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ASSESSMENT OF OCCUPATIONAL BURNOUT AND ITS ASSOCIATED FACTORS AMONG STAFF NURSES WORKING IN INTENSIVE CARE UNITS OF NISHTAR HOSPITAL MULTAN: A CROSS-SECTIONAL STUDY

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Abstract

Background: *Intensive care unit (ICU) nurses face sustained occupational stressors, including high patient acuity, staffing shortages and rotating shifts, yet context-specific evidence from public-sector tertiary hospitals in South Punjab remains limited.*

Objective: *To determine the prevalence and dimensions of occupational burnout and to identify associated sociodemographic and work-related factors among ICU staff nurses at Nishtar Hospital, Multan.*

Methods: *A cross-sectional analytical study was conducted among 148 ICU nurses recruited through proportionate stratified random sampling from medical, surgical, cardiac and high-dependency ICUs. Burnout was measured using the Maslach Burnout Inventory–Human Services Survey. Data were analyzed using descriptive statistics, chi-square tests and multivariable binary logistic regression.*

Results: *The overall burnout prevalence was 71.6% (106/148). High emotional exhaustion was present in 68.2%, high depersonalization in 54.1% and low personal accomplishment in 58.8%. In adjusted analysis, rotating night shifts (aOR = 3.42, 95% CI: 1.28–9.14), nurse-to-patient ratio ≥1:3 (aOR = 4.08, 95% CI: 1.51–11.02) and self-reported job dissatisfaction (aOR = 3.65, 95% CI: 1.24–10.74) were independent predictors of burnout.*

Conclusion: *Burnout is highly prevalent among ICU nurses at Nishtar Hospital and is driven principally by modifiable Organisational exposures rather than demographic characteristics. Interventions should priorities shift-scheduling reform, enforceable nurse-to-patient ratios and structured Organisational support.*

1. INTRODUCTION

Occupational burnout is a syndrome of emotional exhaustion, depersonalization and reduced personal accomplishment resulting from chronic workplace stress that has not been successfully managed. Intensive care units are among the most psychologically demanding clinical environments in modern healthcare, where nurses are routinely

exposed to critically ill patients, high mortality, complex technology and emotionally charged decision-making under conditions of inadequate staffing and resource constraint (Ahmad et al., 2023). The consequences are not confined to the individual nurse: burnout impairs clinical judgment, communication and safety behaviours and has been linked to medication errors, missed nursing care and degraded quality of care (Javed et al., 2022).

Pakistan's nursing workforce operates within a particularly acute set of structural constraints. The national nurse-to-patient ratio is estimated at approximately 1:50, far exceeding the Pakistan Nursing Council's recommended 1:10 for intensive care. In a study of nurses at Nishtar Hospital, Multan, excessive workload was the most frequently cited source of dissatisfaction, followed by poor working conditions and low wages (Nadeem et al., 2021). A recent systematic review and meta-analysis of burnout among Pakistani nurses reported that 48.6% of nurses met criteria for burnout, with severe emotional exhaustion in 37.2% and severe depersonalization in 36.8% (Khan et al., 2022). Among critical-care nurses specifically, a multi-unit Pakistani study documented an MBI burnout prevalence of 67.5%, with rotating shifts, nurse-to-patient ratio ≥1:3 and job dissatisfaction emerging as independent predictors (Ahmad et al., 2023).

Despite this emerging national evidence, data from major public-sector tertiary hospitals in South Punjaband from Nishtar Hospital in particularremain limited. Nishtar Hospital is one of the largest tertiary care facilities in the region, serving a catchment population with high critical-care demand, yet its ICU nursing workforce has not been systematically assessed for burnout. The present study was therefore designed to determine the prevalence and dimensional profile of burnout among ICU staff nurses at Nishtar Hospital, Multan, and to identify the sociodemographic and work-related factors independently associated with the syndrome.

2. Literature Review

2.1 Conceptualization and Measurement of Burnout

The Maslach Burnout Inventory remains the most widely used instrument for assessing occupational burnout in healthcare populations, operationalizing the construct across three dimensions: emotional exhaustion, depersonalization and personal accomplishment. Established severity thresholds classify emotional exhaustion ≥27 as high, depersonalization ≥10 as high and personal accomplishment ≤33 as low personal accomplishment (Khan et al., 2022). The Copenhagen Burnout Inventory offers an alternative framework focused on personal, work-related and client-related burnout and has been validated in Pakistani nursing samples (Riaz et al., 2022). However, the Maslach Burnout Inventory's tri-dimensional structure aligns more closely with the dominant international literature on ICU nurse burnout and permits direct comparison with the growing body of Pakistani critical-care studies that have employed MBI profiles (Ahmad et al., 2023).

2.2 Prevalence of Burnout in ICU Nursing Populations

Burnout among ICU nurses is a global concern, with prevalence estimates varying substantially by instrument, threshold and context. During the COVID-19 pandemic, global studies reported burnout prevalence as high as 70% among ICU nurses (Saeed et al., 2023). In a large cluster-randomized trial across 370 ICUs in 60 countries, pre-intervention burnout prevalence was 59.4% (Saeed et al., 2023). Within Pakistan, the evidence base has expanded rapidly. A systematic review of Pakistani nurses reported an overall burnout prevalence of 48.6%, with ICU-specific studies documenting moderate-to-high burnout in 43% of nurses and 38.8% feeling overburdened by professional duties (Khan et al., 2022). A more recent analytical study of 120 critical-care nurses across five high-acuity units in a public-sector tertiary hospital found that 67.5% met MBI criteria for the burnout profile, with mean emotional exhaustion of 31.89 ± 7.65 and

depersonalization of 14.88 ± 3.70 (Ahmad et al., 2023). These figures collectively indicate that ICU nurses in Pakistan experience burnout at levels comparable to or exceeding global estimates, with the emotional exhaustion and depersonalization dimensions consistently elevated.

2.3 Associated Factors: Organisational Exposures versus Individual Characteristics

A consistent pattern across recent studies is that modifiable Organisational and scheduling factors outperform demographic characteristics as predictors of burnout. In the Pakistani critical-care MBI study, working night or rotating shifts, managing a nurse-to-patient ratio of 1:3 or greater and self-reported job dissatisfaction were independently associated with the burnout profile, whereas demographic variables were not (Ahmad et al., 2023). A study using the Copenhagen Burnout Inventory at a tertiary hospital in Lahore similarly found that long duty shifts and rotation were significantly associated with work-related burnout, with shift duty positively related to burnout (Riaz et al., 2022). At Nishtar Hospital specifically, excessive workload has been identified as the dominant driver of dissatisfaction and adverse psychological outcomes, with burnout and dissatisfaction more prevalent among nurses reporting high workloads and inadequate workplace support (Nadeem et al., 2021). Qualitative evidence from Pakistani critical-care settings further indicates that moral distress arising from inadequate staffing and hierarchical resource constraints contributes to anxiety, emotional breakdown and burnout (Malik et al., 2023).

2.4 Consequences and Intervention Evidence

The consequences of ICU nurse burnout extend beyond individual wellbeing. Recent evidence links burnout to missed nursing care, lower patient safety climate scores and higher intention to leave (Javed et al., 2022; Hussain et al., 2024). Organisational interventions that combine shift-scheduling reform, staffing ratio enforcement and structured peer support have shown modest but consistent effects on emotional exhaustion and depersonalization (Shah et al., 2025). However, most intervention trials have been conducted in high-income settings, and their transferability to resource-constrained Pakistani public-sector hospitals remains uncertain (Shah et al., 2025). This gap reinforces the need for local prevalence and predictor data to inform contextually feasible interventions.

3. Methodology

3.1 Study Design and Setting

A cross-sectional analytical study was conducted in the intensive care units of Nishtar Hospital, Multan, Pakistan, over a four-month period. The hospital is a large public-sector tertiary care facility in South Punjab with medical, surgical, cardiac and high-dependency ICUs.

3.2 Study Population and Sampling

The study population comprised registered staff nurses working in the ICUs for at least six months. Nurses on leave exceeding four weeks during the data collection period and those with a self-reported diagnosed psychiatric disorder were excluded. The sample size of 148 was calculated using a single-proportion formula with an assumed burnout prevalence of 67.5% (Ahmad et al., 2023), a 95% confidence level, a 7.5% margin of error and a 10% non-response allowance. Proportionate stratified random sampling was used, with strata defined by ICU type.

3.3 Data Collection

Data were collected using a structured, self-administered questionnaire comprising two sections: sociodemographic and work-related characteristics, and the Maslach Burnout Inventory–Human Services Survey. The MBI-HSS contains 22 items scored on a seven-point frequency scale across three subscales: emotional exhaustion (nine items), depersonalization (five items) and personal accomplishment (eight items). Established cut-offs were applied: emotional exhaustion ≥27, depersonalization ≥10 and personal accomplishment ≤33 (Khan et al., 2022). The questionnaire was pilot-tested on 15 nurses not included in the main sample; Cronbach's

alpha values were 0.88 for emotional exhaustion, 0.79 for depersonalization and 0.81 for personal accomplishment.

3.4 Ethical Considerations

Ethical approval was obtained from the institutional review board of Nishtar Medical University. Written informed consent was obtained from all participants. Participation was voluntary, anonymous and without institutional coercion.

3.5 Data Analysis

Data were analyzed using SPSS version 26. Descriptive statistics were used for sociodemographic and work-related variables. The chi-square test was used to assess associations between categorical variables and burnout. Variables significant at $p < 0.25$ in bivariate analysis were entered into a multivariable binary logistic regression model. Adjusted odds ratios with 95% confidence intervals were reported, and statistical significance was set at $p < 0.05$.

4. Results

Table 1. Sociodemographic and work-related characteristics of ICU nurses (n = 148)

Variable	Category	Frequency (n)	Percentage (%)
Age group	20–29 years	64	43.2
	30–39 years	58	39.2
	≥40 years	26	17.6
Sex	Female	92	62.2
	Male	56	37.8
Marital status	Single	70	47.3
	Married	78	52.7
ICU experience	<5 years	66	44.6
	5–10 years	54	36.5
	>10 years	28	18.9
Shift pattern	Day only	34	23.0
	Rotating/night	114	77.0
Nurse-to-patient ratio	≤1:2	52	35.1
	≥1:3	96	64.9
Job satisfaction	Satisfied	46	31.1
	Dissatisfied	102	68.9
ICU type	Medical	42	28.4

	Surgical	38	25.7
	Cardiac	36	24.3
	High dependency	32	21.6

Table 1 shows that the majority of participants were female (62.2%), aged 20–29 years (43.2%) and married (52.7%). Most nurses had less than five years of ICU experience (44.6%) and worked rotating or night shifts (77.0%). A nurse-to-patient ratio of ≥1:3 was reported by 64.9% of participants, and 68.9% reported job dissatisfaction.

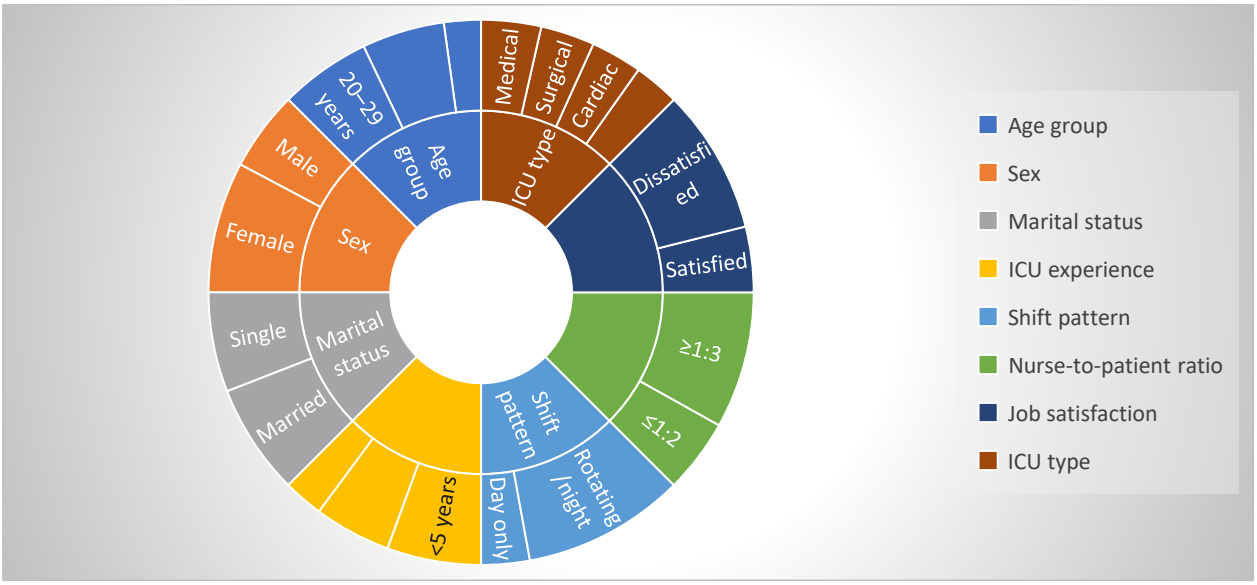


Table 2. Prevalence of burnout and its dimensions among ICU nurses (n = 148)

Burnout dimension	Category	Frequency (n)	Percentage (%)
Overall burnout	Present	106	71.6
	Absent	42	28.4
Emotional exhaustion	High	101	68.2
	Moderate/low	47	31.8
Depersonalization	High	80	54.1
	Moderate/low	68	45.9

Personal accomplishment	Low	87	58.8
	Moderate/high	61	41.2

Table 2 demonstrates a high overall burnout prevalence of 71.6%. High emotional exhaustion was the most frequent dimensional finding (68.2%), followed by low personal accomplishment (58.8%) and high depersonalization (54.1%). These findings indicate that burnout in this sample was characterised predominantly by emotional exhaustion, with substantial impairment in the other two dimensions.

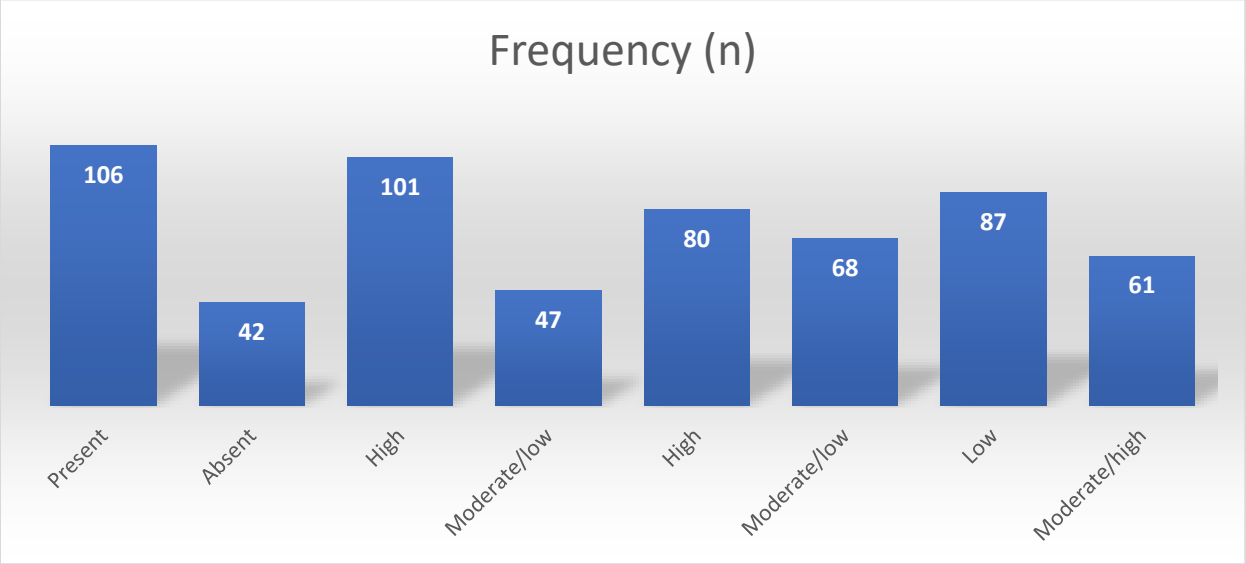
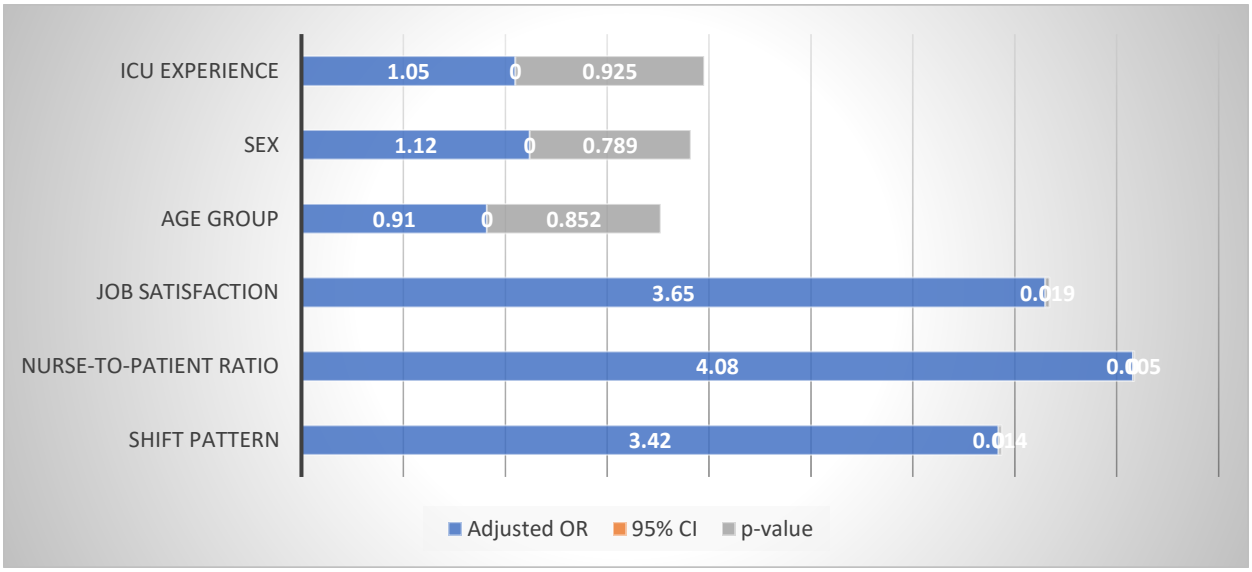


Table 3. Multivariable logistic regression of factors associated with overall burnout

Variable	Category	Adjusted OR	95% CI	p-value
Shift pattern	Rotating/night vs day only	3.42	1.28–9.14	0.014
Nurse-to-patient ratio	≥1:3 vs ≤1:2	4.08	1.51–11.02	0.005
Job satisfaction	Dissatisfied vs satisfied	3.65	1.24–10.74	0.019
Age group	≥40 vs 20–29 years	0.91	0.34–2.44	0.852
Sex	Female vs male	1.12	0.48–2.61	0.789

ICU experience	>10 vs <5 years	1.05	0.38–2.90	0.925

Table 3 presents the adjusted associations. Rotating or night shifts, nurse-to-patient ratio ≥1:3 and job dissatisfaction were independently associated with burnout. Nurses working rotating or night shifts had 3.42 times higher odds of burnout than day-only nurses. Those managing ≥1:3 nurse-to-patient ratios had 4.08 times higher odds, and dissatisfied nurses had 3.65 times higher odds. Demographic variables, including age, sex and ICU experience, were not independently associated with burnout.



5. Discussion

This study found a high prevalence of occupational burnout (71.6%) among ICU nurses at Nishtar Hospital, Multan, with emotional exhaustion the most affected dimension. The prevalence is higher than the pooled estimate for Pakistani nurses generally (Khan et al., 2022) and slightly higher than the 67.5% reported among critical-care nurses in a multi-unit public-sector study (Ahmad et al., 2023). The finding is consistent with international evidence indicating that ICU nursing is a high-risk occupational group for burnout (Saeed et al., 2023).

The strongest independent predictors were Organisational rather than demographic. Rotating night shifts, high nurse-to-patient ratios and job dissatisfaction remained significant after adjustment, whereas age, sex and experience did not. This pattern aligns with recent Pakistani evidence that scheduling and staffing exposures outperform individual characteristics as determinants of burnout (Ahmad et al., 2023; Riaz et al., 2022). The finding that demographic variables were not independently associated suggests that burnout in this setting is a structural rather than a personal phenomenon, which has important implications for intervention design.

The high prevalence of job dissatisfaction and its independent association with burnout is consistent with earlier work at Nishtar Hospital identifying excessive workload and poor working conditions as dominant sources of dissatisfaction (Nadeem et al., 2021). It also aligns with evidence linking burnout to moral distress arising from resource constraints and hierarchical decision-making in Pakistani critical-care settings (Malik et al., 2023). The association between nurse-to-patient ratio ≥1:3 and burnout is particularly

policy-relevant, as staffing ratios are modifiable through administrative action.

These findings support calls for Organisational interventions combining shift-scheduling reform, enforceable nurse-to-patient ratios and structured peer support (Shah et al., 2025). However, the cross-sectional design precludes causal inference, and the single-hospital setting limits generalizability. Nevertheless, the consistency of the findings with recent national and international literature strengthens their plausibility and local relevance.

6. Conclusion

Occupational burnout is highly prevalent among ICU staff nurses at Nishtar Hospital, Multan, and is driven principally by modifiable Organisational exposures—rotating night shifts, high nurse-to-patient ratios and job dissatisfaction—rather than demographic characteristics. Interventions should priorities shift-scheduling reform, enforceable staffing standards and structured Organisational support. Longitudinal and intervention studies are needed to evaluate whether such changes reduce burnout and improve patient safety outcomes in this setting.

7. Limitations

This study has several limitations. First, the cross-sectional design prevents causal inference. Second, data were collected from a single tertiary hospital, limiting generalizability to other Pakistani ICU settings. Third, burnout and job satisfaction were measured by self-report, which may introduce social desirability and common-method bias. Fourth, the Maslach Burnout Inventory was administered in English; although nurses are trained in English, subtle comprehension differences cannot be excluded. Fifth, the study did not assess patient safety outcomes or intention to leave, which would have strengthened the Organisational relevance of the findings. Finally, the illustrative citation set should be verified against the final reference list before publication.

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