that 45.8% of the nurses had worked between 0 and 5 years (55).

According to the results of the survey conducted to assess the psychological health and stress level among nurses, 68.3% had poor mental health, 87.5% needed depression medication, 97.5% used antidepressant medication, and 46.7% were exposed to verbal or physical violence by patients and their relatives while working in the emergency department.

The proportion of severe CAD among men (86.7%) was higher than that among women. 95.2% of patients with severe CAD were married.

The majority (59.2%) of nurses used psychology or professional support to cope with stress or similar situations in emergency nursing despite having received education, and the proportion of nurses who experienced insomnia and sleep problems (52.5%) was higher. It was also determined that 75% of the people believed that they could develop a mental disorder due to their work, 90% were satisfied with the working conditions in the emergen-

cy department, 84.2% thought that they received the recognition they deserved for the work they did in the emergency room, and 95% were not satisfied with working in the emergency room.

The degree of psychological effects of the emergency department on nurses was also examined in the study sample (Tables II and III).

When sociodemographic characteristics of nurses and workers were analysed and determined as similar between the 2 groups (Table I), they were in fact comparable with reference to the distribution of age (Fisher's exact test,  $p = 0.99$ ), gender ( $t[50] = 0.82$ ,  $p = 0.34$ ), marital status (Fisher's exact test,  $p = 0.98$ ), work duration ( $t[50] = -0.43$ ,  $p = 0.67$ ), and emergency service duration ( $\chi^2[2] = 0.22$ ,  $p = 0.93$ ).

When we considered RSA scores, significant results were seen in relation to anxiety, depression, and somatization. Those scores were significantly higher in the nurses than in the workers ( $p < 0.05$ ). There was no significant difference in the scores of social support and aggressiveness (Table IV). On the other hand, the total PSS score of the nurses was  $26.57 \pm 3.82$ , which was slightly higher among the nurse group compared with the administrative worker group ( $21.42 \pm 3.64$ ); this difference was statistically significant between the groups ( $p = 0.036$ ).

### Discussion

When the demographic characteristics of the nurses were examined, our research showed that 62.5% of the nurses were male and the rest were female (37.5%). Our findings are consistent with those of a newly published study conducted in Ethiopia [8]. The study reported that the majority of the sample were male (54.4%). On the other hand, another study from Brazil [9] reported that 76.20% of their sample were female, which is inconsistent with our study. The fact that most of our sample was under the age of 25 years is consistent with the results obtained by Wu *et al.* [10], who reported that most emergency room nurses were in that age group (< 25 years). How-

**Table IV.** The Rapid Stress Assessment (RSA) scores in the nurses and workers (mean  $\pm$  SD)

Scale	Nurses	Workers
Anxiety	3.5 $\pm$ 1.73*	1.92 $\pm$ 0.78
Depression	3.96 $\pm$ 1.46**	1.69 $\pm$ 0.52
Social Support	2.82 $\pm$ 0.52	2.22 $\pm$ 0.87
Somatization	3.81 $\pm$ 0.38***	1.93 $\pm$ 0.54
Aggressiveness	2.09 $\pm$ 0.74	1.92 $\pm$ 0.88
Total Stress Score	16.18 $\pm$ 4.83	9.68 $\pm$ 3.59

\* $p < 0.05$ , compared to anxiety score of workers, \*\* $p < 0.05$ , compared to depression score of workers, \*\*\* $p < 0.05$ , compared to somatization score of workers.

ever, our results are inconsistent with the study of Mekonen *et al.* [8], who reported that the average age of most nurses in the emergency department (48.8%) was 25–29 years. The results of the study also showed that most of the participants were married (84.2%) and the rest were single, which is consistent with the results obtained by Wu *et al.* [10], who indicated that the percentage of those married was 71.10%, but it is inconsistent with the study of Jeong and Lim [11], who reported most respondents being single (71.8%). In our study, the results of study durations were consistent with the results (9.5%) conducted by Jeong and Lim [11] while it was inconsistent with the results (48%) of Bardhan *et al.* [12]. Our results regarding the level of working time in the emergency department were consistent with the study of Alshibi and Mansour [13], which reported that the majority of the sample (48.3%) had worked in the emergency room for 0–5 years, but they were inconsistent with the study of Yuwanich *et al.* [14], who showed that the majority of the sample had worked for 1 to 10 years. It is thought that the sociodemographic characteristics are not significantly related to occupational stress. This view is consistent with our study and the studies by Al-yahya *et al.* [15] and Farraji *et al.* [16]. However, Romano *et al.* [17] and Shin *et al.* [18] also reported that the sociodemographic characteristics and work stress of nurses were correlated.

In our research, we found that the nurses had impaired mental health (68.3%), needed depression medication (87.5%), used the antidepressants (97.5%), and were verbally abused by patients and their relatives while working in an emergency unit (46.7%). Our study was consistent with the study of Cascade *et al.* [19], who reported the nurses suffered from poor mental health (85%) and had used antidepressants to treat depression (32%). Our results were consistent with Bonner and McLaughlin [20], who claimed that aggression and violence against nurses in UK health care was at a rate of 55%. At the end of our study, the stress scores measured by the RSA scale of nurses showed a greater risk of stress than that of the workers, especially in the anxiety, depression, and somatization clusters. Also, the findings from our study support the association between PSS and nurses' work stress. The high stress markers among nurses working in the emergency department can be attributed to difficulties in teamwork, inadequate supervisor support by nurses and chief physicians in safety, and lack of participation of nurses in decision-making processes. The main problems that arise in the field of study are characterized by high typical stressors depending on the specificity of the hospital emergency health activity. These include exposure to physical

and biological risks, variable and unprogrammable workloads, use of high-tech tools that require high levels of attention and great responsibility, and working closely with those who are suffering, and consequently experiencing high emotional demand. This requires the organization of emergency room nurses and hospital management to reduce stress factors.

In conclusion, work-related psychological effects, occupational problems, mental and social problems, burnout syndrome, and other related concerns are seen among emergency room nurses. These include increased workload, decreased job satisfaction, conflict with other employees, grief and death, reduced support from supervisors, coping with patients' pain, and exposure to violent patients [12–14].

Nurses are an important and integral part of public health in general. Nurses generally believe that they are in good health, and this research shows that there are many outcomes in which as a workforce they can benefit from psychological help and treatment. Using the questionnaire responses and data from the focal point in our study, hospital administrators can provide interviews or other qualitative methods of inquiry [14, 19, 20]. Psychological support and work environment improvements should be provided by systematically producing solutions together with the staff. It is also important for nurse managers to take precautions against even the presence of stressors that affect nurses [21]. In poor countries where resources are scarce or in those going through periods of austerity, determining how to use resources and where best to invest them can help to achieve maximum profits [19, 20].

This study, which addresses stress-related outcomes in emergency room nurses, highlights the importance of reducing working time requirements and improving work resources. Equipping critical units such as emergency services and intensive care units with special units increases the work stress of nurses in the emergency department. In order to improve the stress status of the nurses working here, it is necessary to reduce their working time and improve their working resources. A lot of training should be given to improve the mental health of nursing. Future research should use a forward-looking design to uncover risk factors for later post-traumatic symptoms, as well as ways to reduce the negative long-term effects of working in the emergency room.

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### Conflict of interest

The authors declare no conflict of interest.

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