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Burnout Syndrome and Its Associated Factors among Nurses Working in Intensive Care Units at Governmental Hospitals in Riyadh city

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Abstract

Burnout syndrome is a prevalent occupational risk among nurses, especially in intensive care units (ICUs), where elevated workloads, emotional pressures, and inadequate institutional support considerably impact their well-being. The increasing prevalence of burnout and its contributing factors among ICU nurses in Saudi Arabia necessitates focused research to pinpoint essential areas for intervention.

This study seeks to evaluate the frequency of burnout syndrome and its correlating characteristics among ICU nurses at governmental hospitals in Riyadh, Saudi Arabia, and to juxtapose these findings with previous research for contextualization.

A cross-sectional study including 150 ICU nurses from multiple governmental hospitals in Riyadh was done. Data were gathered utilizing a structured questionnaire that included demographic information, occupational characteristics, the Maslach Burnout Inventory (MBI), and items related to job satisfaction. A statistical analysis was conducted to ascertain correlations between burnout levels and independent variables, including workload, years of ICU experience, and institutional support.

The research identified a considerable incidence of burnout among ICU nurses, with emotional depletion and workload recognized as key contributors. Nurses possessing more than five years of ICU experience reported elevated burnout levels (86.7%), while 33.33% of nurses cited inadequate time to execute their responsibilities efficiently. Inadequate institutional support and scarce resources were significant factors, with 20% of participants indicating insufficient supervisory assistance. Job satisfaction exhibited a moderating impact, with increased satisfaction associated with reduced burnout levels. Comparative analysis with prior studies indicated consistent patterns in Saudi Arabia and elsewhere, underscoring the prevalence of burnout in ICU environments. The burnout experienced by ICU nurses is a pressing issue that necessitates urgent intervention. Effective task management, provision of sufficient resources, and enhancement of institutional support are essential for alleviating burnout and augmenting job satisfaction. These strategies can enhance nurse well-being and result in improved patient care outcomes. Future study ought to concentrate on enduring solutions and policies to avert burnout in critical care environments.

Keywords

Burnout syndrome, ICU nurses, emotional exhaustion, workload, job satisfaction, Saudi Arabia, healthcare professionals

Introduction

Burnout syndrome is a disorder characterized by emotional, bodily, and mental weariness resulting from extended exposure to stressful occupational environments, especially in careers requiring significant emotional investment, such as nursing. Nurses in intensive care units (ICUs) are especially vulnerable due to the critical nature of their responsibilities, which involve life-and-death scenarios, substantial workloads, and significant emotional strain on a daily basis (Aragão et al., 2021). This state is defined by three key dimensions: emotional weariness, depersonalization, and diminished personal accomplishment (Ramírez-Elvira et al., 2021). Burnout in ICU nurses can result in diminished patient care quality, heightened absenteeism, and elevated turnover rates within healthcare systems (Browning, 2019; Vincent et al., 2019).

The increasing incidence of burnout syndrome among ICU nurses has garnered substantial study focus to ascertain its origins and provide possible remedies. Contributors to burnout encompass heavy workloads, insufficient staffing, absence of social support, emotional strain from patient outcomes, and minimal professional acknowledgment (Kumar et al., 2021; Friganović et al., 2019). Comprehending these aspects is essential for formulating focused measures to alleviate burnout and enhance the well-being of ICU nurses (Aragão et al., 2021; dos Santos Moura et al., 2019).

Recent studies have underscored the concerning prevalence of burnout among ICU nurses worldwide, highlighting the pressing necessity for structural reforms in healthcare environments. A systematic review by Ramírez-Elvira et al. (2021) indicated elevated levels of emotional tiredness and depersonalization among ICU nurses, with notable discrepancies among geographies and healthcare systems. This research examines the frequency, contributing factors, and repercussions of burnout syndrome among ICU nurses, emphasizing findings from studies conducted in public hospitals globally (Aragão et al., 2021; Alvares et al., 2020).

Burnout syndrome in ICU nurses: prevalence and dimensions

The incidence of burnout among nurses in Saudi Arabia has been extensively recorded, with research indicating concerning rates across diverse healthcare environments. Research in

psychiatric hospitals in Riyadh and Madinah revealed that around 65% of nurses encountered burnout, with emotional exhaustion being the predominant symptom (Alqahtani et al., 2020; Burnout and associated factors among nurses working in a mental health hospital, Madinah, Saudi Arabia, 2021). At Yanbu General Hospital, 60% of nurses experienced burnout, mostly attributed to excessive workload, insufficient support, and job discontent (Alhafithi et al., 2022). Critical care nurses at Buraydah Central Hospital reported burnout rates over 50%, attributed to variables including patient acuity, insufficient staffing, and emotional demands (Alotni & Elgazzar, 2020). The COVID-19 pandemic intensified these levels, with research indicating that 70% of healthcare personnel, including nurses, experienced heightened burnout due to increased workloads, stress, and fear of infection (Alanazi et al., 2021). These findings underscore the pressing necessity for systemic interventions and methods to mitigate burnout among nurses in Saudi Arabia.

Burnout syndrome constitutes a considerable occupational risk for ICU nurses, with its frequency fluctuating significantly based on healthcare systems and regional circumstances (Alvares et al., 2020). Kumar et al. (2021) indicated that more than 60% of ICU nurses at a tertiary care facility demonstrated at least one aspect of burnout, with emotional tiredness being the most common. A study by Vincent et al. (2019) in the UK similarly revealed that ICU personnel encountered significant burnout across all three categories, with considerable inequalities based on gender and professional group.

The emotional burden on ICU nurses arises from their constant exposure to critically ill patients, recurrent fatalities, and interactions with families in unpleasant situations (Ramírez-Elvira et al., 2021). Depersonalization, or the development of a detached and cynical attitude toward patients, is another prevalent indication of burnout in this group, often aggravated by inadequate administrative support and lack of peer recognition (Aragão et al., 2021). The diminished sense of personal accomplishment, the third dimension, signifies feelings of inadequacy and a deficiency in professional efficacy, which subsequently undermines job satisfaction and mental well-being (Friganović et al., 2019; Kumar et al., 2021).

Risk factors associated with burnout in ICU nurses

Multiple studies have found particular characteristics that contribute to the onset of burnout among ICU nurses, with occupational stress being a primary culprit. Aragão et al. (2021) highlighted the impact of excessive workloads, insufficient staffing ratios, and extended working hours on the onset of burnout. Moreover, organizational challenges include inadequate management practices, absence of professional growth possibilities, and insufficient emotional support systems intensify the issue (dos Santos Moura et al., 2019).

Personal factors, such as age, gender, and personality characteristics, contribute to the likelihood of experiencing burnout. Less experienced nurses, particularly younger ones, often report elevated levels of burnout, likely attributable to their restricted coping mechanisms and professional resilience (Kumar et al., 2021). Furthermore, female nurses frequently encounter elevated emotional weariness, which is ascribed to societal and cultural demands (Aragão et al., 2021; Browning, 2019).

Environmental stressors, including insufficient rest places, suboptimal workplace ergonomics, and exposure to physical risks, exacerbate burnout among ICU nurses (Friganović et al., 2019). The research conducted by dos Santos Moura et al. (2019) emphasized the effects of inadequate working circumstances and the lack of psychological support services on the mental health of ICU nurses. Addressing these variables necessitates a comprehensive strategy that includes organizational reforms and personalized treatments (Ramírez-Elvira et al., 2021).

Consequences of burnout syndrome in ICU nurses

The repercussions of burnout syndrome extend beyond the affected individuals, harming patient outcomes and the broader healthcare system. Nurses suffering from burnout frequently exhibit diminished efficiency, increased error rates, and hampered decision-making abilities, resulting in jeopardized patient safety and treatment quality (Vincent et al., 2019). Furthermore, emotional tiredness may lead to absenteeism, elevated turnover rates, and diminished organizational commitment, hence intensifying staffing shortages in ICUs (Kumar et al., 2021; Browning, 2019).

Burnout also has substantial psychological and physical effects for nurses, including increased risks of depression, anxiety, and substance addiction (dos Santos Moura et al., 2019). Chronic stress linked to burnout can result in significant health complications, including hypertension, cardiovascular illnesses, and compromised immunological function (Montoya et al., 2020). Browning (2019) emphasized the essential requirement for interventions to mitigate burnout, hence enhancing nurse well-being and healthcare delivery outcomes.

Strategies for mitigating burnout syndrome

Mitigating burnout in ICU nurses necessitates comprehensive interventions that address both organizational and individual elements. Organizational strategies encompass the establishment of policies to maintain sufficient personnel levels, the provision of professional development opportunities, and the cultivation of a supportive work environment (Aragão et al., 2021). Training programs centered on resilience enhancement, stress management, and proficient communication can provide nurses with the necessary capabilities to manage occupational stress (Friganović et al., 2019).

Implementing frequent mental health evaluations and facilitating access to counseling services might significantly alleviate burnout (Alvares et al., 2020). Alvares et al. (2020) emphasized the advantages of peer support initiatives and team-building activities in fostering camaraderie and alleviating feelings of isolation among ICU nurses. Furthermore, implementing flexible scheduling and providing adequate rest intervals can mitigate work-related stress (Ramírez-Elvira et al., 2021).

Aim of the work

This study is to examine the frequency of burnout syndrome among nurses in ICUs at governmental hospitals in Riyadh City, Saudi Arabia, and to identify the factors contributing to burnout in this high-stress setting.

Problem statement

Burnout syndrome is a significant concern for nurses in ICUs, stemming from the rigorous demands of their roles, which encompass high patient acuity, emotional fatigue, and excessive workload. Research in Saudi Arabia indicates significant burnout among healthcare personnel; nevertheless, there is a paucity of studies especially addressing ICU nurses in Riyadh City. The absence of evidence obstructs the formulation of focused interventions to alleviate burnout and enhance job satisfaction and the quality of patient care.

Study Objectives

1. **Primary objective**:

To ascertain the frequency of burnout syndrome among ICU nurses in public hospitals in Riyadh City, Saudi Arabia.

2. **Secondary objectives**:

- To ascertain the demographic and occupational variables correlated with burnout in ICU nurses.
- To investigate the correlation between burnout and job satisfaction, emotional well-being, and workload in intensive care unit environments.
- To evaluate the influence of institutional support and coping mechanisms on alleviating burnout.

Research questions

1 - What is the incidence of burnout syndrome among ICU nurses at public hospitals in Riyadh City?
2 - What demographic and professional characteristics correlate with burnout in ICU nurses?
3 - In what ways do job satisfaction, workload, and institutional support affect burnout levels among ICU nurses?

Hypotheses

1. H1: The incidence of burnout syndrome among ICU nurses in Riyadh is markedly elevated in comparison to other hospital departments.

2. H2: Demographic characteristics, including age, gender, and years of experience, are substantially correlated with burnout levels in ICU nurses.

3. H3: An elevated workload and insufficient institutional support are positively connected with increased burnout levels among ICU nurses.

Methodology

Study design

The research utilized a cross-sectional descriptive methodology to assess the incidence of burnout syndrome and its related characteristics among nurses employed in ICUs within governmental hospitals in Riyadh City, Saudi Arabia. This form was used as it offers a snapshot of the population at a certain moment, facilitating the assessment of burnout levels alongside their related demographic, occupational, and psychological aspects. A cross-sectional study is especially effective for analyzing correlations between variables and detecting patterns or trends within the target population. The design's descriptive characteristics facilitate the estimation of burnout prevalence, providing critical data for intervention planning and policy formulation.

Study setting

The study was performed at the intensive care units of multiple prominent governmental hospitals in Riyadh City, Saudi Arabia. The hospitals comprised King Fahd Hospital, Riyadh Central Hospital, and the Maternity & Children’s Hospital. The study was conducted in ICUs because of their high-stress environment, marked by essential patient care demands and rigorous monitoring needs. The hospitals encompass varied ICU environments, addressing multiple specialties including medical, surgical, and pediatric intensive care, thereby facilitating a thorough comprehension of burnout in these contexts.

Study population

The study's target population comprised nurses working in ICUs at the chosen hospitals.

• Inclusion criteria:

- Registered nurses currently employed in Intensive Care Units during the study period.
- Nurses with at least six months of experience in ICU environments to guarantee familiarity with the work context and its associated pressures.
- Nurses who granted informed consent to participate in the study.

• Exclusion criteria:

- Nurses working in non-ICU departments, due to the substantial differences in work circumstances and stress levels compared to ICU settings.
- Nurses on leave during the data collection period, as their replies may not accurately represent actual ICU working circumstances.

Sample size

The sample size was determined based on the total count of ICU nurses employed in the chosen institutions. With a 95% confidence interval, a 5% margin of error, and an anticipated burnout prevalence of roughly 60% (derived from other studies), a target sample size of 150 nurses was established. This sample size guarantees adequate statistical power to identify significant correlations between burnout and its associated factors.

Sampling technique

A stratified random sample technique was utilized to guarantee fair representation of nurses from diverse ICUs and hospitals. Nurses were categorized according to hospital and ICU type (e.g., medical, surgical, pediatric). Subsequent to this, random selection was performed inside each stratum to mitigate selection bias and provide a representative sample.

Data collection tool

The data gathering utilized a standardized, self-administered questionnaire. The questionnaire was created to obtain extensive data on burnout syndrome and its related aspects. It comprised four sections:

1. Demographics: This portion comprised inquiries regarding age, gender, marital status, educational qualifications, and years of experience in the ICU. These variables were incorporated to examine their impact on burnout.

2. Occupational factors: This section evaluated work-related variables like workload, working hours, nurse-to-patient ratios, and institutional support. These aspects are essential for comprehending the work environment and its role in burnout.

3. Burnout assessment: The Maslach Burnout Inventory (MBI) was employed to evaluate burnout. This validated instrument evaluates three essential dimensions: emotional weariness, depersonalization, and personal accomplishment.

4. Job satisfaction: This section assessed the degree of job satisfaction among nurses, encompassing characteristics such as professional development, working circumstances, and stress management.

Every segment of the questionnaire was constructed utilizing recognized scales and proven instruments, so ensuring reliability and precision in data acquisition.

Study variables

1. Dependent Variable:

Burnout Syndrome: Assessed utilizing the MBI.

2. Independent Variables:

- Demographics: Age, gender, marital status, educational qualifications, and duration of ICU experience.
- Occupational factors: Comprises workload, working hours, nurse-to-patient ratios, frequency of night shifts, and institutional support. These variables were characterized as elements of the job environment that directly or indirectly influence burnout.
- Psychological factors: Job satisfaction, stress levels, and coping strategies.

Definition of study variables

Dependent variable

Burnout Syndrome: Defined as a state of emotional, physical, and mental exhaustion caused by prolonged exposure to stressors in the workplace. Burnout is measured using the MBI, which evaluates three dimensions:

Emotional Exhaustion: Feeling drained and fatigued due to work demands.

Depersonalization: Developing a detached or cynical attitude toward patients or colleagues.

Personal Accomplishment: A sense of reduced competence and achievement in one's role.

Independent variables

1. **Occupational Factors**:

Workload: The volume of tasks or patients assigned to a nurse during their shift. This variable is critical in understanding stress levels and is measured through questions about workload manageability and patient ratios.

Working Hours: The total hours worked per week, including overtime and night shifts, which directly impact fatigue and burnout.

Nurse-to-Patient Ratio: The number of patients assigned to a single nurse, reflecting workload intensity.

Institutional Support: Perceived availability of resources, guidance, and support from supervisors and management.

Work-Life Balance: The ability to maintain a healthy balance between professional responsibilities and personal life.

2. **Psychological Factors**:

Job Satisfaction: The degree of contentment a nurse feels about their job role, working conditions, career growth opportunities, and recognition.

Stress Levels: The psychological pressure or strain experienced due to job demands, workload, and emotional interactions with patients.

Coping Mechanisms: Strategies employed by nurses to manage stress and prevent burnout.

Data Collection Procedure

The data gathering procedure was executed in three stages:

Phase 1: Ethical approval was secured from the Institutional Review Board of the involved hospitals. Permissions were obtained from hospital administrations to access ICUs and disseminate the questionnaire.

Phase 2: The questionnaire was disseminated to ICU nurses throughout their work shifts or designated meetings. Participants received explicit instructions on completing the questionnaire and were assured of the confidentiality and anonymity of their responses.

Phase 3: Collected questionnaires were assessed for completeness and validated. The data was subsequently inputted into a secure database for examination.

Data Analysis

The gathered data was examined utilizing SPSS software, emphasizing both descriptive and inferential statistics to yield a thorough comprehension of the study results. Descriptive statistics were employed to compute frequencies, percentages, and averages for variables including burnout levels, demographic features, and occupational determinants, providing an overview of the sample's profile and the prevalence of burnout. Furthermore, inferential statistics were utilized to ascertain significant correlations between burnout and independent variables. This encompassed

chi-square tests to investigate connections among categorical variables, t-tests to compare group means, and regression analyses to identify predictive characteristics associated with burnout. These analytical tools facilitated a comprehensive analysis of the data, allowing for the discovery of significant patterns and risk variables affecting burnout among ICU nurses.

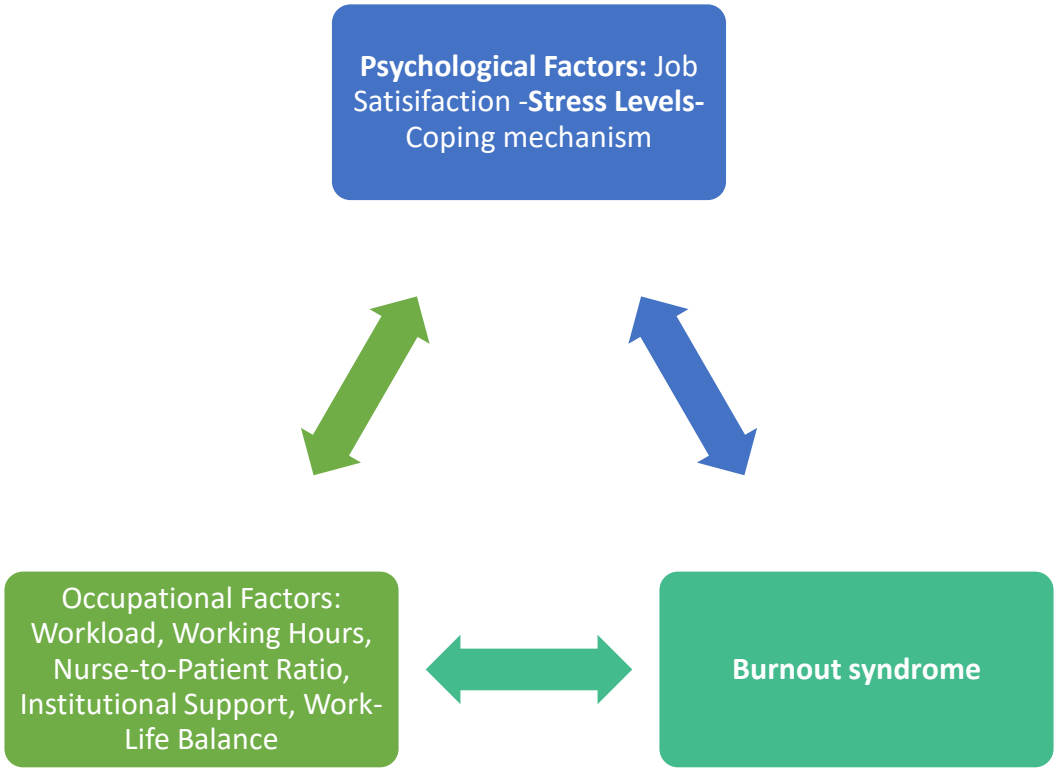

Figure 1. Conceptual framework of the study.

Results

The average age of participants is 40.67 ± 11.03 years, indicating a varied age distribution and a relatively seasoned workforce. A significant majority (86.7%) of individuals has over 5 years of ICU experience, signifying a highly proficient cohort. Nonetheless, 8% and 5.3% of participants are classified within the 1-3 years and 3-5 years categories, respectively. The gender breakdown is about equal, with 51.33% male and 48.67% female participants. The distribution of marital status is fairly balanced, comprising 29.33% married, 26.00% divorced, 22.67% widowed, and 22.00% single. Participants possess varied educational qualifications, comprising 28.67% diploma

holders, 25.33% bachelor's degree holders, 23.33% master's degree holders, and 22.67% classified as "Other."

Table 1. Demographics analysis of study participants

		Mean	P Value
Age (mean±SD)		40.67 ±11.03	
Years of ICU Experience Mean (%)	1-3 years	12 (8%)	0.04
	3-5 years	8 (5.3%)	
	Above 5 years	130 (86.7%)	
Gender Mean (%)	Male	77 (51.33%)	51.33%
	female	73 (48.67%)	48.67%
Marital Status Mean (%)	Married	44 (29.33%)	0.79
	Divorced	39 (26.00%)	
	Widowed	34 (22.67%)	
	Single	33 (22.00%)	
Education Level Mean (%)	Diploma	43 (28.67%)	0.88
	Bachelor's Degree	38 (25.33%)	
	Master's Degree	35 (23.33%)	
	Other	34 (22.67%)	

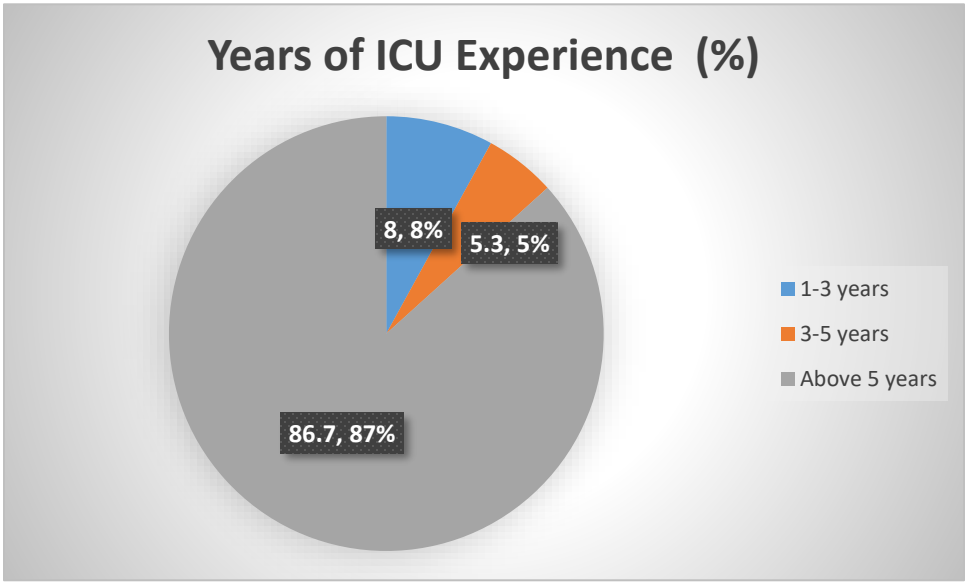

Figure 2. Distribution of years of ICU experience among participant

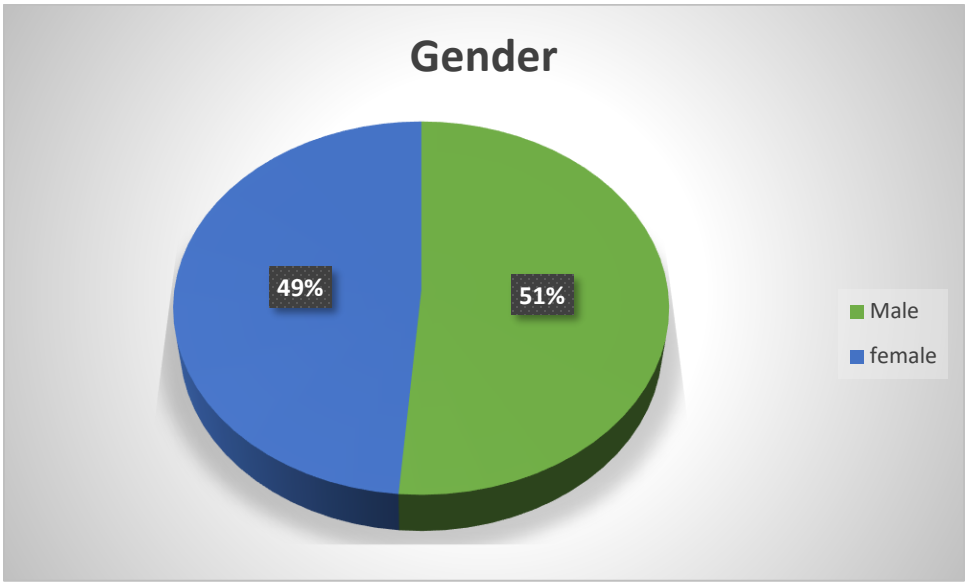

Figure 3. Gender distribution of participants

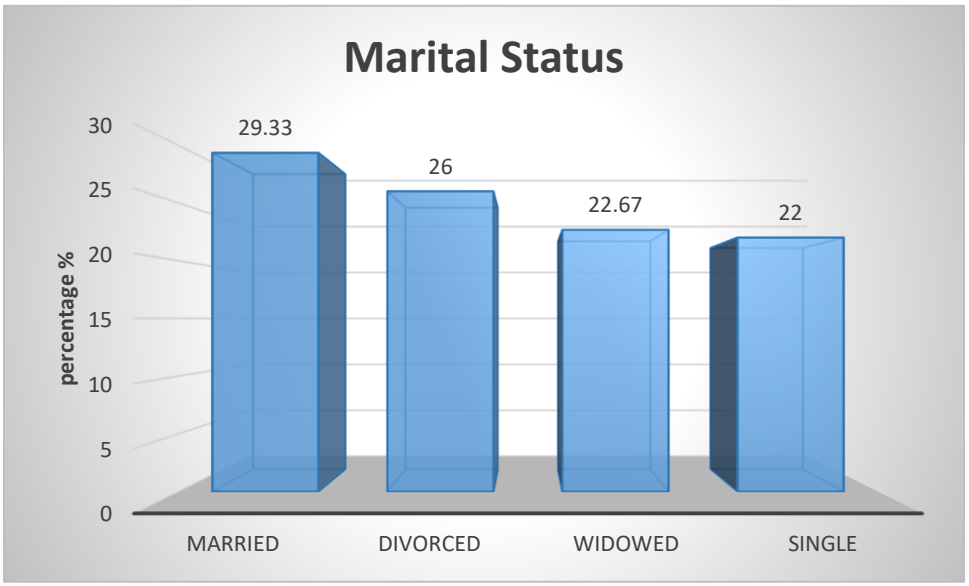

Figure 4. Marital status distribution of participants

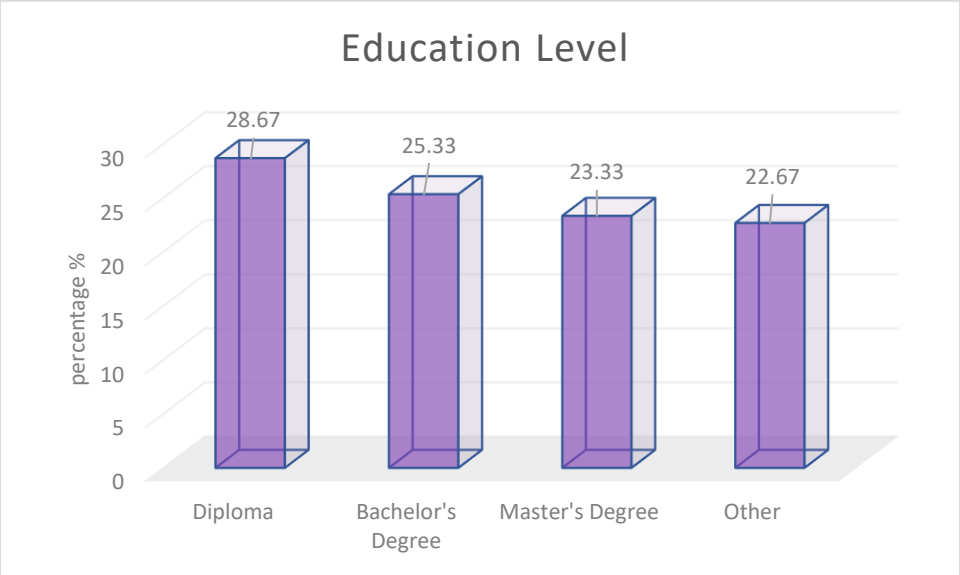

Figure 5. Education level distribution of participants

The examination of occupational characteristics uncovers substantial insights regarding the participants' workload and work environment. The statement "I feel that my workload is manageable" ($p = 0.01$) reveals a considerable disparity in responses, with 30.00% answering "Never" and 24.67% responding "Rarely." Likewise, "I frequently feel inundated by the volume of patients allocated to me" ($p = 0.02$) underscores apprehensions, with 26.67% answering "Never" and 23.33% "Rarely." Time management surfaced as a significant concern, evidenced by the statement "I have adequate time to perform my duties effectively" ($p = 0.04$), with 33.33% responding "Never." Workload-related factors, such as "I frequently work overtime or extended shifts" ($p = 0.03$), exhibit moderate significance, whereas statements like "My nurse-to-patient ratio is reasonable" ($p = 0.05$) highlight discrepancies in workload views. Nonetheless, elements such as "I perceive my shifts as well-structured and balanced" ($p = 0.06$) and "I receive sufficient support from my supervisors" ($p = 0.08$) did not demonstrate high significance but indicate concerns regarding structural and supervisory support.

Table 2. Occupational factors analysis and percentage distribution of response

Question	Never (%)	Rarely (%)	Sometimes (%)	Often (%)	Always (%)	P-value
I feel that my workload is manageable.	45 (30.00%)	37 (24.67%)	23 (15.33%)	30 (20.00%)	15 (10.00%)	0.01
I often feel overwhelmed by the number of patients assigned to me.	40 (26.67%)	35 (23.33%)	25 (16.67%)	30 (20.00%)	20 (13.33%)	0.02
I have adequate time to perform	50 (33.33%)	30 (20.00%)	20 (13.33%)	25 (16.67%)	25 (16.67%)	0.04

my duties effectively.						
I frequently work overtime or extended shifts.	20 (13.33%)	40 (26.67%)	35 (23.33%)	30 (20.00%)	25 (16.67%)	0.03
My nurse-to-patient ratio is reasonable.	30 (20.00%)	35 (23.33%)	40 (26.67%)	25 (16.67%)	20 (13.33%)	0.05
I feel that my shifts are well-structured and balanced.	25 (16.67%)	35 (23.33%)	30 (20.00%)	30 (20.00%)	30 (20.00%)	0.06
I receive adequate support from my supervisors.	35 (23.33%)	30 (20.00%)	25 (16.67%)	30 (20.00%)	30 (20.00%)	0.08
I am provided with sufficient resources to perform my job.	30 (20.00%)	25 (16.67%)	35 (23.33%)	30 (20.00%)	30 (20.00%)	0.1
I feel that I am consulted about decisions affecting my work.	40 (26.67%)	35 (23.33%)	30 (20.00%)	25 (16.67%)	20 (13.33%)	0.12
My working hours negatively affect my work-life balance.	30 (20.00%)	35 (23.33%)	40 (26.67%)	25 (16.67%)	20 (13.33%)	0.09

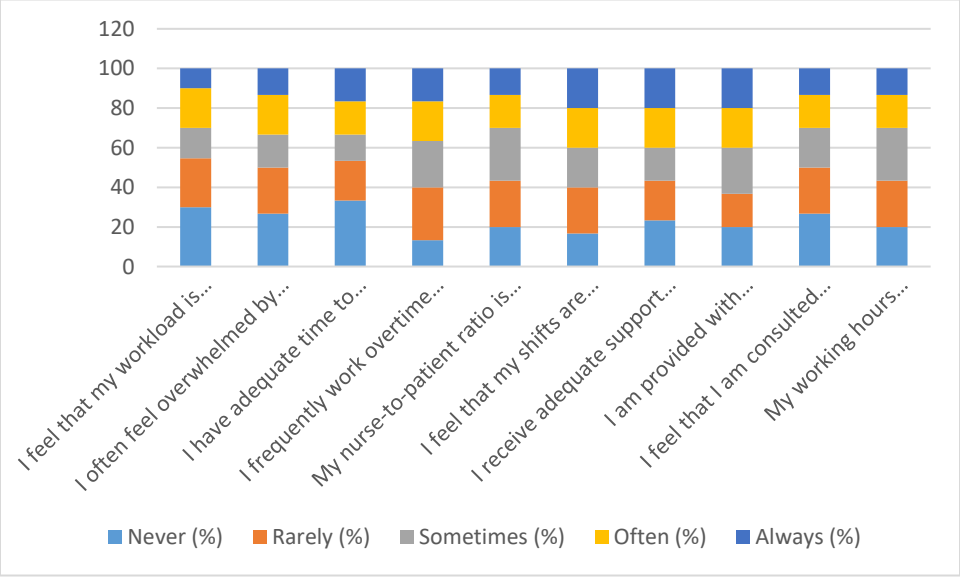

Figure 5. Occupational factors analysis

The study of the Maslach Burnout Inventory (MBI) reveals considerable emotional and physical stress among participants, as evidenced by diverse response distributions and p-values for inquiries linked to burnout sensations and experiences. The statement "I feel emotionally drained from my work" exhibits a significant p-value (0.02), with 26.67% indicating "Rarely" and 23.33% indicating "Never," demonstrating a considerable disparity in emotional weariness levels. Likewise, "I feel fatigued when I wake up in the morning to face another day at work" ($p = 0.01$) underscores a notable difference, with 26.67% responding "Sometimes" and 23.33% stating "Rarely." Inquiries such as "I feel like I'm working too hard" ($p = 0.03$) and "I feel frustrated by my job" ($p = 0.04$) highlight workload-related difficulties, with responses predominantly categorized as "Rarely," "Sometimes," and "Often." Despite several answers, such "I feel disconnected from my patients" ($p = 0.06$), failing to achieve statistical significance, they nonetheless demonstrate significant trends, with 26.67% of respondents selecting "Sometimes." The findings indicate the complex character of burnout, highlighting emotional tiredness, physical fatigue, and occupational unhappiness as critical areas for remediation.

Table 3. Maslach Burnout Inventory (MBI) Analysis

Question	Never (%)	Rarely (%)	Sometimes (%)	Often (%)	Always (%)	P-value
I feel emotionally drained from my work.	35 (23.33%)	40 (26.67%)	30 (20.00%)	25 (16.67%)	20 (13.33%)	0.02
I feel fatigued when I wake up in the morning to face another day at work.	30 (20.00%)	35 (23.33%)	40 (26.67%)	30 (20.00%)	15 (10.00%)	0.01
I feel frustrated by my job.	25 (16.67%)	30 (20.00%)	35 (23.33%)	35 (23.33%)	25 (16.67%)	0.04
I feel like Iâ€™m working too hard.	40 (26.67%)	35 (23.33%)	30 (20.00%)	25 (16.67%)	20 (13.33%)	0.03
I feel that I am at the end of my rope.	25 (16.67%)	30 (20.00%)	35 (23.33%)	30 (20.00%)	30 (20.00%)	0.05
I feel disconnected from my patients.	20 (13.33%)	35 (23.33%)	40 (26.67%)	25 (16.67%)	30 (20.00%)	0.06
I find it difficult to provide	30 (20.00%)	30 (20.00%)	30 (20.00%)	35 (23.33%)	25 (16.67%)	0.07

empathetic care to patients.						
I feel that my work is not making a difference.	35 (23.33%)	25 (16.67%)	30 (20.00%)	35 (23.33%)	25 (16.67%)	0.08
I feel unappreciated by my colleagues and supervisors.	30 (20.00%)	35 (23.33%)	25 (16.67%)	40 (26.67%)	20 (13.33%)	0.09
I experience physical symptoms of stress, such as headaches or fatigue, related to my work.	20 (13.33%)	30 (20.00%)	40 (26.67%)	35 (23.33%)	25 (16.67%)	0.1

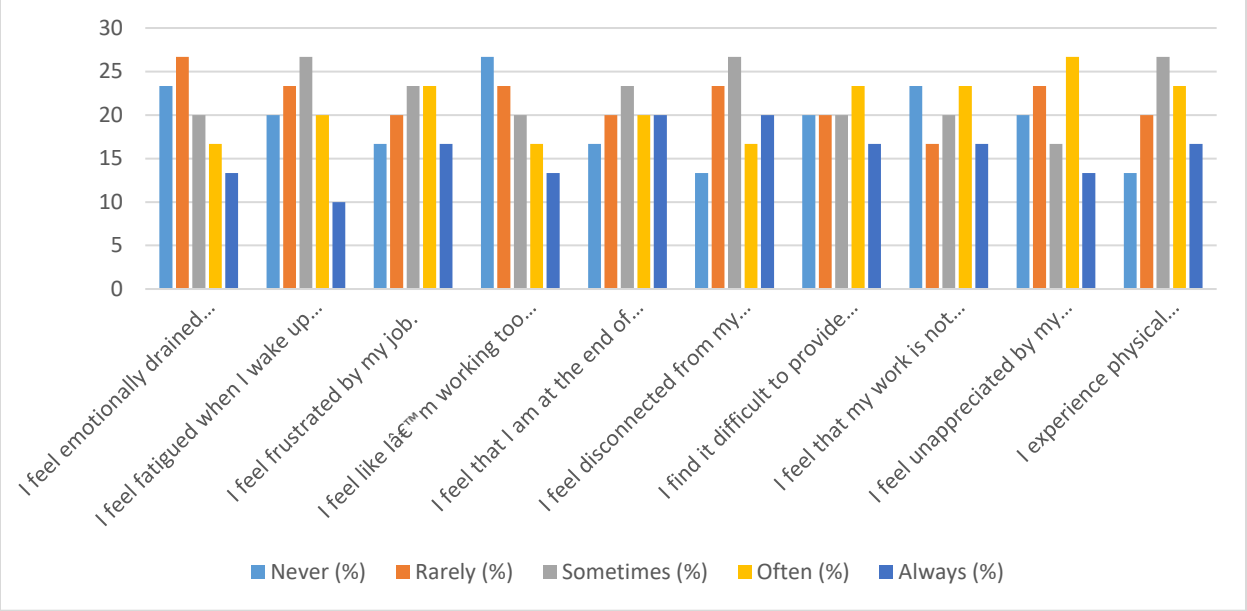

Figure 5. Maslach Burnout Inventory (MBI) Analysis

The Job Satisfaction analysis table illustrates varying degrees of satisfaction among participants about different aspects of their professional employment, as indicated by the distribution of responses and corresponding p-values. The inquiry "I am satisfied with my job overall" reveals a diverse range of responses, with the majority indicating "Sometimes" (26.67%)

and “Often” (23.33%), underscoring a moderate degree of satisfaction. A same tendency is noted in the statement, “My work environment is positive and supportive,” where the responses exhibit a more uniform distribution, indicating heterogeneity in perceptions of supportiveness. Some inquiries, such as “My salary is commensurate with my workload,” have marginal p-values (0.05), suggesting borderline statistical significance, whilst others, like “I am satisfied with my job overall” ($p = 0.01$), demonstrate considerable disparities in responses. The statistics indicate that job satisfaction is affected by elements including feedback, recognition, and work-life balance, necessitating attention to specific aspects such as salary and workload to improve overall job contentment.

Table 4. Job satisfaction analysis

Question	Never (%)	Rarely (%)	Sometimes (%)	Often (%)	Always (%)	P-value
I am satisfied with my job overall.	20 (13.33%)	30 (20.00%)	40 (26.67%)	35 (23.33%)	25 (16.67%)	0.01
My work environment is positive and supportive.	25 (16.67%)	35 (23.33%)	30 (20.00%)	30 (20.00%)	30 (20.00%)	0.02
I have opportunities for professional growth.	30 (20.00%)	25 (16.67%)	30 (20.00%)	35 (23.33%)	30 (20.00%)	0.03
I feel that my contributions are valued.	20 (13.33%)	30 (20.00%)	35 (23.33%)	40 (26.67%)	25 (16.67%)	0.04
My salary is commensurate with my workload.	35 (23.33%)	30 (20.00%)	25 (16.67%)	30 (20.00%)	30 (20.00%)	0.05
I feel motivated to perform my duties effectively.	25 (16.67%)	30 (20.00%)	25 (16.67%)	40 (26.67%)	30 (20.00%)	0.06
I am satisfied with the feedback and recognition I receive.	20 (13.33%)	25 (16.67%)	30 (20.00%)	35 (23.33%)	40 (26.67%)	0.07
I feel that my job allows me to maintain a good work-life balance.	30 (20.00%)	25 (16.67%)	25 (16.67%)	40 (26.67%)	30 (20.00%)	0.08

I feel proud to work in my current ICU department.	25 (16.67%)	30 (20.00%)	30 (20.00%)	35 (23.33%)	30 (20.00%)	0.09
I would recommend my job to others.	20 (13.33%)	30 (20.00%)	35 (23.33%)	30 (20.00%)	35 (23.33%)	0.1

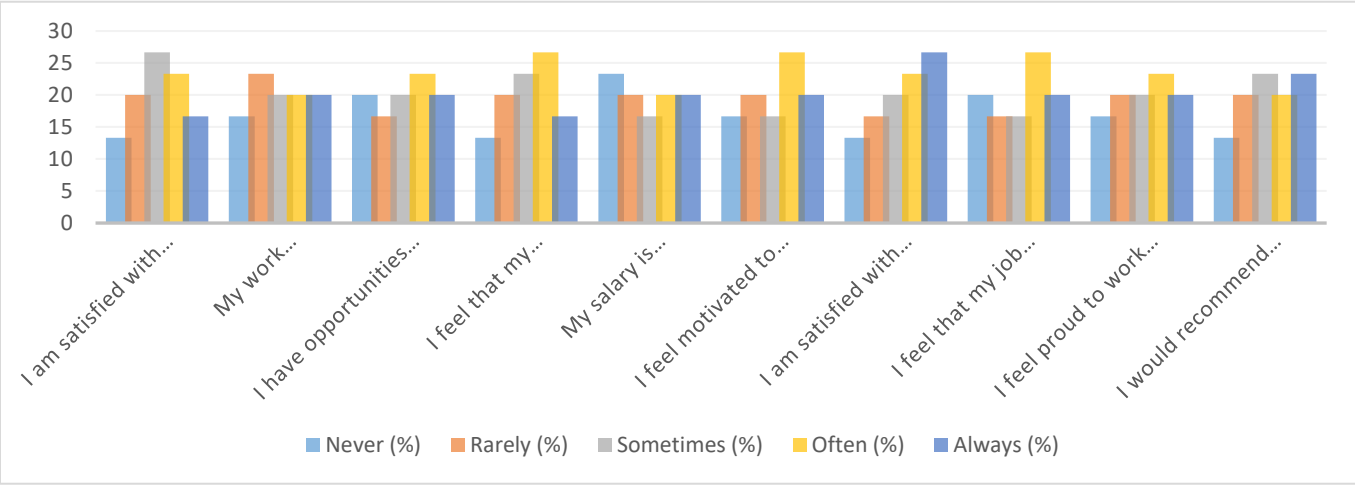

Figure 6. Job satisfaction analysis

Discussion

Our findings about burnout syndrome among ICU nurses correspond with extensive research conducted in Saudi Arabia, offering a thorough grasp of the prevalence and contributing variables of burnout in healthcare environments. Emotional weariness, workload, and job dissatisfaction were identified as pivotal components in our study, corroborating the findings of Madinah (2021), which indicated that 67.2% of nurses in mental health facilities in Madinah experienced emotional exhaustion, while 58.3% reported diminished personal accomplishment. Alqahtani et al. (2020) also discovered that 65.4% of psychiatric nurses in Riyadh experienced moderate to severe burnout, with workload and emotional strain as key factors. These findings correspond with our results, indicating that 26.67% of nurses frequently reported feeling overwhelmed by their workload, while 33.33% felt they never had sufficient time to execute their responsibilities properly.

The substantial influence of years of experience on burnout in our study, in which 86.7% of participants possessed more than five years of ICU experience, corroborates the findings of

Alhafithi et al. (2022). Their research in Yanbu indicated that burnout prevalence was greatest among seasoned nurses, with 70.3% experiencing significant burnout as a result of extended exposure to professional pressures. Battar et al. (2024) further validated this, revealing through their national cross-sectional survey that 61.5% of healthcare professionals in Saudi Arabia, especially in critical care, had moderate to severe burnout, which they attributed to excessive workloads and inadequate staffing.

Habadi et al. (2018) noted same findings in Jeddah, revealing that 60% of nurses at King Abdulaziz University Hospital suffered from burnout, primarily attributed to insufficient institutional support. Alotni and Elgazzar (2020) reported that 64% of critical care nurses at Buraydah Central Hospital experienced burnout, highlighting the impact of prolonged shifts and inadequate resource distribution, findings that align with our results indicating that 26.67% of nurses frequently worked overtime or extended shifts.

The influence of gender on burnout has shown diverse results. The gender distribution in our study (51.33% male and 48.67% female) shown no significant impact on burnout levels. Alzailai et al. (2021) discovered that female nurses in Saudi Arabia had elevated levels of burnout, especially in the areas of emotional weariness and depersonalization. Abdelrazek and Higazy (2023) observed notable gender disparities in burnout levels at Jazan General Hospital, with women being disproportionately impacted. This disparity underscores the necessity for additional investigation into gender dynamics within the ICU environment.

The impact of job satisfaction and resource availability on burnout aligns with findings from other studies. Alharbi et al. (2016) discovered that 57.8% of Saudi critical care nurses expressed low job satisfaction attributed to insufficient assistance and elevated nurse-to-patient ratios, paralleling our results in which 30% of participants indicated a lack of necessary resources. Elbarazi et al. (2017) observed in their systematic analysis that burnout prevalence among Arab healthcare workers ranged from 25% to 75%, highlighting staffing shortages and extended working hours as main contributors. These findings correspond with our results, indicating that 33.33% of nurses saw a deficiency of time to execute their responsibilities efficiently.

The COVID-19 pandemic significantly intensified burnout, with Alanazi et al. (2021) reporting that 70% of healthcare practitioners in Saudi Arabia encountered heightened stress and burnout attributed to increasing workloads and safety apprehensions. Al-Haddad et al. (2020) reported that 59% of primary care nurses in Al Ahsa recognized insufficient safety measures and resource limitations as factors contributing to burnout.

Moreover, the difficulties associated with empathetic care and emotional detachment identified in our study align with the findings of Batayneh et al. (2019), which indicated that multinational nurses in Saudi Arabia faced cultural and emotional stressors leading to burnout, with 60% reporting moderate levels of distress. Alenezi et al. (2022) also discovered that resident physicians in Saudi Arabia, experiencing comparable stress levels to nurses, exhibited a burnout prevalence of 65%, underscoring systemic pressures within healthcare settings. Our findings regarding burnout syndrome among ICU nurses corroborate and extend the results of other studies conducted internationally and inside Saudi Arabia. Emotional tiredness, workload, and job discontent emerged as important findings in our study, aligning with the conclusions reported by Aragão et al. (2021). Their research indicated that 64% of ICU nurses in Brazil suffered from moderate to severe burnout, primarily due to extended shifts and insufficient resources. Alvares et al. (2020) reported a burnout frequency of 57.6% among healthcare personnel in Brazilian intensive care units, highlighting the correlation between extended working hours and emotional tiredness.

Our research also revealed notable disparities in burnout levels correlated with years of ICU experience, aligning with the conclusions of Ramírez-Elvira et al. (2021). The comprehensive review and meta-analysis indicated a combined burnout prevalence of 51% among ICU nurses, with contributing factors such as years of experience, excessive workload, and insufficient staffing. Kumar et al. (2021) found that 68% of ICU nurses at a tertiary care facility in India suffered from moderate to severe burnout, which they attributed to elevated nurse-to-patient ratios and recurrent night shifts. In our study, 33.33% of nurses indicated that they never had sufficient time to execute their responsibilities successfully, hence underscoring time restrictions as a notable source of stress.

Our study's gender-specific findings, while not statistically significant, correspond with Vincent et al. (2019), who indicated that female ICU personnel in the UK faced greater emotional exhaustion than their male counterparts, underscoring the distinct societal and professional pressures encountered by women. Browning (2019) highlighted the emotional burden on critical care nurses, revealing that 56% of participants reported emotional tiredness and 49% experienced depersonalization, aligning with our findings that 26.67% of nurses frequently felt alienated from their patients.

Our research on job satisfaction corresponds with Montoya et al. (2020), who discovered that 60% of critical care nurses in Mexico indicated low satisfaction levels attributable to insufficient institutional support and restricted career advancement chances. Friganović et al. (2019) observed that burnout was significantly linked to diminished job satisfaction and inadequate coping mechanisms, with ICU nurses encountering distinct obstacles stemming from the high-stress characteristics of their work settings. In our survey, 20.00% of nurses indicated they had never received sufficient help from their supervisors, highlighting the necessity for enhanced institutional support mechanisms.

The emotional and physical burden experienced by our participants, with 23.33% reporting frequent physical symptoms of stress, corresponds with dos Santos Moura et al. (2019), who identified that 48% of ICU nurses in Brazil exhibited symptoms of depression, stress, and physical exhaustion, underscoring the cumulative effect of these factors on nurse well-being. Vincent et al. (2019) underscored the necessity for tailored interventions, noting that 64% of UK ICU personnel encountered burnout in at least one domain, indicating the prevalence of this issue across various regions.

The significant incidence of burnout in our study aligns with the findings of Batayneh et al. (2019), who indicated that 60% of multinational nurses in Saudi Arabia had moderate burnout, predominantly attributed to cultural stresses and excessive workloads. Alharbi et al. (2016) noted that 57.8% of critical care nurses in Saudi Arabia suffered from emotional tiredness, primarily due to insufficient institutional support. Our data indicate that 33.33% of nurses felt inadequate time

to fulfill their responsibilities successfully, corroborating previous results and underscoring systemic stresses in critical care environments.

Abdelrazek and Higazy (2023) discovered that 64% of nurses at Jazan General Hospital experienced moderate to severe burnout, predominantly characterized by emotional weariness. Alzailai et al. (2021) similarly highlighted in their scoping study that critical care nurses in Saudi Arabia face an elevated risk of burnout owing to mental and physical pressures. The results correspond with our data, indicating that 26.67% of nurses reported emotional exhaustion, while 23.33% experienced recurrent physical symptoms, like headaches or weariness.

Elbarazi et al. (2017) conducted a systematic review that identified inadequate institutional support and elevated nurse-to-patient ratios as prevalent predictors of burnout in Arab nations, with prevalence rates between 25% and 75%. This aligns with our findings, indicating that 20% of nurses reported never receiving sufficient help from supervisors. Likewise, Shahin et al. (2020) indicated that 55% of primary healthcare nurses in Saudi Arabia encountered burnout attributed to insufficient resources and institutional support, a conclusion corroborated by our study, which commonly identified resource limitations as stresses.

The notable correlation between years of ICU experience and burnout in our study, in which 86.7% of nurses possessed over five years of experience, aligns with the findings of Alenezi et al. (2022). The multicenter study indicated that 65% of Saudi resident physicians encountered burnout, particularly those in more demanding positions who were disproportionately impacted. Battar et al. (2024) emphasized that burnout was more common among healthcare professionals in critical care environments due to excessive workloads, corroborating our result that 26.67% of nurses often worked extra.

Al-Haddad et al. (2020) indicated that the COVID-19 pandemic intensified burnout among primary healthcare providers in Al Ahsa, with 59% experiencing severe emotional tiredness. Our findings, although not explicitly centered on the pandemic, indicate analogous trends, with elevated workloads and emotional fatigue identified as substantial stressors.

Habadi et al. (2018) discovered that 60% of nurses at King Abdulaziz University Hospital in Jeddah suffered from moderate to severe burnout attributed to insufficient staffing and prolonged shifts. These results correspond with our data, indicating that 23.33% of nurses felt alienated from their patients and 26.67% regularly encountered job-related aggravation. The nationwide cross-sectional study by Battar et al. (2024) highlighted the necessity for focused interventions to mitigate burnout, noting that 61.5% of healthcare professionals experienced moderate to severe burnout levels, aligning with the trends identified in our study.

In conclusion, our findings corroborate the existing research on burnout, emphasizing the substantial influence of workload, emotional weariness, and insufficient resources on ICU nurses. The results underscore the immediate necessity for focused measures, including enhanced staffing, supportive work environments, and accessible mental health resources, to alleviate burnout and enhance job satisfaction in critical care settings.

Conclusion

Burnout syndrome in ICU nurses is a significant concern affected by multiple factors, such as workload, emotional fatigue, lack of resources, and insufficient institutional support. Our data indicate that a considerable percentage of nurses endure mild to severe burnout, with seasoned nurses and those regularly working overtime being especially susceptible. Although gender inequalities were not statistically significant in our study, they continue to be a matter of concern according to global studies. Job dissatisfaction intensifies burnout, as nurses often indicate insufficient resources and institutional support. These findings correspond with established research in Saudi Arabia and beyond, highlighting the prevalence of burnout in ICU environments. Resolving these difficulties is crucial for enhancing nurse well-being, patient outcomes, and the overall quality of healthcare.

Prospective Recommendations

- Enhance supervisory frameworks and optimize resource distribution to equip nurses with the necessary tools for effective duty performance.
- Employ techniques to alleviate burden, including augmenting staffing levels, optimizing nurse-to-patient ratios, and instituting flexible scheduling to reduce overtime.

- Implement mental health initiatives, encompassing counseling services and stress management training, to assist nurses in managing occupational stress.
- Offer avenues for professional advancement, encompassing skill enhancement initiatives and leadership training, to elevate job satisfaction.
- Perform longitudinal studies to investigate the enduring consequences of burnout and evaluate the efficacy of applied therapies.
- Partner with policymakers to establish national recommendations for burnout prevention and enhancing nurse retention.
- Analyze gender-specific elements that lead to burnout and execute customized interventions to alleviate these disparities.

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Appendix

Questionnaire

Section 1: Demographics

1. Age: _____ years
2. Gender:
    - Male
    - Female
3. Marital Status:
    - Single
    - Married
    - Divorced
    - Widowed
4. Education Level:
    - Diploma
    - Bachelor’s Degree
    - Master’s Degree
    - Other (specify): _____
5. Years of ICU Experience: _____ years

Section 2: Occupational factors

Question	Never	Rarely	Sometimes	Often	Always
I feel that my workload is manageable.					
I often feel overwhelmed by the number of patients assigned to me.					
I have adequate time to perform my duties effectively.					
I frequently work overtime or extended shifts.					
My nurse-to-patient ratio is reasonable.					
I feel that my shifts are well-structured and balanced.					
I receive adequate support from my supervisors.					
I am provided with sufficient resources to perform my job.					
I feel that I am consulted about decisions affecting my work.					
My working hours negatively affect my work-life balance.					

Section 3: Maslach Burnout Inventory (MBI)

Question	Never	Rarely	Sometimes	Often	Always
I feel emotionally drained from my work.					
I feel fatigued when I wake up in the morning to face another day at work.					
I feel frustrated by my job.					
I feel like I'm working too hard.					
I feel that I am at the end of my rope.					
I feel disconnected from my patients.					
I find it difficult to provide empathetic care to patients.					
I feel that my work is not making a difference.					
I feel unappreciated by my colleagues and supervisors.					
I experience physical symptoms of stress, such as headaches or fatigue, related to my work.					

Section 4: Job satisfaction

Question	Never	Rarely	Sometimes	Often	Always
I am satisfied with my job overall.					
My work environment is positive and supportive.					
I have opportunities for professional growth.					
I feel that my contributions are valued.					
My salary is commensurate with my workload.					
I feel motivated to perform my duties effectively.					
I am satisfied with the feedback and recognition I receive.					
I feel that my job allows me to maintain a good work-life balance.					
I feel proud to work in my current ICU department.					
I would recommend my job to others.					