Burnout among nurses practicing in critical care units: Predicting the contributing factors

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Abstract:

BACKGROUND: Critical care nurses work in complex healthcare environments, which makes them more susceptible to burnout. Despite extensive research on burnout among nurses no previous study targeted burnout contributing factors in Iraq. Thus, this study aimed to determine the predicting the most influential factors in the development of burnout among critical care nurses.

MATERIALS AND METHODS: A descriptive correlational design was used with 377 nurses who were practicing in critical care units in 13 public teaching hospitals in Iraq. Data were collected using socio-demographic, professional characteristics of nurses, Nurses Alarm Fatigue questionnaire, Depression Anxiety Stress Scale, and Burnout Assessment Tool. Descriptive statistics and multiple regression were used for data analysis.

RESULTS: The multiple regression showed that nurses' anxiety, stress, alarm fatigue, depression, and time span positively predict nurses' burnout (P value = .000.,000.,000.,033.,036), respectively. On the other hand, only nurses' age inversely predicts burnout level (P value = .008).

CONCLUSION: Anxiety, stress, alarm fatigue, depression, and time span are the most influential factors in the development of burnout. Age was the only variable that predicted burnout inversely.

Keywords:

Alarm fatigue, burnout, depression, intensive care units, nurses, stress

Introduction

The International Council of Nurses (ICN) described nursing as a profession that combines science and art in its unique professional identity, which involves independent, dependent, and cooperative provision of care to individuals of all ages, families, groups, communities, and societies, whether they are healthy or sick, in all settings.[1] Professional nurses may be assigned to practice in many settings; including, but not limited to, emergency departments, medical-surgical wards, surgical operation rooms, hemodialysis units, and Critical Care Units.[2] Critical Care Unit (CCU) is a highly specialized and well-equipped section within a healthcare facility where patients with life-threatening illness and injuries are admitted for close monitoring for both their lives and vital organs functionality.[3]

Critical care nurse is a person who provides direct care to seriously-ill or injured patients.[4] Critical care nurses are responsible for a wide-ranging range of tasks, for example: becoming advocates, applying sound clinical judgment, displaying caring practices, cooperating with a multidisciplinary healthcare team, demonstrating an awareness of cultural diversity, and providing education for patients and their families.[5] Nurses' professional life quality remains an interdisciplinary term which is affected by a range of institutional, personal, and task-related variables.[6] Numerous

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researchers have explained that nurses are frequently encounter important challenges, including physical and psychological strain, job-related stressors, occupation-delayed burnout, long hours of work, heavy workload, and nurse's shortage, which all may impact the quality of critical care nurse's professional life.[7,8]

Executing this challenging role may expose them to many job-related hazards like hospital acquired infections, physical violence, compassion fatigue, intervertebral disc herniation, burnout, stress, moral distress, anxiety, depression, sleep disorders, risk of illness, and most importantly alarm fatigue.[9-19] Alarm fatigue is a state of insensitivity resulting from being exposed to excessive alarms, which may lead nurses to switch off or mute alarms, as a large number of unactionable alarms causes nurses to decrease their response time and lose confidence in the alarms.[20]

Similarly, nursing staff members who experience greater degree of alarm fatigue are at greater risk to suffering burnout, which in turn would reduce the quality of care they provide, as well as threaten the safety of patients.[21,22]

Within the field of healthcare settings, the complexity of healthcare work, which are represented by work shifts duration, direct contact with illness, relationships with patients and their families, pain and death, lack of professional acknowledgement, all may result in healthcare professionals to suffer from stress, leading to a high prevalence of burnout.[23] Over a period of time, disadvantages such as work shift duration, direct contact with illness, relationships with patients and their families, pain and death, lack of professional acknowledgement, all can diminish the motivation of the professionals, leading to increased work-related stress, fostering the manifestation of burnout, diminishing the quality of professional life, and certainly also the quality of care provided.[24]

Likewise, burnout is a condition in which nurses have a sense of physical, mental, and emotional tiredness as a result of draining jobs and recurrent exposure to stressful conditions.[25] Moreover, it is common in professions that deal with individuals in high stress environments, such as nursing.[26] Burnout among nurses is overlooked, and there are limited studies on the topic.[27] Burnout has prevalent within numerous healthcare professions, particularly nursing, since nurses are usually engage into strong personal interactions alongside individuals in the course of routine responsibilities.[28]

In 11th revision of the International Classification of Diseases of the World Health Organization, burnout has been recognized and included as an occupational phenomenon.[29] Burnout continues to pose an occupational risk for nurses' staff within many middle Eastern-Arabic and non-Arabic countries like Jordan and Iraq, and around the world.[30-32]

See et al.[33] reported that among the 3,100 nurses and 992 physicians employed in 159 Asian intensive care units within 17 countries, both nurses and physicians had high burnout rates, 52 and 50.3%, respectively. Similarly, in a significant French survey study, 81% of intensive care nursing staff exhibited one or additional manifestation related to burnout, while 33% of intensive care nursing staff along with nursing assistants inflicted with intense burnout syndromes.[34] According to an international systematic meta-analysis, burnout symptoms were investigated among nurses; 10% of nurses globally experienced elevated levels of burnout symptoms; the level of burnout was highest among intensive care nurses.[18]

The aforementioned studies have paved the way for this research endeavor. Therefore, the current study endeavor is especially demanded in a challenging discipline such as critical care nursing. It is true that the previous studies have extensively examined the covered variables, alarm fatigue, anxiety, depression, stress, and burnout.[35-43] However, the previous studies have overlooked examining the predicting factors, which may factor in developing burnout among nurses practicing in critical care units. Of equal importance, this study is the first in Iraq where variable like alarm fatigue, anxiety, depression, and stress are examined as factors contributing to burnout among nurses practicing in critical care units. Therefore, this study was designed to answer the following research question. What are the predicting factors contributing to burnout among nurses practicing in critical care units?

Materials and Methods

Study design and setting
A descriptive correlational design was selected to answer the current research question. Descriptive correlation studies are valuable for describing how one phenomenon with another, in situations that lack control over the independent variables, which are the variables that are believed to cause the dependent or outcome variable.

Study participants and sampling
The study targeted nurses who were working in critical care units (respiratory care units and cardiac care units). Data were collected from nurse's in (13) public hospitals in Babil, and Baghdad Teaching Hospitals, Iraq. The participants answered the questionnaire independently. Each self-report questionnaire filling took nearly 15 to 20 minutes. Data gathering started from

January 4, 2024 to March 7 2024. The minimum sample size was calculated according to Raosoft sample size calculator when confidence level was 0.95 and margin error was 0.05. A total of 377 was the recommended minimum sample size, both male and female nurses participated in the study with response rate 89%.

Data collection tools and technique

The research questionnaire consists of five parts: part one socio-demographic characteristics of nurses which are covered in Table 1. Part two consisted of professional characteristics of nurses which are covered in Tables 2 and 3.

Part three included: The Arabic version of the Nurses Alarm Fatigue questionnaire for assessing alarm fatigue in nurses.[44] The 13 items on the aforementioned questionnaire are self-reported items. The questionnaire is measured and assessed based on a five-level Likert rating scale; starting from 1 to 5, with 1 representing (never), 2 representing (rarely), 3 representing (occasionally), 4 representing (usually), and 5 representing (always). Except for items 1, and 9 which are scored reversely. For example, when respondents select "never" for items 1 or 9, it is scored 4, indicating a great impact of alarm fatigue. However, selecting "always" for items 1 and 9 result in a score of 0, indicating that the responding nurse is acting rightly. The score range of the Nurses Alarm Fatigue questionnaire is between 8 (minimum) and

44 (maximum), with higher scores indicating a greater impact of alarm fatigue on nurses' performance.

Part four: included The Depression Anxiety Stress Scale (DASS). The Arabic version was developed by Moussa et al.,[45] which is 21 self-reported items. The scale is measured and assessed using 4-point combined severity/frequency scale to rate the extent to which nurses have experienced each item over the past week; starting from 0 to 3, with 0 representing did not apply to the subject at all (never), 1 representing applied to the subject to some degree, or some of the time (sometimes), 2 representing applied to the subject to a considerable degree, or a good part of time (often), 3 representing applied to me very much, or most of the time (almost always).

Part five: included the Burnout Assessment Tool (BAT). Schaufeli et al.,[46] were the authors who developed the English version of the BAT. The BAT contains 33 items, which consist of Burnout Assessment Tool Core Symptoms (BAT-C) and Burnout Assessment Tool Secondary Symptoms (BAT-S). The BAT-C assesses four core dimensions. The first dimension of the burnout assessment tool core symptom is (exhaustion), the second dimension is (mental distance), the third dimension is (emotional impaired), the fourth dimension is (cognitive control), and contains 23 items. While the BAT-S assesses the two secondary dimensions. The first dimension of burnout assessment tool secondary symptom is (psychological), and the second dimension is (psychosomatic complaints), which contains 10 items. Both are rated on a five-point Likert scale, ranging from 1 to 5. With 1 representing (never), 2 representing (rarely), 3 representing (sometimes), 4 representing (often), and 5 representing (always). The burnout tool was obtained in English version and permission was obtained from the corresponding author, to test the psychometric properties of the burnout tool when translated into Arabic. Therefore, the English version was translated using back-to-back approach. First, the burnout tool was translated from English version into Arabic version by certified bilingual experts in both fields of professional nursing and English\Arabic languages. Then reversing the process by translating it back from Arabic version into English version by other certified bilingual experts in both fields of professional nursing and English\Arabic languages. Finally, the revised, agreed-upon version was produced.

Considering the fact that the alarm fatigue and DASS scales Arabic versions were used and permissions were obtained from the corresponding authors to use the Arabic version, validity, and reliability were not retested. However, the validity and reliability of the burnout tool was tested when translated into Arabic version. For the

Table 1: Participants' socio-demographic characteristics (*n*=377)

Variable	Frequency	Percent
Age (Years): Mean (SD): 29.14±7.34		
21-28	240	63.7
29-36	88	23.3
37-44	26	6.9
45-52	15	4.0
53-60	8	2.1
Sex		
Male	159	42.2
Female	218	57.8
Marital Status		
Single	173	45.9
Married	198	52.5
Divorced	4	1.1
Widow/Widower	2	0.5
Educational Qualification		
Nursing high school	59	15.6
Associate degree	153	40.6
Bachelor's degree	156	41.4
Postgraduate diploma	3	0.8
Master's degree	6	1.6
Residency		
Rural	32	8.5
Urban	345	91.5

SD: Standard deviation

Table 2: Participants' employment profile (*n*=377)

Variable	Frequency	Percent
Current Unit you work in		
Cardiac Care Unit for male Patients	13	3.4
Cardiac Care Unit for female Patients	6	1.6
Cardiac Care Unit for male and female Patients	114	30.2
Intensive Care Unit for male Patients	4	1.1
Intensive Care Unit for female Patients	6	1.6
Intensive Care Unit for male and female Patient	234	62.1
Work Shift		
Morning shift	185	49.1
Evening shift (2:30 p.m. – 8:30 a.m.)	183	48.5
Night shift (8:30 p.m. – 8:30 a.m.)	9	2.4
Nurse-to-Bed Ratio		
3:1	49	13.0
2:1	62	16.4
1:1	111	29.4
1:2	49	13.0
1:3	49	13.0
1:4 or more	57	15.1
Participation in training programs		
Yes	195	51.7
No	182	48.3
Participation in Mechanical Ventilator Training		
Yes	182	48.3
No	195	51.7
Receiving Psychological Counselling		
Yes	88	23.3
No	289	76.7
Having second job		
Yes	113	30.0
No	264	70.0
Years of working: Mean (SD): 6.168±6.74		
Years of experience in the current unit: Mean (SD): 4.01±4.5		
Time span: Mean (SD): 11.81±5.90		

Table 3: Alarm type subjects have experience in critical care units (*n*=377)

Alarm type	Frequency	Percent*
Patient monitors (Blood pressure, Pulse rate, Respiratory rate, Temperature, SpO_2, ECG)	333	88.3
Mechanical ventilators	187	49.6
Infusion pumps	121	32.1
Continuous renal replacement therapy machines	67	17.8

*Percent cannot be 100.0% since participants can select more than one type

Content Validity Index (CVI), the Arabic versions of the burnout tool were submitted to a panel of experts that was composed of ten faculty members to rate the level of items relevance. The CVI for the burnout tool is 0.97, indicating an excellent content validity level of the Arabic version of the burnout tool, signifying that the tested tools measure what is intends to measures.[47] Reliability was evaluated in pilot study with 38 nurses.

The researcher found during pilot study sampling that nurses had a clear understanding of each item of the burnout tool. At the same time, the researcher was not asked any questions during the pilot study to clarify any item with Cronbach's Alpha (0.91).

Inclusion criteria
Nurses (male and female) practicing in critical care units, both morning, evening, and night shifts, were included. Nurses who agreed to participate in the study. Nurses who were newly appointed are also included. It is hypothesized that the newly appointed nurses are more susceptible to alarm fatigue and burnout. That is why they were added to the study.

Exclusion criteria
Nurses who refused to participate in the study and those who did not complete the questionnaire were all excluded.

Data analysis
Descriptive and inferential statistical measures were utilized in the analysis of the data, utilizing version 24 of the IBM Statistical Package for Social Sciences (SPSS). Descriptive statistics were used to describe socio-demographic data, professional characteristics of nurses, alarm fatigue level, depression, anxiety, stress level, and burnout level. Multiple regression models for predicting factors contribute to burnout.

Ethical considerations
First, the study research protocol was presented and consequently confirmed by the Committee of Scientific Research (CSR) at the College of Nursing, University of Baghdad, number 2, on November 22, 2023. Second, the Ministry of Planning (Central Statistical Organization) official agreement was obtained on December 17, 2023. The researchers pledge to keep the participants' identification details private and use the collected data without causing any actual or potential harm to the study subjects. The study tool was designed to preserve the subject's right to anonymity. After receiving official approval from hospitals, subjects were given the right to freely participate in the study by signing the consent form and being informed that their participation is voluntary and that the information would be treated confidentially and used for scientific research purposes only. The researchers have successfully completed the Office for Human Research Protection (OHRP) Human Research Protection Foundational Training.

Results

The mean age is 29.14 ± 7.34; most aged 21–28 years (*n = 240*; 63.7%), concerning participants' sex, more than a half are females (*n = 218*; 57.8%) compared to males (*n = 159*; 42.2%). Concerning marital status,

more than a half reported that they are married (*n = 198*; 52.5%).

As per educational qualification, more than two-fifth of respondents hold bachelor's degree (*n = 156*; 41.4%), concerning residency, the clear majority reported living in urban areas (*n = 345*; 91.5%) compared to those who have been living in rural areas (*n = 32*; 8.5%).

Concerning the current unit, the nurses work in, most work in intensive care unit for male and female patients (*n = 234*; 62.1%), regarding work shift, less than half work in morning shift (*n = 185*; 49.1%), concerning the nurse-to-bed ratio, such a ratio is 1:1 for less than a third (*n = 111*; 29.4%), as for participation in training programs, more than half of the nurses have participated in such programs (*n = 195*; 51.7%) compared to those who did not participate (*n = 182*; 48.3%).

Concerning participation in mechanical ventilator training, more than half reported that they did not participate in such a training (*n = 195*; 51.7%) compared to those who participated in it (*n = 182*; 48.3%).

Regarding receiving psychological counselling, most reported that they did not receive such a counselling (*n = 289*; 76.7%) compared to those who reported that they received it (*n = 88*; 23.3%). With respect to having a second job, most reported that they do not have it (*n = 264*; 70.0%). The mean of years of working is 6.168 ± 6.74, the mean of years of experience in the current unit is 4.01 ± 4.5, and the mean of time span is 11.81 ± 5.90.

Concerning alarm type nurses have experienced in critical care unit, the majority reported that they experienced the alarm of patient monitors (Blood pressure, Pulse rate, Respiratory rate, Temperature, SpO2, ECG) (*n = 333*; 88.3%), followed by mechanical ventilator alarm (*n = 187*; 49.6%), infusion pumps (*n = 121*; 32.1%), and continuous renal replacement therapy machines alarm (*n = 67*; 17.8%).

The study results display that most nurses experience moderate level of alarm fatigue (*n = 240*; 63.7%), followed by those who experience low level (*n = 91*; 24.1%), and those who experience high level (*n = 46*; 12.2%) [Tables 4-6].

The study results reveal that the anxiety level is within normal for most of participants (*n = 264*; 70.0%), followed by moderate anxiety (*n = 61*; 16.2%), mild anxiety (*n = 36*; 9.5%), severe (*n = 15*; 4.0%), and extremely severe (*n = 1*; 0.3%). Concerning depression level, it was within normal for the majority of participants (*n = 317*; 84.0%), followed by mild (*n = 38*; 10.1%), moderate (*n = 21*; 5.6%), and severe (*n = 1*; 0.3%). Regarding stress

Table 4: Nurse alarm fatigue level

Nurse Alarm Fatigue Level	Frequency	Percent
Low	91	24.1
Moderate	240	63.7
High	46	12.2

Table 5: Levels of anxiety, depression, and stress (*n*=377)

Subdomain	Normal		Mild		Moderate		Severe		Extremely severe	
	F	%	F	%	f	%	f	%	F	%
Anxiety	264	70.0	36	9.5	61	16.2	15	4.0	1	0.3
Depression	317	84.0	38	10.1	21	5.6	1	0.3	0	0.0
Stress	342	90.7	27	7.2	8	2.1	0	0.0	0	0.0

f: Frequency, %: Percent

Table 6: Levels of burnout (*n*=377)

Sub-Scales	SD	Mean	Asses*
Exhaustion	0.90	3.07	High
Mental Distance	0.78	2.18	Medium
Cognitive impairment	0.84	1.85	Medium
Emotional impairment	0.86	2.17	Medium
Psychological distress	1.04	2.71	Medium
Psychosomatic complaints	0.93	2.87	High
Burnout Overall Assessment	0.67	2.53	High

SD: Standard Deviation; MS: Mean of Scores; Scoring based on Statistical norms for Flemish employees (BAT-23)

level, it was within normal for the clear majority of participants (*n = 342*; 90.7%), followed by mild (*n = 27*; 7.2%), and moderate (*n = 8*; 2.1%).

The study results display that nurses experience high level of exhaustion at mean score equal to (3.07), with medium level of mental distance at mean score equal to (2.18), medium level of cognitive impairment at mean score equal to (1.85), medium level of emotional impairment at mean score equal to (2.17), medium level of psychological distress at mean score equal to (2.71), high level of psychosomatic complaints at mean score equal to (2.87), and overall assessment of the burnout from the nurses is high, at mean score equal to (2.53).

The multiple regression model demonstrates that nurses' anxiety, stress, alarm fatigue, depression, and time span positively predict nurses' burnout (*P* value = .000.,000.,000.,033.,036), respectively. On the other hand, nurses' age inversely predicts their burnout level (*P* value = .008).

Discussion

The nursing profession poses a significant risk of burnout syndrome due to the responsibilities inherent in the nature of the job, which include physical and emotional interaction with patients, as well as high workload and stress factors within the work environment.[48] Based on

the main aim of the study, which is to predict factors contributing to burnout among nurses practicing in critical care units, the researchers endeavored to examine the research question using the aforementioned design. The main findings of this study show predicting the most influential factors in the development of burnout among critical care nurses was authenticated and found that anxiety, stress, alarm fatigue, depression, time span, and age were the most influential factors The multiple regression table was generated to predict factors contributing to burnout among nurses practicing in critical care units, as displayed in Table 7. The *P* values (= 0.000.,000.,000.,033.,036) indicate that the nurses' anxiety, stress, alarm fatigue, depression, and time span positively predict nurses' burnout, and nurses' age inversely predicts their burnout level (*P* value = .008). Overall, the study's results demonstrate that the aforementioned variables were the most influential factors in the development of burnout among critical care nurses. This provides valuable insights into the burnout phenomenon among nurses. This study is the first descriptive correlational design to predict factors contributing to burnout among nurses practicing in critical care units in Iraq.

The result of the study showed that anxiety is considered a predictor of burnout syndrome. These results agree with a study that examined the prevalence of burnout syndrome, post-traumatic stress disorder, depression, and anxiety in nurses and predicted factors for burnout.[49] The results were not surprising to the researchers due to the severity of diseases, disorders, and injuries that critically ill patients suffer from and how they affect them physically and physiologically. Critically ill patients pose a high risk of affecting nurses, causing them to experience anxiety more than their nurses practicing in other healthcare settings.[50]

The study results indicate that stress is considered a predictor of burnout. As hypothesized, the researchers were not surprised by such results due to the fact that nursing is considered a high risk and high-pressure profession, especially in critical care environments that require fast- paced work and a constant need to handle emergency critical cases.[51] These nurses are considered more susceptible to physiological stress.[52] These results agree with a study done by Zaghin *et al.*,[53] who mentioned that nurses have a high level of emotional labor, and stress increases the risk of burnout.

Of equal importance, the results in this study showed that alarm fatigue positively predicts burnout. Results of many studies support our findings.[22,54,55] The results were not surprising to the researchers logically because alarm fatigue may lead to burnout since nurses in critical care units must fastly respond to these alarms. These alarms are excessive and may be false, they may lead to tiredness from excessive effort in responding to them, which leads to burnout. Also, in some studies, nurses with burnout are more expected to have depression symptoms.[56,57] While, this outcome is not like the present study result, both results emphasized the importance of addressing burnout in nursing, it is significant to note that nurses with burnout can significantly impact healthcare quality through various detrimental outcomes, including decreased job performance, poor quality of care, reduced patient safety, medication errors, higher infection rate, and patient falls.[25]

With respect to the time span and occurrence of burnout, the present study showed that the time span was considered one of the factors that the predicated burnout in nurses. The results of several studies were consistent with the findings of this study.[58-60] The results were not surprising to the researchers since critical care units have

Table 7: Multiple regression model for predicting burnout

Model		Coefficients[a]				
		Unstandardized Coefficients		Standardized Coefficients	*T*	Sig.
		B	Std. Error	Beta		
1	(Constant)	140.589	11.399		12.333	0.000
	Age	-1.250	0.467	-0.311	-2.678	0.008
	Years of working	0.888	0.596	0.203	1.490	0.137
	Years of experience in the current unit	-0.167	0.458	-0.031	-0.364	0.716
	Time span	0.202	0.264	0.040	0.765	0.445
2	(Constant)	68.050	8.534		7.974	0.000
	Age	-0.463	0.307	-0.115	-1.511	0.132
	Years of working	0.365	0.389	0.083	0.939	0.349
	Years of experience in the current unit	0.147	0.297	0.027	0.496	0.620
	Time span	0.361	0.171	0.072	2.106	0.036
	Nurses' alarm fatigue	0.686	0.155	0.163	4.437	0.000
	Anxiety	2.678	0.330	0.396	8.111	0.000
	Depression	0.805	0.377	0.112	2.137	0.033
	Stress	1.646	0.356	0.253	4.620	0.000

[a]Dependent Variable: Burnout. *B*: Beta, *t*: *T*-statistics, Sig.: Significance, Std. Error: Standard Error

a highly complex work environment and host critical cases of patients. This requires nurses to be in direct contact with illness, relationships with patients and their families, pain, and death all the time, which leads them to become tired and drained all the time, leading to burnout among nurses.[61]

With regard to age, nurses' age inversely predicts their burnout level (*P* value = .008), which means that burnout has a high prevalence among younger nurses. Several studies agree with our finding.[62-64] All considered age as a factor contributing to burnout, especially among younger nurses. These findings were not surprising to the researcher, given that a majority of the participants were from an educational background of Bachelor's degree, who usually join healthcare institutions directly upon graduation. These results should not be overlooked, simply because of the fact that younger age group nurses are more likely to be at risk of developing burnout, when compared with older nurses.

Applying Lazarus theory among nurses with burnout to understand how nurses perceive and cope with stressors that lead to burnout, begins with a primary appraisal that involves evaluating the demands of the nursing job and viewing work shift duration, alarm fatigue, and high workload conflicts.[65] All may contribute to burnout. The second appraisal involves how nurses find resources for coping and managing stressors, such as finding organizational solutions to decrease the effect of burnout. These coping strategies for Lazarus theory include the first problem-focused coping, which involves addressing the stressors directly, such as training to manage alarm fatigue; second, emotion-focused coping, which involves regulating the emotional response to stressors, such as participating in relaxation techniques; and reappraisal. If stressors persist, nurses may reappraise the coping effort and effectiveness of their strategies and find these copings unsuccessful or insufficient, which may lead to burnout signs and symptoms to be worsening.[65]

Limitation
The results of this study, although non-interventional, are important as a first step toward diagnosing and predicting factors contributing to burnout that resemble the iceberg phenomenon. On the surface, just its small top is visible, yet its roots are massive and deep. Educating nursing students and practicing nurses about burnout enables them to identify the factors that contribute to burnout and manage its signs and symptoms effectively. As a result, nurses will experience psychological, physical, emotional, and mental well-being, while the patient will benefit from the nurse's appropriate care, demonstrating that a healthy nurse leads to a healthy patient. The study's limitation is that it was conducted in only two Iraqi governorates. It is important to

duplicate this study in critical care units across other Iraqi governorates to compare and enhance the generalization of the results.

Conclusions

This study found that burnout is a significant health problem among Iraqi nurses, and these variables combined (anxiety, stress, alarm fatigue, depression, and time span) positively contribute to burnout among nurses, except with regard to age, which predicts burnout inversely. The result of the study emphasizes the importance of health, especially nurses' health in critical units since this is the first national study with critical care nurses that found these variables combined to predict burnout. Solutions must come through health system-level efforts in which policymakers reimagine and innovate workflow, human resources, and workplace wellness to reduce or eliminate burnout among frontline nurses and work toward healthier nurses. This will reduce the factors that contribute to burnout. Additional research with a larger, multi-country sample on the factors that contribute to burnout is desired to better understand the factors that predict burnout.

Conflicts of interest
There are no conflicts of interest.

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