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Burnout among Nurses in Critical Care Units: Addressing a Persistent Challenge

Sahar Yaqoob Yousif[1]*, Sadeq Al-Fayyadh[2]

[1]Adult Nursing Department, College of Nursing, University of Babylon, 51001 Hillah, Babylon Governorate, Iraq

[2]Adult Nursing Department, College of Nursing, University of Baghdad, 10047 Baghdad Governorate, Baghdad, Iraq

**Corresponding Author's Email: sahar.hamza2202m@conursing.uobaghdad.edu.iq*

ABSTRACT

Background: Burnout is a highly prevalent occupational disease among nurses, especially those working in complex critical care settings. **Objective:** To determine the level of burnout among nurses practicing in critical care units. **Methods:** This study employed a descriptive cross-sectional design, involving 377 nurses working in critical care units across 13 hospitals in Iraq. Data were collected using sociodemographic, professional characteristics of the nursing competency and performance, and the Burnout Assessment Tool. The data was analysed using descriptive statistics. **Results:** The study showed a high prevalence of overall burnout among nurses, with a mean score of 2.53. The study also revealed medium levels of mental detachment, cognitive impairment, emotional impairment, and psychological distress, with mean scores of 2.18, 1.85, 2.17, and 2.71, respectively. The exhaustion and psychosomatic complaints scored highly, with mean scores of 3.07 and 2.87, respectively. **Conclusion:** Nurses in critical care units experienced a high level of burnout. Within the dimensions of burnout, high levels of exhaustion and psychosomatic complaints were found, as were medium levels for each of the dimensions of mental distance, cognitive impairment, emotional impairment, and psychological distress.

Keywords: Burnout; Nurses; Intensive Care Units

INTRODUCTION

A Critical care nurses provide immediate care for critically ill or injured patients (Terry & Weaver, 2011). Critical care nurses are the primary health care providers who are in charge of providing efficient direct care to patients, monitoring them 24 hours a day (Lewandowska *et al.*, 2020). Nevertheless, nurses consistently encounter double burdens when practicing their complex and multifaceted responsibilities (Shah *et al*., 2021). Carrying out these multifaceted responsibilities might expose them to numerous occupational risks, such as hospital-acquired infections, physical aggression, compassion fatigue, stress, anxiety, depression disorder, moral distress, problems with sleep, risk of disease, and most importantly, burnout (Schwarz & Bouckenooghe, 2021; Kowalczuk, Krajewska-Kulak & Sobolewski, 2020 ; Al-Rjoub, Diener & Sadeq, 2022; Dadoosh & Sadeq, 2022; Jabar & Jasim, 2021; Mohammed & Bakey, 2021; Rajih, 2020; Kadhim & Qassem, 2023; Hamad & Qassim, 2019; Woo *et al.*, 2020). According to Konstantinou *et al*. (2018), prolonged unresolved job-related stress and unsuccessful coping mechanisms lead to burnout, a mental condition characterised by physical and psychological exhaustion.

Burnout remains a widespread issue within numerous healthcare professions, but especially in nursing. This is primarily because routine nursing responsibilities require nurses to engage in strong personal interactions with patients (de Looff *et al*., 2018). Nurses, as a society, are vulnerable to burnout due to many reasons, including a challenging working environment (Alkhawaldeh *et al*., 2020). Insufficient autonomy (Abdulnabi & AL-Fayyadh, 2021). People often encounter aggressive actions (Shafran *et al*., 2024). Moreover, many workloads cause burnout (Alzahrani, Alanazi & Almutairi, 2024).

In recent years, the incidence of burnout syndrome has increased (Kyei & Takyi, 2024). This adverse outcome could be due to the highly demanding, competitive, and hostile work environments of intensive care

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units (ICU), which are extremely stressful for nurses, patients, and families (Clark *et al*., 2016). Critical care units are specialised healthcare settings in which healthcare providers, particularly nurses, provide 24-hour care and life support (Saravanabavan, Sivakumar & Hisham, 2019). Stressful work environments involving emergency care, high morbidity and mortality, moral dilemmas, and painful physical care procedures place nurses at risk for physical and emotional exhaustion that can result in burnout syndrome (Singh, 2022; Preetam, 2023). In addition, research has indicated that an inadequate staffing ratio of more than 1:2 might elevate the risk of developing burnout among critical care unit nurses (Bruyneel *et al*., 2021). For example, one study explained the relationship between high rates of nursing burnout and a suboptimal employment ratio. They found in their study that the nurse-patient ratio is 1:3 or higher, which confirms that the nurse-patient ratio is one of the main factors contributing to burnout (Torre, Popper & Bergesio, 2019). International studies have reported a wide range of burnout incidence among critical care nurses, from 0%-80% (Browning, 2019; Cishahayo *et al*., 2017). Previous studies conducted in India have shown a wide range of prevalence rates for burnout among critical care nurses, ranging from 2%-69% (See *et al*., 2018; Kumar *et al*., 2021).

The 11th revision of the International Classification of Disease recognizes and includes burnout as an occupational phenomenon (WHO, 2019). Burnout remains a significant occupational hazard for nursing staff in many Middle Eastern countries, including both Arabic and non-Arabic countries such as Jordan and Iraq, as well as around the world (Khatatbeh *et al*., 2022; Mudallal, Othman & Al Hassan, 2017; Mansour & Hussien, 2020). The current study is particularly important in the demanding field of critical care units, primarily due to the scarcity of research on burnout among nurses working in these units in Iraq. This study utilises a new burnout assessment tool to examine burnout among critical care unit nurses. As a result, the aim of this study was to provide an answer to the research question. What level of burnout exists among nurses practicing in critical care units?

METHODOLOGY

Study Design

A descriptive cross-sectional design was utilised in the present research. Descriptive cross-sectional studies are valuable for providing insight into phenomena at a single point in time without the need for long-term follow-up. The researchers commit to preserving the confidentiality of participants' personal information and ensuring that the data collected is utilised in a manner that does not result in any actual or potential harm to the participants involved in the study. After obtaining the formal agreement from the hospitals, participants were given the voluntary right to participate in the study through the signing of a consent form and were told that their involvement was voluntary and that the gathered information would be handled privately and used only for scientific research. The researchers have successfully completed the Human Research Protection Foundation Training for the Office of Human Research Protection (OHRP).

Study Settings

A total of 377 nurses working in the Critical Care Units (Cardiac Care Units and Respiratory Care Units) in 13 teaching hospitals across Iraq were selected utilising the technique of purposive sampling. A self-reported questionnaire was utilised to collect data from January 4 to March 7, 2024. Filling out the questionnaire took nearly 15 to 20 minutes. Raosoft sample size calculators determined the minimum sample size to be 377 participants with an 89% response rate (confidence level = 0.95, margin error = 0.05). Inclusion criteria included: female and male nurses who consented to participate in the study; nurses employed in the morning, evening, and night shifts; and recently employed nursing staff. The study excluded nurses who refused to participate and those who did not complete the questionnaires.

Instrument

Table 1 fully describes the first section of the research questionnaire, which focusses on the sociodemographic characteristics of nurses. The second section involved the professional characteristics of nurses, as described in Table 2.

The third section includes the Burnout Assessment Tool (BAT). Schaufeli, Desart and De Witte (2020) were the scientists who developed the English version of the BAT. The BAT comprises 33 items, which involve

the 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 is exhaustion; the second dimension is mental distance; the third dimension is emotional impairment; the fourth dimension is cognitive impairment; and it consists of 23 items. Whereas the BAT-S evaluates two secondary dimensions, the first dimension is psychological distress, and the second dimension is psychosomatic complaints, which contains 10 items.

Both are rated using a Likert scale, comprising five points ranging from 1 to 5. 1 signifies (never), 2 signifies (rarely), 3 signifies (sometimes), 4 signifies (often), and 5 signifies (always). The English version of the Burnout Assessment Tool was obtained from the corresponding author. Permission was obtained from the corresponding author to assess the psychometric properties of the Burnout Assessment Tool when translated into Arabic. A back-to-back translation method was implemented to authenticate the English version. Certified bilingual specialists, who specialize in both professional nursing and translation from English to Arabic, originally translated the Burnout Assessment Tool from English.

The validity and reliability of the Burnout Assessment Tool were tested following its translation into Arabic. The Burnout Assessment Tool in Arabic demonstrates an excellent content validity level of 0.97, indicating that it accurately measures the intended outcomes (Yusoff, 2019). In a pilot study with 38 nurses, the researcher assessed the reliability and found that the nurses clearly understood each item of the Burnout Assessment Tool. Similarly, during pilot study, the researcher did not clarify any items with Cronbach's alpha (0.91). Next, the researcher tested the reliability with 377 nurses, achieving a Cronbach's alpha score of 0.926. The survey used the assessment tool of Cronbach's alpha, a statistical measure, to evaluate the reliability or internal consistency. It indicates the degree to which a set of items in a test measure the same underlying concept or construct.

Data Analysis

Version 24 of the IBM Statistical Package for Social Sciences (SPSS) was utilised for the data analysis. Descriptive statistics (frequency, mean, and standard deviation) were used to analyse the sociodemographic data, professional characteristics, and burnout level.

Ethical Consideration

The present study obtained ethical approval from the Committee of Scientific Research (CSR) of the College of Nursing, University of Baghdad, Iraq with reference number 43 on 16th November, 2023, and from the Ministry of Planning (Central Statistical Organization) Iraq with reference number 10475 on 17th December 2023.

RESULTS

Table 1: Socio-Demographic Characteristics of Participants' (N = 377)

Variable	Frequency	Percent
Age (Years)		
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
Average (SD): 29.14 ± 7.34		
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

With an average age of 29.14±7.34, the predominance of participants was between 21 and 28 years old (n = 240; 63.7%); the majority were females (*n* = 218; 57.8%) compared to males (*n* = 159; 42.2%); and over half reported being married (*n* = 198; 52.5%). In terms of educational qualification, more than two-fifths hold bachelor's degrees (*n* = 156; 41.4%), and a significant majority of respondents reported that they have lived in urban areas (*n* = 345; 91.5%) compared to individuals who lived in rural areas (*n* = 32; 8.5%) (Table 1).

Table 2: Participants' Professional Characteristics (N = 377)

Variable	Frequency	Percent
Current Unit		
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
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: Average (SD): 6.168 ± 6.74		
Years of experience in the current unit: Average (SD): 4.01 ± 4.5		
Time span: Average (SD): 11.81 ± 5.90		

In terms of the current unit in which nurses work, most nurses work in the critical care unit for male and female patients (*n* = 234; 62.1%); less than half of staff work in the morning shift (*n* = 185; 49.1%); and regarding nurse-to-bed ratio, the majority reported that nurse-to-bed ratio is 1:1 for less than a third (*n* = 111; 29.4%). Regarding receiving psychological counselling, the majority reported that they did not receive such counselling (*n* = 289; 76.7%) in comparison to those who reported that they did (*n* = 88; 23.3%); the

preponderance of participants reported that they do not have a second job (n = 264; 70.0%); and the average of years of working is 6.168 ± 6.74; the average of years of experience in the current unit is 4.01 ± 4.5; and the average of time span is 11.81 ± 5.90 (Table 2).

Table 3: Levels of Burnout (N = 377)

Sub-Scales	Average	SD	Assessment
Exhaustion			
At work, I feel mentally exhausted.	2.52	1.17	Medium
Everything I do at work requires a great deal of effort.	3.87	1.17	Very High
After a day at work, I find it hard to recover my energy.	3.48	1.27	High
At work, I feel physically exhausted.	3.45	1.23	High
When I get up in the morning, I lack the energy to start a new day at work.	3.14	1.36	High
I want to be active at work, but somehow, I am unable to manage.	2.55	1.31	Medium
When I exert myself at work, I quickly get tired.	2.36	1.23	Medium
At the end of my working day, I feel mentally exhausted and drained.	3.18	1.34	High
Overall Assessment	**3.07**	**0.90**	**High**
Mental Distance			
I struggle to find any enthusiasm for my work.	3.47	1.42	High
At work, I do not think much about what I am doing, and I function on autopilot.	2.47	1.39	High
I feel a strong aversion towards my job.	1.92	1.22	Medium
I feel indifferent about my job.	1.39	0.86	Medium
I'm cynical about what my work means to others.	1.66	1.16	Medium
Overall Assessment	**2.18**	**0.78**	**Medium**
Cognitive Impairment			
At work, I have trouble staying focused.	2.00	1.09	Medium
At work I struggle to think clearly.	2.06	1.09	Medium
I'm forgetful and distracted at work.	1.87	1.11	Medium
When I'm working, I have trouble concentrating.	1.84	1.04	Medium
I make mistakes in my work because I have my mind on other things.	1.49	0.87	Low
Overall Assessment	**1.85**	**0.84**	**Medium**
Emotional Impairment			
At work, I feel unable to control my emotions.	2.03	1.17	Medium
I do not recognize myself in the way I react emotionally at work.	2.02	1.07	Medium
During my work I become irritable when things don't go my way.	2.55	1.31	High
I get upset or sad at work without knowing why.	2.19	1.17	Medium
At work I may overreact unintentionally.	2.05	1.15	Medium
Overall Assessment	**2.17**	**0.86**	**Medium**
Psychological Distress			
I have trouble falling or staying asleep.	2.89	1.47	High
I tend to worry.	2.49	1.31	Medium
I feel tense and stressed.	2.49	1.37	Medium
I feel anxious and/or suffer from panic attacks.	2.06	1.27	Medium
Noise and crowds disturb me.	3.63	1.36	Very High
Overall Assessment	**2.71**	**1.04**	**Medium**
Psychosomatic Complaints			
I suffer from palpitations or chest pain.	2.15	1.23	Medium
I suffer from stomach and/or intestinal complaints.	2.45	1.34	Medium
I suffer from headaches.	3.23	1.29	High
I suffer from muscle pain, for example in the neck, shoulder or back.	3.53	1.31	Very High
I often get sick.	3.00	1.14	High
Overall Assessment	**2.87**	**0.93**	**High**
Burnout			
Overall Assessment	**2.53**	**0.67**	**High**

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

The study outcomes showed that nurses experienced a high level of exhaustion with an average score of 3.07, a medium level of mental distance with an average score of 2.18, a medium level of cognitive impairment with an average score equal to 1.85, a medium level of emotional impairment with an average score equal to

2.17, a medium level of psychological distress with an average score equal to 2.71, a high level of psychosomatic complaints with an average score equal to 2.87, and an overall assessment of burnout from the nurses with an average score equal to 2.53 (Table 3).

The study revealed that critical care nurses, often younger and at the beginning of their careers, face significant challenges such as managing complex patients, adapting to high-demand environments, and developing new skills, all contributing to burnout. Female nurses experience additional pressure due to balancing family and work responsibilities, while married nurses face a double burden that exacerbates stress. Urban living, high expectations from holding bachelor's degrees, and irregular shifts also contribute to burnout.

DISCUSSION

Health care staff, as well as patients and their families, widely recognise the critical care unit environment as a source of tension (Saravanabavan, Sivakumar & Hisham, 2019). The central goal of this study was to approach critical care nurses from both Respiratory and Cardiac Care Units to evaluate the prevalence of burnout syndrome. This study is considered unique because it uses a new tool to evaluate burnout among nurses. The primary results of this study, as illustrated in Table 3, showed that the mean score of the overall burnout assessment is 2.53, which indicates a high level of burnout among nurses with a high level of exhaustion. This outcome was corroborated by a study done by Meneguin *et al*. (2023) that investigated the correlation among burnout and professional quality of life among 109 critical care unit nurses during the COVID-19 pandemic. In their study, they found a higher medium score of exhaustion (3.13) than disengagement (2.43); however, both scores showed a high level of burnout among nurses. These findings were not surprising to the researchers, since nurses in critical care units are responsible for caring for patients with life-threatening conditions throughout their shift, so they become easily exhausted and fatigued as a result of prolonged work hours and heavy workloads, making it difficult for them to begin a new workday with energy and vigour, which ultimately contributes to burnout among nurses (Ashipala & Nghole, 2022).

Equally significant, the present study found a moderate level of mental distance among nurses, as shown in Table 3. The results of this study contradict the study by Barnard *et al*. (2023), which examined burnout among 204 emergency nurses in South Africa and assessed the role of job demand resources and work abilities on burnout level. They found in their study that the mean mental distance score was 2.74, indicating that emergency nurses have a high level of mental distance. Both findings highlighted that upon starting their careers in critical care units, nurses are initially excited and motivated, but when the work environment fails to be supportive of the nurse's effort and concern for the reality of the job, their expectations start to deviate, leading to increased frustration and disappointment, job dissatisfaction, reduced productivity, a loss of confidence and enthusiasm, and an increased probability of developing mental distance and burnout (Nantsupawat *et al*., 2017).

Likewise, importantly, the current study also found that the mean score of cognitive impairment is 1.85, indicating a medium level, as shown in Table 3. This contradicts the findings of Palvimo, Vauhkonen and Hult (2023), which examined the association among destructive leadership, job demands, resources, and burnout. The study revealed a mean score of 2.60 for cognitive impairment, indicating a high level of cognitive impairment among Finnish nurses. The researchers were not surprised because nurses routinely work in a stressful environment characterised by a high workload and long working hours, and they may face the need to make quick decisions under pressure on a regular basis, touching on aspects of life and death. All these elements contribute to cognitive impairment, leading to difficulties in concentration, memory problems, impaired judgement, and an elevated probability of making mistakes, which negatively effects the quality of patient care (Rudman *et al*., 2020).

Just as important, the current study found that nurses exhibited a medium level of emotional impairment, as presented in Table 3. Ribeiro *et al*. (2021), who aimed to study the effect of burnout on the quality of life of 83 nurses in an emergency unit, confirmed the same finding. In their study, they found that emotional impairment was 55.4%, which indicates an average level of emotional impairment among nurses. This result highlights the continuous exposure of critical care unit nurses to traumatic incidents, patient suffering, high-pressure situations, caring for critically ill patients, supporting their families, and dealing with life-and-death situations.

This may lead nurses to a feeling of empathy for patients and their families, which may manifest as sadness and feelings of helplessness. Over time, emotional impairment may happen, making nurses more susceptible to burnout (Whittaker, Gillum & Kelly, 2018).

Equitably, the present study revealed that nurses experience a moderate level of psychological distress, as presented in Table 3. The study by van den Boogert *et al.* (2022), which aimed to investigate the relationship between perceived stress, sensory processing patterns, and job burnout in employed individuals, aligns with these results. They found in their study that the average score of psychological distress was (2.1), signifying an average level of psychological distress. The results were surprising to the researchers. The level of psychological distress was moderate, and they had high expectations that it would be at a high level. As nurses are routinely dealing with seriously ill patients, observing the suffering and facing the death of patients can take a significant emotional toll on nurses. They may suffer feelings of sadness and helplessness, exacerbated by the stress of working for long, often evening shift that disrupts their sleep pattern, leading to psychosomatic distress (Dijxhoorn *et al*., 2021).

Similarly, as shown in Table 3, the mean score for the psychosomatic complaints was 2.87, indicating a high level of psychosomatic complaints among nurses. These results disagreed with the research done by Basinska, Gruszczynska and Schaufeli (2023), which aimed to evaluate the validity and reliability among 255 nurses and offer a refined version of the burnout assessment tool. The study revealed that the mean score for psychosocial complaints was 2.48, demonstrating that nurses experience an average level of psychosomatic complaints. This result highlighted the fact that nurses are exposed to a high level of tension when working in critical care units. This tension elicits the natural physiologic response of fight or flight, resulting in the release of hormones like cortisol and adrenaline. Over time, these hormones may dysregulate, leading to physical symptoms like chest pain and heart palpitations. Work tension can also affect the digestive system, causing symptoms such as nausea and indigestion. Prolonged working hours standing on their feet can cause muscle tension and pain, particularly in the neck, shoulder, and back, which can ultimately lead to musculoskeletal system disorders. Additionally, working in healthcare environments, particularly critical care units, exposes healthcare workers to pathogens, leading to frequent illnesses (Yanto, Djudiyah & Syakarofath, 2022).

The results support earlier studies such as Meneguin *et al*. (2023), Ribeiro *et al*. (2021), and van den Boogert *et al*. (2022), which reported a high level of exhaustion, a medium level of emotional impairment, and psychological distress, respectively. A heavy workload, caring for critically ill patients, dealing with death and life situations, and making quick decisions are key risk factors for burnout. However, the findings of this study challenge the work of Barnard *et al*. (2023), Palvimo, Vauhkonen and Hult (2023), and Basinska, Gruszczynska and Schaufeli (2023), who noted a high level of mental distance, cognitive impairment, and an average level of psychosomatic complaints. This may be due to variations in the study population, sample size, and measurement tools applied. This highlighted the physical impact that nurses may experience while working in critical care units. These findings suggest the need for interventions to decrease burnout among critical care nurses, such as providing adequate staff levels, breaks, and time off; applying stress management programs; presenting flexible work schedules; fostering collaboration and support between colleagues; making mental health services accessible; and providing health screening.

Apart from all of the above findings, the limitation of the study lies in its focus on 13 hospitals, potentially restricting the applicability of its findings to other healthcare environments.

CONCLUSION

This study highlighted the substantial presence of high burnout among our target nurses in critical care units. Nurses in critical care units must be mentally, cognitively, emotionally, psychologically, and psychosomatically prepared to handle a variety of patient situations. Hospitals should implement preventive measures to improve professional development, quality of life and professional performance by improving the role of the nursing leader in diagnosing and treating burnout among nurses. Hospitals should also implement organizational changes such as flexible work schedules, adequate staffing levels to manage workloads, a supportive work environment, and mental health resources. Education about burnout phenomena and appropriate coping strategies like Mindfulness-Based Stress Reduction (MBSR) and resilience training

programs can address this. Furthermore, studies should focus on replicating this study in critical care units in other Iraqi hospitals to compare and improve the generalization of the findings. In addition, determining the effectiveness of this tool in assessing the burnout level among nurses in six domains of the tool requires further research in multiple countries using the same tool used in this study. Moreover, analysing the impact of organizational policies and leadership in mitigating burnout could offer valuable insights and practical recommendations for healthcare institutions globally.

Conflict of Interest

The authors affirm that they have no conflict of interest

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