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Prevalence and impact of burnout in Emergency Department nurses; a multi-center study in Riyadh, Saudi Arabia

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ABSTRACT

Background: Burnout among healthcare professionals, particularly nurses, is a significant concern globally. Emergency department (ED) nurses, operating in high-stress environments, may be particularly vulnerable to burnout. This study aimed to investigate the prevalence of burnout and its association with various sociodemographic factors among ED nurses in Saudi Arabia. *Study Aim:* To determine the prevalence of burnout and identify sociodemographic factors associated with burnout among ED nurses. *Methodology:* A cross-sectional study was conducted involving 179 ED nurses in Saudi Arabia, to evaluate burnout, the Maslach Burnout Inventory was utilized. Categorizing scores into high and low burnout. Sociodemographic factors including age, gender, marital status, nationality, current housing status, and years of experience were analyzed for their association with burnout using chi-square tests. When a p-value was less than 0.05, statistical significance was reached. *Results:* The overall prevalence of burnout among ED nurses was 65.4%. Personal burnout was reported by 60.2% of participants, work-related burnout by 64.4%, and patient-related burnout by 49.8%. Younger nurses (25-29 years) demonstrated significantly higher burnout scores compared to other age groups (χ^2 = 10.843, p = 0.028). Saudi nationality was associated with higher burnout prevalence (χ^2 = 10.505, p = 0.033). Significant correlations were found between personal, work-related, and patient-related burnout domains (p < 0.001). *Conclusion:* The interconnected nature of burnout domains emphasizes the need for comprehensive interventions. These findings provide insights for healthcare organizations to develop targeted strategies to mitigate burnout among ED nurses and enhance overall workforce well-being.

Keywords: Emergency department, burnout, nursing, sociodemographic factors, healthcare professionals, Saudi Arabia.

1. INTRODUCTION

The demanding nature of healthcare professions, particularly those within emergency departments (EDs), places a substantial burden on the well-being of healthcare professionals (Popa et al., 2010). Among these, nurses, as frontline providers, often encounter high levels of emotional tiredness and stress, which are contributing to a phenomenon widely recognized as burnout (Li et al., 2018; Gómez-Urquiza et al., 2017). Burnout is a complex and multifaceted psychological syndrome characterized by chronic workplace stress that has not been effectively managed (Kristensen et al., 2005). It encompasses emotional exhaustion, depersonalization, and a reduced sense of personal accomplishment, ultimately impacting both the individual and the quality of patient care (Dall'Ora et al., 2020). Concern over the occurrence of burnout among healthcare workers has grown on a worldwide scale (Popa et al., 2010).

Numerous studies have demonstrated alarmingly high rates of burnout across various healthcare settings, with emergency healthcare workers particularly susceptible (Stehman et al., 2019). The unique challenges posed by the fast-paced, unpredictable, and often traumatic nature of emergency care contribute to elevated stress levels and burnout risk among emergency department staff (Li et al., 2018; Tarcan et al., 2017). Burnout not only detrimentally affects the well-being of healthcare professionals but also has profound implications for patient care and the overall healthcare system (Gómez-Urquiza et al., 2017). The emotional exhaustion component of burnout can lead to reduced empathy and compassion, potentially compromising the quality of patient-provider interactions (Salyers et al., 2017). Depersonalization, another key dimension of burnout, may result in a sense of detachment and cynicism towards patients, further eroding the humanistic aspects of care (Dall'Ora et al., 2020; West et al., 2018).

The diminished personal accomplishment associated with burnout may contribute to feelings of inefficacy and a reduced sense of professional achievement (Dall'Ora et al., 2020; West et al., 2018). Within the healthcare workforce, emergency department nurses represent a critical group, often serving as the first point of contact for patients in crisis (Li et al., 2018; Harkin and Melby, 2014). The unique stressors in the ED, including high patient acuity, time pressures, and exposure to trauma, intensify the challenges faced by these nurses (Lee et al., 2021). Despite their crucial role in healthcare delivery, ED nurses are susceptible to burnout, potentially leading to workforce shortages, decreased job satisfaction, and compromised patient safety (Hooper et al., 2010). Internationally, research on burnout among healthcare professionals, including nurses, has gained prominence.

Research from a number of nations has demonstrated how common burnout is and how badly it affects healthcare systems (Lee et al., 2021; Abellanoza et al., 2018). Cross-cultural investigations have identified common themes in burnout experiences, such as long working hours, inadequate staffing, and insufficient organizational support (Li et al., 2018). However, the unique sociodemographic and cultural context of each healthcare system introduces variability in the prevalence and manifestation of burnout (Lee et al., 2021; Hooper et al., 2010). In the context of Saudi Arabia, different studies have explored burnout among healthcare professionals, particularly among emergency department nurses (Alqahtani et al., 2019; Siam and Alrasheedi, 2022). The cultural nuances, organizational structures, and unique stressors in the Saudi healthcare system warrant specific attention (Li et al., 2018). Understanding the factors contributing to burnout in this context is crucial for developing targeted interventions and support systems (Popa et al., 2010).

Study Aim

The primary aim of this research is to assess the prevalence and determinants of burnout among emergency department nurses in Saudi Arabia.

Study Objectives

To quantify the prevalence of burnout among emergency department nurses

To explore the associations between burnout and key sociodemographic factors

To investigate potential variations in burnout prevalence and its dimensions among emergency department nurses working in two different healthcare institutions, comparing findings between King Saud University Medical City (KSUMC) and the National Guard Health Affairs (NGHA).

2. METHODOLOGY

Study Design

This study employed a cross-sectional design to investigate the prevalence of burnout among emergency department (ED) nurses in Saudi Arabia and explore its association with sociodemographic factors. Cross-sectional studies are valuable for capturing a snapshot of a population at a specific point in time, allowing for the examination of relationships between variables without implying causation.

Study Setting and Participants

The study was conducted in two major tertiary care hospitals in Saudi Arabia: King Saud University Medical City (KSUMC) and the National Guard Health Affairs Hospital (NGHA) among 179 emergency department nurses in the period from May 2023 to Nov 2023. These hospitals were chosen for their diverse patient populations and the high-stress nature of their EDs. Participants included registered nurses working in the EDs of these hospitals. The inclusion criteria comprised nurses with at least six months of ED experience, ensuring an adequate understanding of the work environment.

Data Collection

Data were collected using self-administered questionnaires distributed among ED nurses. The questionnaires consisted of sections on sociodemographic information, burnout assessment, and work-related characteristics. The primary instrument for measuring burnout was the Copenhagen Burnout Inventory (CBI), a validated tool widely used in healthcare research. The CBI encompasses three subscales: Personal burnout, work-related burnout, and patient-related burnout.

Statistical Analysis

Data analysis was performed using appropriate statistical methods. Descriptive statistics were used to characterize the sociodemographic profile of the participants. Burnout scores were reported as means ± standard deviations. We used a cut-off point (>50) to categorize respondents into high burnout (score: >50), or low burnout (score: ≤50). To assess the association between burnout and sociodemographic variables, analysis of variance (ANOVA) tests were employed for continuous variables, while t-tests were used for binary variables. Chi-square tests were utilized to examine the association between categorical variables and burnout prevalence. Significance was set at $p < 0.05$. To explore potential variations in burnout across different subgroups, subgroup analyses were conducted based on age, gender, marital status, nationality, current housing status, hospital, and years of experience as an emergency nurse. These analyses aimed to identify specific demographic groups that might be particularly vulnerable to burnout, providing insights for targeted interventions.

3. RESULTS

The study's 179 emergency department nurses' sociodemographic details are displayed in (Table 1). The age distribution of the participants reflects a diverse range, with the majority falling between 25 and 34 years old, comprising 25.7% aged 25-29 and 28.5% aged 30-34. The age groups of 35-39, 40-44, and those over 45 years old represent 24.6%, 10.1%, and 11.2%, respectively. In terms of gender, the nursing staff in the study is predominantly female, constituting 83.2% of the participants, while male nurses make up 16.8%. The marital status of the participants is diverse, with half of the nurses being single (50.3%), while 43% are married. A smaller percentage comprises divorced (5%) and widowed (1.7%) individuals. The nationality distribution of the nurses indicates a mix of cultural backgrounds, with Saudi nationals representing 25.1%, GCC nationals at 2.8%, Filipinos comprising the highest percentage at 46.9%, Indians at 14%, and others accounting for 11.2%.

Regarding housing status, the nurses demonstrate diverse living arrangements, with 30.7% living alone, 29.1% with roommates, and 40.2% residing with their families. The participating nurses are evenly distributed between King Saud University Medical City (KSUMC) and the National Guard Hospital (NGHA), with 50.3% and 49.7%, respectively. The distribution of years of experience among the emergency nurses reveals that the majority have more than 3 years of experience (66.5%), while 20.1% have 1-3 years of experience, and 13.4% have less than 1 year of experience. Table 2 offers a thorough analysis of the emergency department nurses that were part in the study. It does this by classifying their experiences into the following categories: "Never", "Seldom", "Sometimes",

"Often", and "Always". In the domain of personal burnout, a substantial proportion of nurses reported feeling tired (36.9% often, 23.5% always) and physically exhausted (38.5% often, 26.8% always), highlighting the prevalence of fatigue among this cohort.

Emotional exhaustion was also notable, with 35.2% reporting feeling emotionally exhausted sometimes and 33.5% often. Furthermore, a significant percentage expressed thoughts of not being able to endure their workload, with 41.3% sometimes and 25.1% often feeling this way. The work-related burnout items revealed that a considerable number of nurses found their work emotionally exhausting (36.3% sometimes, 21.2% always) and felt burnt out because of their work (35.2% sometimes, 24.6% always). Patient-related burnout was also evident, with 48% reporting finding it hard to work with clients sometimes and 14% always. Table 3 presents the average CBI scores and burnout prevalence among the participants. The overall CBI score reflects a mean of 57.4 ± 16, indicating a moderate level of burnout among the nurses. Personal burnout scores are notably higher, with a mean of 62.7 ± 18.9. Similarly, the work burnout score is elevated, with a mean of 61.3 ± 17.7, indicating a significant level of burnout related to job-related factors (Figure 1).

The patient-related burnout score has a mean of 47.7 ± 20.2, suggesting a comparatively lower impact of client interactions on burnout. The prevalence of high burnout across all dimensions is considerable. Overall, 65.4% of the nurses experience high burnout, with 34.6% reporting low burnout. In terms of personal burnout, 66.5% report high burnout, while 33.5% report low burnout. Similarly, work-related burnout is prevalent, with 68.2% experiencing high burnout and 31.8% reporting low burnout. For patient-related burnout, 36.3% report high burnout, and 63.7% report low burnout. Table 4 illustrates the association between average CBI scores and various sociodemographic factors among the emergency department nurses. In terms of age, the analysis reveals no statistically significant differences in overall burnout scores ($p = 0.07$). However, a trend is observed, where nurses aged 30-34 years tend to have higher overall burnout scores (59.9 ± 15.7) compared to other age groups.

Similar patterns are observed in personal and work-related burnout, suggesting a potential age-related influence on burnout that may warrant further investigation. For patient-related burnout, the difference across age groups is not statistically significant ($p = 0.087$), but a trend suggests higher burnout scores among younger age groups. The analysis of gender indicates no statistically significant differences in overall, personal, and work-related burnout scores ($p > 0.05$). However, male nurses tend to have higher patient-related burnout scores (52.5 ± 18) compared to their female counterparts (46.7 ± 20.6), although the difference is not statistically significant ($p = 0.123$). Marital status analysis shows no statistically significant differences in overall and work-related burnout scores ($p > 0.05$). However, there is a trend indicating that divorced nurses have lower personal burnout scores (52.8 ± 12.4), potentially suggesting a protective factor associated with this marital status. Patient-related burnout scores also show no significant differences across marital status categories.

Nationality emerges as a significant factor influencing burnout, with Saudi nurses demonstrating higher overall ($p = 0.023$), personal ($p = 0.086$), and work-related ($p = 0.03$) burnout scores compared to other nationalities. This finding raises questions about cultural and contextual factors contributing to burnout among Saudi nurses. Patient-related burnout scores, however, do not show significant differences across nationalities. Current housing status does not significantly affect overall, personal, or work-related burnout scores ($p > 0.05$). Similarly, patient-related burnout scores exhibit no significant differences among nurses with different housing arrangements. Hospital affiliation shows a notable difference in overall and work-related burnout scores between nurses at King Saud University Medical City (KSUMC) and the National Guard Hospital (NGHA). Nurses at KSUMC exhibit lower burnout scores overall ($p = 0.067$) and specifically in the work-related domain ($p = 0.036$).

This suggests potential variations in work environments or organizational factors contributing to burnout among nurses from different hospitals. Years of experience as an emergency nurse do not significantly impact overall, personal, and work-related burnout scores ($p > 0.05$). However, a trend is observed in patient-related burnout scores, where nurses with less than 1 year of experience tend to have higher scores (55.2 ± 15.8). This indicates that the duration of experience may influence the perception of patient-related burnout. Table 5 presents the prevalence of burnout among emergency department nurses, examining the association with various sociodemographic factors. For age groups, statistically significant differences in the prevalence of overall burnout are observed ($\chi^2 = 10.843$, $p = 0.028$). Nurses aged 30-34 years exhibit the highest prevalence of overall burnout (76.5%), while those aged 40-44 years have a lower prevalence (50%). A similar pattern is noted in personal and work-related burnout, indicating potential age-related variations in burnout experiences.

Patient-related burnout, however, does not show significant differences across age groups. Regarding gender, the prevalence of overall burnout is not much different amongst nurses who are male and female. ($\chi^2 = 1.011$, $p = 0.315$). However, male nurses

demonstrate a higher prevalence of work-related burnout (80%) compared to their female counterparts (66.4%). This gender-based variation in the specific domain of work-related burnout is noteworthy. Marital status analysis reveals no significant differences in the prevalence of overall burnout ($\chi^2 = 4.135$, $p = 0.247$). While the prevalence of burnout is higher among single nurses (68.9%), divorced and widowed nurses show relatively lower prevalence. Patient-related burnout does not significantly differ across marital status categories. Nationality emerges as a significant factor influencing burnout prevalence, with Saudi nurses exhibiting higher overall burnout ($\chi^2 = 10.505$, $p = 0.033$). Filipino nurses also demonstrate a relatively higher prevalence of overall burnout (64.3%). Patient-related burnout shows significant differences across nationalities ($\chi^2 = 10.839$, $p = 0.028$), with Saudi and Filipino nurses having distinct prevalence rates.

Current housing status does not significantly impact the prevalence of overall burnout ($\chi^2 = 0.674$, $p = 0.714$). Similar findings are observed for personal, work-related, and patient-related burnout, indicating that the living arrangement does not play a significant role in burnout prevalence among the studied nurses. Hospital affiliation reveals variations in burnout prevalence, with nurses from King Saud University Medical City (KSUMC) exhibiting a slightly lower overall burnout prevalence compared to those from the National Guard Hospital (NGHA) ($\chi^2 = 2.3$, $p = 0.129$). Work-related burnout, however, shows significant differences ($\chi^2 = 3.411$, $p = 0.065$), suggesting potential organizational factors contributing to variations in this specific domain. Years of experience as an emergency nurse do not significantly influence the overall burnout prevalence ($\chi^2 = 3.702$, $p = 0.157$). However, nurses with less than 1 year of experience tend to have a higher prevalence of overall burnout (75%). Work-related burnout also shows variations across experience levels, but the differences are not statistically significant.

Table 1 Sociodemographic characters of the included nurses (n=179).

Parameter		Frequency (%)
Age, y	25-29	46 (25.7%)
	30-34	51 (28.5%)
	35-39	44 (24.6%)
	40-44	18 (10.1%)
	More than 45	20 (11.2%)
Gender	Male	30 (16.8%)
	Female	149 (83.2%)
Marital status	Single	90 (50.3%)
	Married	77 (43%)
	Divorced	9 (5%)
	Widowed	3 (1.7%)
Nationality	Saudi	45 (25.1%)
	GCC	5 (2.8%)
	Filipino	84 (46.9%)
	Indian	25 (14%)
	Other	20 (11.2%)
Current housing status	Alone	55 (30.7%)
	With roommate	52 (29.1%)
	With family	72 (40.2%)
Hospital	KSUMC	90 (50.3%)
	NGHA	89 (49.7%)
Years of experience as an emergency nurse	< 1 year	24 (13.4%)
	1-3 years	36 (20.1%)
	> 3 years	119 (66.5%)

Table 2 CBI items and responses among the included nurses (n=179).

Item		Never	Seldom	Sometimes	Often	Always
Personal burnout	How often do you feel tired?	0 (0%)	5 (2.8%)	66 (36.9%)	66 (36.9%)	42 (23.5%)
	How often are you physically exhausted?	0 (0%)	6 (3.4%)	56 (31.3%)	69 (38.5%)	48 (26.8%)
	How often are you emotionally exhausted?	0 (0%)	27 (15.1%)	63 (35.2%)	60 (33.5%)	29 (16.2%)
	How often do you think: "I can't take it anymore"?	7 (3.9%)	36 (20.1%)	74 (41.3%)	45 (25.1%)	17 (9.5%)
	How often do you feel worn out?	1 (0.6%)	22 (12.3%)	75 (41.9%)	54 (30.2%)	27 (15.1%)
	How often do you feel weak and susceptible to illness?	4 (2.2%)	40 (22.3%)	67 (37.4%)	49 (27.4%)	19 (10.6%)
Work burnout	Is your work emotionally exhausting?	2 (1.1%)	15 (8.4%)	65 (36.3%)	59 (33%)	38 (21.2%)
	Do you feel burnt out because of your work?	1 (0.6%)	19 (10.6%)	63 (35.2%)	52 (29.1%)	44 (24.6%)
	Does your work frustrate you?	6 (3.4%)	24 (13.4%)	81 (45.3%)	46 (25.7%)	22 (12.3%)
	Do you feel worn out at the end of the working day?	1 (0.6%)	16 (8.9%)	62 (34.6%)	62 (34.6%)	38 (21.2%)
	Are you exhausted in the morning at the thought of another day at work?	6 (3.4%)	23 (12.8%)	64 (35.8%)	55 (30.7%)	31 (17.3%)
	Do you feel that every working hour is tiring for you?	5 (2.8%)	26 (14.5%)	70 (39.1%)	49 (27.4%)	29 (16.2%)
	Do you have enough energy for family and friends during leisure time?	9 (5%)	51 (28.5%)	65 (36.3%)	35 (19.6%)	19 (10.6%)
Patient-related	Do you find it hard to work with clients?	21 (11.7%)	39 (21.8%)	86 (48%)	25 (14%)	8 (4.5%)
	Do you find it frustrating to work with clients?	18 (10.1%)	57 (31.8%)	71 (39.7%)	24 (13.4%)	9 (5%)
	Does it drain your energy to work with clients?	11 (6.1%)	43 (24%)	80 (44.7%)	34 (19%)	11 (6.1%)
	Do you feel that you give more than you get back when you work with clients?	7 (3.9%)	31 (17.3%)	71 (39.7%)	48 (26.8%)	22 (12.3%)
	Are you tired of working with clients?	30 (16.8%)	44 (24.6%)	75 (41.9%)	21 (11.7%)	9 (5%)
	Do you sometimes wonder how long you will be able to continue working with clients?	10 (5.6%)	40 (22.3%)	75 (41.9%)	30 (16.8%)	24 (13.4%)

Table 3 Average CBI scores and burnout prevalence among the included nurses (n=179).

Parameter		Mean ± SD
Overall CBI score		57.4 ± 16
Personal burnout score		62.7 ± 18.9
Work burnout score		61.3 ± 17.7
Patient-related burnout score		47.7 ± 20.2
Overall burnout	High burnout	117 (65.4%)
	Low burnout	62 (34.6%)
Personal burnout	High burnout	119 (66.5%)
	Low burnout	60 (33.5%)
Work burnout	High burnout	122 (68.2%)
	Low burnout	57 (31.8%)
Patient-related burnout	High burnout	65 (36.3%)

	Low burnout	114 (63.7%)

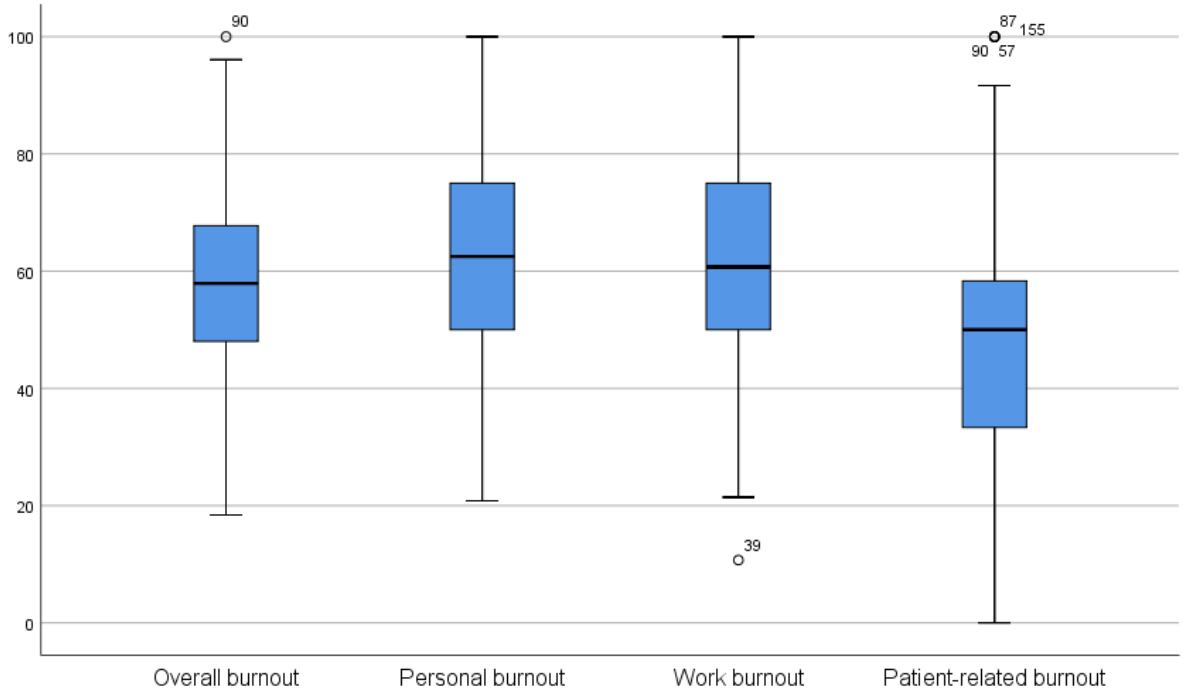

Figure 1 Boxplot of average CBI scores among included nurses.

Table 4 Average CBI scores in association with sociodemographic characters (n=179).

Parameter		Overall burnout	Personal burnout	Work burnout	Patient-related burnout
Age, y	25-29	56.9 ± 13.5	62.9 ± 18.4	60.3 ± 15.9	47 ± 16.6
	30-34	59.9 ± 15.7	67.3 ± 17.7	62.7 ± 18.6	49.3 ± 20.4
	35-39	60.4 ± 15	63.3 ± 18.2	64.9 ± 14.8	52.5 ± 20.7
	40-44	52.5 ± 15.7	56 ± 20.5	57.1 ± 18.1	43.5 ± 16.1
	More than 45	50.2 ± 21.9	55.6 ± 21.5	55.9 ± 23.7	38.1 ± 26.8
	P-value	F=2.211, P=0.07	F=2.075, P=0.086	F=1.276, P=0.281	F=2.066, P=0.087
Gender	Male	61.9 ± 15.4	67.1 ± 19.3	65.5 ± 17.7	52.5 ± 18
	Female	56.6 ± 16.1	61.9 ± 18.8	60.5 ± 17.7	46.7 ± 20.6
	P-value	t=1.715, P=0.094	t=1.36, P=0.181	t=1.422, P=0.157	t=1.57, P=0.123
Marital status	Single	58.6 ± 14.1	63.9 ± 17.9	62.5 ± 17	48.7 ± 18.5
	Married	56.2 ± 18.3	61.9 ± 21.1	59.6 ± 18.9	46.5 ± 21.6
	Divorced	52.8 ± 12.4	58.3 ± 9.8	57.9 ± 10.4	41.2 ± 24.7
	Widowed	68.9 ± 16.8	62.5 ± 16.7	78.6 ± 18.6	63.9 ± 17.3
	P-value	F=1.087, P=0.356	F=0.335, P=0.8	F=1.466, P=0.226	F=1.116, P=0.344
Nationality	Saudi	60.8 ± 13.6	65.9 ± 17.6	63.8 ± 15.2	52.1 ± 18.1
	GCC	57.4 ± 8.7	60 ± 18.5	63.6 ± 9.9	47.5 ± 8.6
	Filipino	57.9 ± 17.3	63.6 ± 20.5	62.4 ± 19.2	46.9 ± 21.1
	Indian	48 ± 15.5	53.2 ± 17.6	50.7 ± 17.6	39.7 ± 18.6
	Other	59.9 ± 14.1	64.4 ± 14	63.8 ± 14.5	51 ± 23.2
	P-value	F=2.912, P=0.023	F=2.074, P=0.086	F=2.755, P=0.03	F=1.722, P=0.147

Current housing status	Alone	58.5 ± 16.6	63.8 ± 19.3	62.1 ± 19.6	49.1 ± 21.1
	With roommate	58.2 ± 17.4	64.3 ± 19.1	61.7 ± 17.7	48.1 ± 23.9
	With family	56 ± 14.7	60.8 ± 18.7	60.3 ± 16.4	46.3 ± 16.5
	P-value	F=0.471, P=0.625	F=0.659, P=0.518	F=0.188, P=0.829	F=0.309, P=0.734
Hospital	KSUMC	55.3 ± 15.5	59 ± 18.9	58.5 ± 17	47.7 ± 18.4
	NGHA	59.7 ± 16.4	66.5 ± 18.3	64.1 ± 18	47.6 ± 22
	P-value	t=-1.843, P=0.067	t=-2.712, P=0.007	t=-2.117, P=0.036	t=0.039, P=0.969
Years of experience as an emergency nurse	< 1 year	58.6 ± 12.6	60.8 ± 17.1	59.7 ± 14.7	55.2 ± 15.8
	1-3 years	57 ± 14.1	64.6 ± 17.9	61.3 ± 17.2	44.3 ± 16.4
	> 3 years	57.4 ± 17.3	62.6 ± 19.7	61.6 ± 18.5	47.2 ± 21.8
	P-value	F=0.079, P=0.924	F=0.303, P=0.739	F=0.119, P=0.888	F=2.222, P=0.111

Table 5 Prevalence of burnout in association with sociodemographic characters (n=179).

Parameter		Overall burnout		Personal burnout		Work burnout		Patient-related	
		High burnout	Low burnout	High burnout	Low burnout	High burnout	Low burnout	High burnout	Low burnout
Age, y	25-29	30 (65.2%)	16 (34.8%)	31 (67.4%)	15 (32.6%)	30 (65.2%)	16 (34.8%)	16 (34.8%)	30 (65.2%)
	30-34	39 (76.5%)	12 (23.5%)	41 (80.4%)	10 (19.6%)	37 (72.5%)	14 (27.5%)	21 (41.2%)	30 (58.8%)
	35-39	31 (70.5%)	13 (29.5%)	30 (68.2%)	14 (31.8%)	34 (77.3%)	10 (22.7%)	18 (40.9%)	26 (59.1%)
	40-44	9 (50%)	9 (50%)	9 (50%)	9 (50%)	11 (61.1%)	7 (38.9%)	6 (33.3%)	12 (66.7%)
	More than 45	8 (40%)	12 (60%)	8 (40%)	12 (60%)	10 (50%)	10 (50%)	4 (20%)	16 (80%)
	X^2, P-value	10.843	0.028	12.991	0.011	5.771	0.217	3.341	0.503
Gender	Male	22 (73.3%)	8 (26.7%)	24 (80%)	6 (20%)	23 (76.7%)	7 (23.3%)	13 (43.3%)	17 (56.7%)
	Female	95 (63.8%)	54 (36.2%)	95 (63.8%)	54 (36.2%)	99 (66.4%)	50 (33.6%)	52 (34.9%)	97 (65.1%)
	X^2, P-value	1.011	0.315	2.956	0.086	1.203	0.273	0.768	0.381
Marital status	Single	62 (68.9%)	28 (31.1%)	64 (71.1%)	26 (28.9%)	63 (70%)	27 (30%)	34 (37.8%)	56 (62.2%)
	Married	48 (62.3%)	29 (37.7%)	47 (61%)	30 (39%)	50 (64.9%)	27 (35.1%)	26 (33.8%)	51 (66.2%)
	Divorced	4 (44.4%)	5 (55.6%)	6 (66.7%)	3 (33.3%)	6 (66.7%)	3 (33.3%)	3 (33.3%)	6 (66.7%)
	Widowed	3 (100%)	0 (0%)	2 (66.7%)	1 (33.3%)	3 (100%)	0 (0%)	2 (66.7%)	1 (33.3%)
	X^2, P-value	4.135	0.247	1.889	0.596	1.92	0.589	1.529	0.676
Nationality	Saudi	34 (75.6%)	11 (24.4%)	35 (77.8%)	10 (22.2%)	32 (71.1%)	13 (28.9%)	21 (46.7%)	24 (53.3%)
	GCC	4 (80%)	1 (20%)	3 (60%)	2 (40%)	4 (80%)	1 (20%)	2 (40%)	3 (60%)
	Filipino	54 (64.3%)	30 (35.7%)	55 (65.5%)	29 (34.5%)	61 (72.6%)	23 (27.4%)	29 (34.5%)	55 (65.5%)
	Indian	10 (40%)	15 (60%)	12 (48%)	13 (52%)	10 (40%)	15 (60%)	6 (24%)	19 (76%)
	Other	15 (75%)	5 (25%)	14 (70%)	6 (30%)	15 (75%)	5 (25%)	7 (35%)	13 (65%)
	X^2, P-value	10.505	0.033	6.652	0.155	10.839	0.028	3.885	0.422
Current housing status	Alone	38 (69.1%)	17 (30.9%)	36 (65.5%)	19 (34.5%)	37 (67.3%)	18 (32.7%)	22 (40%)	33 (60%)
	With roommate	32 (61.5%)	20 (38.5%)	36 (69.2%)	16 (30.8%)	36 (69.2%)	16 (30.8%)	19 (36.5%)	33 (63.5%)
	With family	47 (65.3%)	25 (34.7%)	47 (65.3%)	25 (34.7%)	49 (68.1%)	23 (31.9%)	24 (33.3%)	48 (66.7%)
	X^2, P-value	0.674	0.714	0.249	0.883	0.048	0.976	0.601	0.741
Hospital	KSUMC	54 (60%)	36 (40%)	54 (60%)	36 (40%)	57 (63.3%)	33 (36.7%)	34 (37.8%)	56 (62.2%)
	NGHA	63 (70.8%)	26 (29.2%)	65 (73%)	24 (27%)	65 (73%)	24 (27%)	31 (34.8%)	58 (65.2%)
	X^2, P-value	2.3	0.129	3.411	0.065	1.94	0.164	0.168	0.682
Years of experience	< 1 year	18 (75%)	6 (25%)	15 (62.5%)	9 (37.5%)	15 (62.5%)	9 (37.5%)	12 (50%)	12 (50%)
	1-3 years	27 (75%)	9 (25%)	27 (75%)	9 (25%)	25 (69.4%)	11 (30.6%)	12 (33.3%)	24 (66.7%)

as an emergency nurse	> 3 years	72 (60.5%)	47 (39.5%)	77 (64.7%)	42 (35.3%)	82 (68.9%)	37 (31.1%)	41 (34.5%)	78 (65.5%)
	X^2, P-value	3.702	0.157	1.511	0.47	0.412	0.814	2.26	0.323

4. DISCUSSION

Nurses in emergency rooms are essential to provide critical and immediate care to patients, often working in high-stress environments (Li et al., 2018). The phenomenon of burnout among healthcare professionals, including nurses, has gained increasing attention due to its potential impact on both individual well-being and the quality of patient care (Dall'Ora et al., 2020). Burnout is a multifaceted construct, encompassing emotional exhaustion, depersonalization, and reduced personal accomplishment (Harkin and Melby, 2014). Understanding the prevalence and factors contributing to burnout among emergency department nurses is crucial for developing targeted interventions and support mechanisms (Li et al., 2018; Lee et al., 2021). In this study, we aimed to investigate the prevalence of burnout and its association with various sociodemographic factors among emergency department nurses.

Our findings revealed a notable prevalence of burnout among emergency department nurses, with 65.4% experiencing burnout in at least one domain. Personal and work-related burnout exhibited higher rates compared to patient-related burnout. These results underscore the considerable burden of burnout within this specific healthcare cohort (Phillips et al., 2022). The mean scores for personal, work-related, and patient-related burnout were 60.2 ± 15.8, 64.4 ± 17.6, and 49.8 ± 20.3, respectively, further emphasizing the severity of burnout experiences. The high prevalence of burnout among emergency department nurses aligns with the broader literature on healthcare professionals experiencing burnout, attributed to the demanding nature of their work environment (Lee et al., 2021; Abellanoza et al., 2018). The elevated levels of personal and work-related burnout observed in our study resonate with the emotionally charged and often chaotic nature of emergency care settings (Li et al., 2018; Phillips et al., 2022; Abellanoza et al., 2018).

These results highlight the critical need for focused treatments to reduce burnout and improve emergency personnel's well-being. department nurses (Wei et al., 2017; Adriaenssens et al., 2015). Our study explored the association between burnout and various sociodemographic factors, revealing noteworthy insights. Age and nationality emerged as significant factors influencing burnout experiences among emergency department nurses. Younger nurses (25-29 years) exhibited higher burnout scores, suggesting a vulnerability in this demographic. This aligns with studies indicating that early-career healthcare professionals may face increased stress due to the steep learning curve and adjustment to the demands of the profession (Alqahtani et al., 2019; Tarcan et al., 2017). The association between nationality and burnout is a distinctive finding in our study. Saudi nurses demonstrated significantly higher burnout scores compared to other nationalities.

This may be influenced by cultural and organizational factors unique to the Saudi healthcare system. Our findings echo studies that have emphasized the importance of considering cultural contexts when addressing burnout among healthcare professionals (Alqahtani et al., 2019; Alshahrani et al., 2022; Al-Turki et al., 2010). Comparing our findings with existing literature, the prevalence of burnout among emergency department nurses in our study is consistent with global trends (Li et al., 2018; Phillips et al., 2022; Lee et al., 2021; Adriaenssens et al., 2015). A meta-analysis study was conducted to assess prevalence of burnout among emergency nurses found that prevalence of depersonalization, emotional exhaustion and low personal accomplishment was 36% ,31% and 29% respectively (Gómez-Urquiza et al., 2017). To assess the risk factors, burnout rates, and prevalence of burnout among nurses employed in intensive care units, another meta-analysis was carried out. reveals relatively high depersonalization (18%), high emotional exhaustion (31%) and low personal accomplishment (46%).

Furthermore, it was shown that job overload, seniority, age, high levels of anxiety, and depression were the leading contributors to burnout syndrome among ICU nurses (Ramírez-Elvira et al., 2021). Another meta-analysis reported higher proportions of burnout among emergency department nurses (40.5%-44.3%) (Li et al., 2018). The variations are often attributed to differences in measurement tools, cultural contexts, and healthcare system structures. Our study contributes to this body of knowledge by providing context-specific insights into burnout prevalence and its association with sociodemographic factors in the Saudi healthcare setting. The age-related association observed in our study resonates with findings from other countries (Hooper et al., 2010; Alqahtani et al., 2019).

A study found that younger nurses under the experienced higher burnout levels (Abellanoza et al., 2018; Alshahrani et al., 2022; Wei et al., 2017; Adriaenssens et al., 2015). This commonality suggests that early-career nurses may universally face challenges contributing to burnout, such as adjusting to the emotional demands of patient care, managing work-life balance, and navigating

complex healthcare systems (Li et al., 2018; Gómez-Urquiza et al., 2017). The influence of nationality on burnout experiences has been explored in various cultural contexts. Cultural differences in work expectations, social support systems, and coping mechanisms may contribute to varying burnout experiences across nationalities, as observed in our study (Sabbah et al., 2012; Shams and El-Masry, 2013; Al-Dubai and Rampal, 2010).

Implications for Practice and Future Research

Our findings have practical implications for healthcare organizations aiming to address burnout among emergency department nurses. Interventions should be tailored to the specific needs of different age groups and consider the cultural nuances influencing burnout experiences. Implementing mentorship programs for younger nurses, promoting a supportive organizational culture, and providing resources for coping and resilience-building are potential strategies. Future research should delve deeper into the qualitative aspects of burnout experiences among emergency department nurses, exploring the contextual factors contributing to the observed patterns. Additionally, longitudinal studies can provide insights into the dynamic nature of burnout, tracking changes over time and identifying potential risk and protective factors.

5. CONCLUSION

In conclusion, our study sheds light on the prevalence and factors influencing burnout among emergency department nurses in Saudi Arabia. The high prevalence of burnout, particularly among younger nurses and those of Saudi nationality, emphasizes the need for targeted interventions. Recognizing the interconnected nature of burnout domains and addressing sociodemographic factors in interventions can contribute to the well-being of emergency department nurses and, by extension, the quality of patient care. This research contributes to the growing body of knowledge on burnout among healthcare professionals and provides a foundation for further investigations into tailored interventions and preventive strategies. By understanding the unique sociodemographic factors influencing burnout in specific healthcare settings, healthcare organizations can foster environments that promote nurse well-being and, consequently, enhance the overall resilience of the healthcare workforce.

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Ethical Approval

This study was conducted in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki and its later amendments. Ethical approval was obtained from the Institutional Review Board (IRB), with approval number 23/0650/IRB, dated 07 September 2023 (22 Safar 1445). Ethical approval was obtained from the Institutional Review Boards of both participating hospitals.

Informed consent

Informed consent was secured from all participants before their inclusion in the study. Confidentiality and anonymity were strictly maintained throughout the study, with participant identifiers removed during data analysis.

Author contribution

Tawfiq Almezieny, Yara Alhusaini: Participated in writing introduction and discussion
Abdulmajeed Alashaikh: Participated in writing discussion and results
Reema Alnasser: Participated in writing result and method
Saad Dammas: Participated in writing introduction, discussion and method
Nouf Alsubaie: Participated in writing abstract, introduction and discussion
Taif Alotaibi: Participated in writing introduction and method

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Conflict of interest

The authors declare that there is no conflict of interests.

Data and materials availability

All data sets collected during this study are available upon reasonable request from the corresponding author.

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