



● ORIGINAL ARTICLE

Burnout and its Psychological Effect among Health Professionals at Selected Military and Police Hospitals in Khartoum State, Sudan

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Abstract

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BACKGROUND

Burnout is a psychological syndrome resulting from prolonged work-related stress, characterized by emotional exhaustion, depersonalization, and reduced personal accomplishment. It negatively affects healthcare professionals' well-being and quality of patient care. This study aimed to assess burnout levels and their psychological effects among health professionals in trauma and emergency departments at selected Military and Police hospitals in Khartoum State, Sudan.

METHODS

A descriptive cross-sectional hospital-based study was conducted in 2022 among 130 healthcare professionals (78 nurses and 52 doctors) working in emergency departments at the selected Military and Police hospitals. Participants were selected using a stratified random sampling technique. Burnout was measured using the Maslach Burnout Inventory (MBI), a validated psychometric instrument measuring emotional exhaustion, depersonalization, and personal accomplishment. Data were analyzed using descriptive statistics and chi-square tests.

RESULTS

Emotional exhaustion was predominantly moderate in most participants (44.6%), while depersonalization and reduced personal accomplishment showed high burnout in 85.4% and 91.5% of participants, respectively. The overall prevalence of high burnout was 88.4%. Specialty was significantly associated with burnout levels ($p = 0.017$), with nurses reporting higher burnout than doctors, however, other socio-demographic and work-related factors, including work experience, were not significantly associated with burnout.

CONCLUSION

Nurses and doctors in emergency departments of Military and Police hospitals in Khartoum State, Sudan (2022) exhibited high levels of burnout, particularly in depersonalization and reduced personal accomplishment. Specialty was significantly associated with burnout, underscoring the urgent need for targeted interventions to reduce workload, provide psychological support, and improve healthcare professionals' well-being.

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KEYWORDS: Burnout · Emotional exhaustion · Depersonalization · Personal accomplishment · Maslach Burnout Inventory



Introduction

Burnout has emerged as a major occupational hazard in the healthcare field, particularly affecting nurses and doctors who form the backbone of patient care services. The World Health Organization (WHO) recognizes burnout as a syndrome resulting from chronic workplace stress that has not been successfully managed. ¹ Globally, the burden of burnout among nurses has reached alarming levels, particularly in the wake of increased workload, staff shortages, and emotional strain. ^{2,3}

In Africa, the situation is no less dire. A systematic review reported a 44.2% pooled prevalence of burnout among healthcare workers in Sub-Saharan Africa, with nurses being among the most affected groups due to limited resources, high patient loads, and poor organizational support. ⁴

In Sudan, the problem of burnout among healthcare professionals is increasingly recognized, yet remains under-researched. Studies have shown that a high proportion of Sudanese nurses experience emotional exhaustion, depersonalization, and reduced personal accomplishment. ^{5,6} Extended working hours, resource shortages, and demanding clinical duties substantially contribute to this burden, highlighting the urgent need for institutional and national strategies to support healthcare workers' well-being. ⁶

Burnout negatively affects not only the mental health and well-being of healthcare professionals but also patient safety, staff retention, and the overall quality of care. ⁷ In low-resource settings like Sudan, where healthcare infrastructure is fragile, the consequences are even more severe. Contributing factors include inadequate staffing, poor working conditions, low salaries, and lack of institutional support, particularly in high-stress units such as emergency and trauma departments. According to the WHO (2021), maintaining adequate nurse-to-patient ratios is essential for ensuring safe and effective care delivery; however, in many hospitals in low- and middle-income countries, these standards are often unmet due to workforce limitations. ⁸ Addressing burnout requires coordinated policy efforts, institutional reforms, and psychological support systems to foster resilience among healthcare staff.

Despite the growing global attention to burnout, Sudan still lacks comprehensive strategies and systematic interventions to tackle this issue. Additionally, the ongoing shortage of healthcare professionals exacerbates the situation, highlighting the need for further research and health policy reform.

This study aimed to assess the burnout levels and psychological effects among nurses and doctors working in emergency and trauma departments at selected Military and Police hospitals in Khartoum State, Sudan.

Materials and Methods

Study Design and Setting

This was a descriptive, cross-sectional, hospital-based study conducted in 2022 at two purposively selected hospitals in Khartoum State: Omdurman Military Hospital (Armed Forces Medical Hospital) and Al-Ribat Teaching Hospital (Police Hospital). These hospitals were chosen as they are major referral centres that employ nurses and doctors across multiple clinical departments, thereby enhancing appropriate representation.

Study Population and Sampling

The target population consisted of 196 nurses and doctors working in the trauma and emergency departments of the selected hospitals across three shifts (morning, afternoon, and night). The appropriate sample size was calculated using Slovin's formula as:

$$n = N / (1 + N \cdot e^2)$$

Where: n = required sample size; N = total population size (196); e = margin of error taken as 0.05 for a 95% confidence interval. Thus, n = 132. Two individuals refused to participate, leaving a final sample of 130 participants.

A stratified random sampling technique was employed to ensure balanced representation of healthcare providers across both study sites and professional groups. The population was divided into four strata based on the two hospitals and the profession categories: nurses and doctors. Proportional allocation was then used to distribute the sample size across strata according to each stratum's proportion of the total eligible population.

Within each stratum, participants were selected using simple random sampling from staff lists provided by the respective hospitals.

Data Collection Tools

Data was collected through face-to-face interviews using a structured questionnaire based on the Maslach Burnout Inventory (MBI), a validated psychometric instrument measuring emotional exhaustion, depersonalization, and personal accomplishment. The English/Arabic version of the MBI was used. MBI is widely validated internationally (Cronbach's $\alpha > 0.70$).

Burnout Classification

Burnout levels were categorized based on the cut-off points recommended by Maslach and Jackson (1981) for the MBI, as adopted in previous studies using the same version of the instrument.⁹

Based on the scoring system used in this study, results were categorized into three levels:

- Low level of burnout — scores 17 or less.
- Moderate level of burnout — scores 18 to 29.
- High-level burnout — scores 30 or above.

Data Analysis

Data were analyzed using SPSS version 23. Descriptive statistics were used to summarize participants'

characteristics and burnout levels. Chi-square test was applied to examine associations between burnout and selected socio-demographic and work-related variables. A p-value < 0.05 was considered statistically significant.

Ethical Considerations

Ethical approval was obtained from the relevant ethical committees, and approval was obtained from the two hospitals' officials. Written informed consent was obtained from all participants, and confidentiality was maintained throughout the study.

Results

Although 132 participants were initially targeted, two individuals declined to participate, resulting in 130 completed questionnaires giving a 98.5% response rate.

Table 1 revealed that less than half (46.2%) of the participants were within the age group (20–30), and more than half (54.6%) were females. Most of them were married (54.6%), around two-thirds of them (62.3%) were bachelor's degree holders, and the majority (65.4%) had 5 or more years of experience.

Table 1. Demographic characteristics of the study sample (n = 130).

Variable	Characteristics	n	%
Age (years)	Less than 30	60	46.2%
	30 – 40	38	29.2%
	Above 40	32	24.6%
Gender	Male	59	45.4%
	Female	71	54.6%
Marital status	Single	53	40.8%
	Married	71	54.6%
	Divorced	6	4.6%
Profession	Nurse	78	60.0%
	Doctor	52	40.0%
Qualification	Bachelor	81	62.3%
	Master	43	33.1%
	Doctorate	6	4.6%
Experience (years)	Less than 5	45	34.6%
	5 or more	85	65.4%

Table 2 describes the emotional exhaustion sub-scale. The majority of participants showed moderate burnout (44.6%), while 18.5% had a high level of

burnout. In contrast to the other two dimensions, emotional exhaustion was predominantly moderate rather than high.

Table 2. Emotional Exhaustion — Frequency Distribution and Mean Scores (n = 130).

#	Statement	Low n (%)	Moderate n (%)	High n (%)	Mean	SD
1	I feel emotionally drained by my work.	69 (53.1%)	33 (25.4%)	28 (21.5%)	2.45	2.117
2	Working with people all day requires a great deal of effort.	67 (51.5%)	29 (22.3%)	34 (26.2%)	2.77	1.935
3	I feel like my work is breaking me down.	55 (42.3%)	34 (26.2%)	41 (31.5%)	3.10	1.976
4	I feel frustrated by my work.	54 (41.5%)	37 (28.5%)	39 (30.0%)	3.09	1.931
5	I feel I work too hard at my job.	50 (38.5%)	43 (33.1%)	37 (28.4%)	3.14	1.908
6	It stresses me too much to work in direct contact with people.	54 (41.5%)	42 (32.3%)	34 (26.2%)	3.00	1.851
7	I feel like I am at the end of my rope.	55 (42.3%)	39 (30.0%)	36 (27.7%)	2.95	1.954
	Overall Mean Score	—	—	—	2.90	1.953

Low: Never + A few times/year + Once a month | Moderate: A few times/month + Once a week | High: A few times/week + Every day | MBI cut-off: Low ≤ 1.99 | Moderate 2.00–3.99 | High ≥ 4.00

Table 3. Depersonalization — Frequency Distribution and Mean Scores (n = 130).

#	Statement	Low n (%)	Moderate n (%)	High n (%)	Mean	SD
1	I feel I look after patients/clients impersonally, as if they are objects.	80 (61.5%)	32 (24.6%)	18 (13.9%)	2.05	1.914
2	I feel tired when I get up in the morning and have to face another day at work.	62 (47.7%)	38 (29.2%)	30 (23.1%)	2.89	1.810
3	My patients/clients make me responsible for some of their problems.	51 (39.2%)	38 (29.2%)	41 (31.6%)	3.12	1.880
4	I am at the end of my patience at the end of my work day.	55 (42.3%)	44 (33.8%)	31 (23.9%)	2.96	1.874
5	I really do not care about what happens to some of my patients/clients.	86 (66.2%)	28 (21.5%)	16 (12.3%)	2.04	1.853
6	I have become more insensitive to people since I have been working.	65 (50.0%)	37 (28.5%)	28 (21.5%)	2.63	1.981
7	I am afraid that this job is making me uncaring.	58 (44.6%)	37 (28.5%)	35 (26.9%)	2.93	1.958
	Overall Mean Score	—	—	—	2.70	1.895

Low: Never + A few times/year + Once a month | Moderate: A few times/month + Once a week | High: A few times/week + Every day | MBI cut-off: Low ≤ 1.99 | Moderate 2.00–3.99 | High ≥ 4.00

Table 3 describes the scoring results based on the depersonalization scale. The majority of participants

(85.4%) had a high level of burnout, indicating extensive emotional disconnection from patients.

Table 4. Personal Accomplishment — Frequency Distribution and Mean Scores (n = 130).

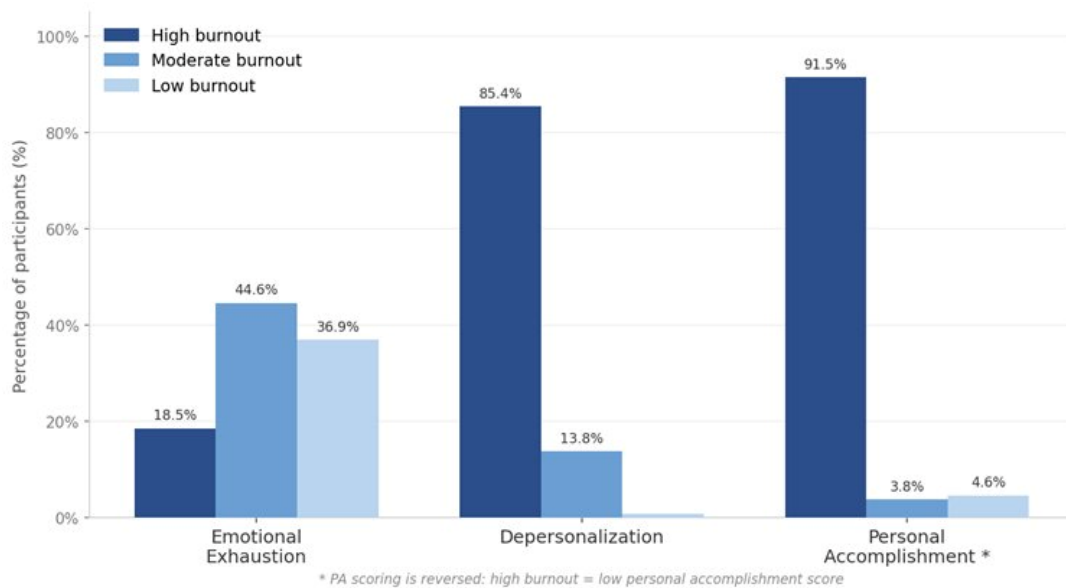
#	Statement	Low n (%)	Moderate n (%)	High n (%)	Mean	SD
1	I accomplish many worthwhile things in this job.	71 (54.6%)	34 (26.2%)	25 (19.2%)	2.57	1.909
2	I feel full of energy.	77 (59.2%)	38 (29.2%)	15 (11.5%)	2.34	1.513
3	I am easily able to understand what my patients/clients feel.	61 (46.9%)	28 (21.5%)	41 (31.5%)	2.92	1.955
4	I look after my patients/clients problems very effectively.	50 (38.5%)	42 (32.3%)	38 (29.2%)	3.12	1.796
5	In my work, I handle emotional problems very calmly.	50 (38.5%)	53 (40.8%)	27 (20.8%)	2.99	1.870
6	Through my work, I feel that I have a positive influence on people.	49 (37.7%)	34 (26.2%)	47 (36.2%)	3.35	1.894
7	I am easily able to create a relaxed atmosphere with my patients/clients.	47 (36.2%)	46 (35.4%)	37 (28.5%)	3.25	1.775
8	I feel refreshed when I have been close to my patients/clients at work.	41 (31.5%)	41 (31.5%)	48 (36.9%)	3.54	1.829
	Overall Mean Score	—	—	—	3.01	1.817

Note: PA scoring is reversed — High burnout = Low score (≤ 2.33) | Moderate = 2.34–3.66 | Low burnout = High score (≥ 3.67). Frequency columns reflect response frequency only.

Table 4 describes the scoring results based on the personal accomplishment scale. The majority of participants (91.5%) had a high level of burnout,

reflecting widespread feelings of reduced effectiveness and professional fulfilment.

Figure 1. Distribution of burnout levels across MBI dimensions (n = 130).



* PA scoring is reversed: low personal accomplishment scores indicate high burnout. High burnout = score ≤ 2.33; Moderate = 2.34–3.66; Low burnout = score ≥ 3.67.

Factors Associated with Level of Burnout

Table 5 shows the association between participants' independent variables and their level of burnout. The

chi-square test revealed that participants' specialty was significantly associated with the level of burnout (p = 0.017) at the 0.05 level of significance.

Table 5. Association between participants' independent variables and their level of burnout (n = 130).

Variable	Category	Low n	Moderate n	High n	χ ²	p-value
Age (years)	20–30	23	27	10	0.870	0.929
	30–40	12	18	8		
	Above 40	13	13	6		
Gender	Male	24	29	6	4.934	0.085
	Female	24	29	18		
Marital status	Single	19	26	8	1.170	0.883
	Married	27	29	15		
	Divorced	2	3	1		
Profession	Nurse	35	27	16	8.152	0.017 *
	Doctor	13	31	8		
Qualification	B.Sc.	28	38	15	3.150	0.533
	M.Sc.	16	18	9		
	PhD	4	2	0		
Experience (years)	< 5	14	24	7	5.605	0.231
	5 or more	34	34	17		

* p < 0.05 = statistically significant.

Discussion

Medical burnout is a principal work-related problem that occurs through three main dimensions: emotional exhaustion, depersonalization, and reduced personal accomplishment. Its implications extend beyond individual health to workforce turnover, organizational functioning, and overall quality of patient care.

The findings revealed a very high level of burnout, particularly in the depersonalization subscale (85.4%), with low scores for personal accomplishment. Emotional exhaustion was moderate among most participants, while the high incidence of depersonalization indicates extensive emotional disconnection from patients. Low personal accomplishment scores suggest that the majority of healthcare professionals feel their efforts are ineffective or unrecognized. Contributing factors may include limited opportunities for career advancement, insufficient monetary and moral compensation, and the demanding stress of emergency department work. Emergency settings are particularly challenging, with high patient turnover rates, unpredictable caseloads, and the need for constant and timely decision-making — factors consistently linked with high burnout risk.

Statistical analysis revealed that no significant correlations existed between most socio-demographic factors and burnout levels, except for specialty, where nurses reported significantly higher burnout scores compared to doctors ($p = 0.017$). This finding is consistent with previous evidence suggesting that nurses, particularly those in critical care and emergency units, experience greater emotional and physical demands, more patient contact hours, and less autonomy in decision-making compared to physicians.

These results align with both local and international research. Abdo et al. (2016) found that 44% of healthcare professionals in an emergency hospital in Egypt reported high levels of burnout, with emotional exhaustion being highly prevalent.¹⁰ Similarly, Elbarazi et al. (2017) reported that 95% of primary care physicians in the United Arab Emirates exhibited medium to high burnout, with depersonalization being the most affected dimension.¹¹ In Egypt, Elshaer

et al. (2018) reported high emotional exhaustion among ICU nurses, associated with high patient acuity and inadequate staffing.¹² Globally, Shanafelt et al. (2015) highlighted that over 54% of American physicians experienced at least one symptom of burnout, more prevalent in specialties with high patient exposure, such as emergency medicine and family practice.¹³ Moreover, Shujaa et al. (2020) conducted a systematic review exploring burnout among emergency department staff, finding that high workload, long working hours, and poor work-life balance were significant contributors.¹⁴ Emotional exhaustion was the most prevalent dimension, followed by depersonalization and reduced personal accomplishment. The authors recommended implementing supportive programs, psychological interventions, and organizational strategies to reduce occupational burnout in emergency settings.

Addressing burnout should be considered a workforce well-being issue and a patient safety priority. Interventions may include optimizing staff-to-patient ratios, implementing evidence-based peer support and debriefing systems, providing ongoing professional development, and establishing reward and recognition programs. Periodic screening with validated measures such as the Maslach Burnout Inventory (Maslach & Jackson, 1981) can facilitate early detection and timely intervention.⁹

Burnout has implications beyond healthcare providers' well-being, as higher levels are associated with increased medical errors, reduced patient adherence to treatment, and poorer overall health outcomes. Managing burnout is therefore critical to delivering sustainable, high-quality patient care.

Conclusion

This study revealed a high level of burnout among nurses and doctors working in emergency and trauma departments, characterized by high levels of depersonalization and reduced personal accomplishment, and moderate levels of emotional exhaustion. These findings indicate that all three core dimensions of burnout were present and may significantly affect healthcare providers' well-being. Specialty was the only factor significantly associated with burnout, while other demographic variables showed no significant associations.

There is an urgent need for organizational interventions aimed at reducing workload pressures, providing continuous psychological and professional support, and fostering motivation through recognition and fair reward systems. Improving the overall work environment is crucial to enhance job satisfaction, protect healthcare professionals' well-being, and ensure the delivery of high-quality patient care.

Limitations of the Study

The inclusion of only two purposively selected military and police hospitals — although these institutions are major referral centres — means their unique organisational structures, work environments, and patient populations may differ from those of public or private hospitals. This limits generalisability to other healthcare settings.

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Conflict of Interest

The authors declare no conflict of interest.

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