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Research Article

Workload and Burnout among Perioperative and Anesthesia Nurses: Findings from a Tertiary Hospital in Indonesia

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ABSTRACT

Background: The study aimed to examine the relationship between weekly working hours and burnout syndrome among operating room nurses, focusing on the three core dimensions of burnout: emotional exhaustion, depersonalization, and personal accomplishment.
Methods: The study involved 121 operating room nurses at Dr. M. Djamil General Hospital, Padang. The data were gathered by means of the Maslach Burnout Inventory (MBI) and analyzed using Pearson Correlation and Multiple Linear Regression.
Results: Emotional exhaustion was significantly associated with burnout levels ($p = 0.007$), whereas depersonalization and personal accomplishment did not show statistically significant effects. A weak but significant negative correlation was identified between working hours and personal accomplishment ($r = –0.183$, $p = 0.044$).
Conclusion: Emotional exhaustion emerged as the most influential factor in predicting burnout among operating room nurses. Emotional fatigue interventions and psychological support system reinforcement are suggested for reducing burnout risk among them.

Introduction

Burnout is a well-established psychological syndrome caused by chronic job stress and featuring three principal dimensions: emotional exhaustion, depersonalisation and reduced personal accomplishment. Burnout has been acknowledged by the WHO as an occupational phenomenon in the ICD-11, and its importance in high-stress fields including nursing is emphasised [1-2].

Nurses, who are at great risk of burnout, particularly those working in surgical and anaesthesia environments given their often intense workload. These roles necessitate sustained vigilance, technical precision, and rapid decision-making in environments where errors are unacceptable owing to their potentially life-threatening consequences [3]. Previous research has suggested that workload, long working hours and peer pressure are major causes of burnout in the same population segment. In Indonesia, recent evidence indicates that perioperative nurses frequently experience high levels of emotional exhaustion and depersonalization, reflecting the cumulative strain of clinical and institutional demands [4-5].

Previous research conducted in Indonesia has consistently indicated a concerningly high prevalence of burnout among nurses, particularly in referral and teaching hospitals. Emotional exhaustion and

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depersonalization have been found to be most prevalent forms of burnout, and heavy workload has shown a strong negative relation with mental health and job satisfaction. The tendency of burnout to correlate with reduced performance, increased likelihood of medical errors and poor health such as sleep disturbances, cardiovascular sequelae and depression has been reported elsewhere in the world [6-7].

Ambivalent, broad-ranging factors like organizational environment and work culture contribute to the development of burnout besides workload. A weak patient safety culture, history of physical or psychological abuse and lack of organizational support have all been identified as factors that contribute to the increase in burnout symptoms among health professionals. Taken together, this evidence confirms workload and organizational factors as key precursors for burnout. However, few studies have investigated the relative contribution of weekly working time to burnout dimensions in a sample of perioperative nurses in Indonesia [8-9]. So, this study wanted to find out how often burnout is and how it relates to the number of hours surgical and anesthetic nurses work each week at Dr. M. Djamil General Hospital in West Sumatera. As a Class A national referral and teaching hospital with a consistently high volume of surgeries daily, this institution places substantial clinical and educational demands on its staff, making it an appropriate setting to investigate burnout in perioperative nurses.

Methods

Design

A cross-sectional quantitative methodology was used to examine the association between burnout syndrome and weekly working hours among anaesthesia nurses at Dr. M. Djamil Central General Hospital, Padang.

Sample

The study population consisted of 121 anesthesia nurses, all of whom were recruited through total sampling. The inclusion criteria required a minimum of one year of professional experience, active employment within the preceding three months, and willingness to provide informed consent. Nurses were excluded if they were on leave, had a history of chronic illness, had undergone specific interventions related to burnout within the preceding six months, or had resigned during the study period.

Data Collection

Research data were collected using the Maslach Burnout Inventory (MBI) questionnaire and records of working hours from the hospital's administrative system. Data analysis was performed using Pearson correlation tests and linear regression to measure the relationship between burnout syndrome and working hours. Respondents themselves filled in the questionnaires, which were collected and processed.

The criteria for selecting respondents in this study included anesthetic and operating room nurses with at least one year of work experience in the operating room, willingness to participate in the study by signing informed consent, working in a referral or teaching hospital, and being actively on duty in the three months prior to the study. The exclusion criteria were anesthetic nurses and operating room nurses who were on leave (maternity leave, sick leave, or other types of leave), had a history of chronic illness that could affect their performance in the operating room, had undergone training or special interventions related to the study within the past six months, and those who resigned from the hospital during the research period.

Data Analysis

Data analysis was performed using bivariate and multivariate statistical methods. Pearson's correlation test was applied after confirming the normality of the data distribution, while multiple linear regression was employed to identify independent predictors of burnout dimensions.

Descriptive statistics were used in the first step of the analysis to examine respondents' characteristics such as age, work experience in years, shift system-working day or night), number of working hours per week and level of burnout.

This data will be presented in the form of frequency distribution tables and percentages to provide a general overview of the distribution of the respondents' characteristics. This presentation aims to obtain a preliminary understanding of burnout trends among nurse anesthetists and operating room nurses based on these factors.

Data visualization graphics were used to clarify the distribution patterns and relationships between variables. Bar graphs will be created to compare the levels of burnout according to various categories for work hours, whereas pie charts are available to show the burnout proportions in low, medium, and high categories. By this visualization, the pattern of relationship reflecting on work hours and burnout levels can be distinguished more intuitively. With this visualization, the relationship pattern between working hours and burnout levels can be identified more intuitively.

Next, an inferential analysis was conducted to examine the relationship between working hours and burnout syndrome. The Pearson correlation test was used if the data were normally distributed, whereas the Spearman correlation was applied if the data were not normally distributed.

The Table of r (correlation coefficient) and P value will be shown to express the result directly for this statistical

analysis. If a significant positive correlation is found, it can be concluded that the longer the working hours of anesthesia and operating room nurses, the higher the level of burnout experienced.

Results

Characteristics of Respondents

The analysis included 121 operating room nurses (Table 1). Most respondents (n = 40) fell into the age range between the ages of 26–35 years of age (47.1%) and those aged between 36–45 were equally represented in this sample of respondents %, while only 2.5% were aged from two work as professionals working for less than a year.

The sample was mostly female (68.6%), in line with the worldwide predominance of women in the nursing profession. With respect to the education levels of, 47.1% attended a 30degrees, followed by Bachelor's degree (31.4%) and professional nursing education (18.2%), and few had Master's degree (1.7%).

Most of the people who took part had a lot of work experience. Two-thirds (66.1%) had worked for more than four years, and only 6.6% had worked for less than a year. 67.8% of the people who answered were in operating rooms, and 32.2% were in the anesthesia department. An analysis of burnout across the three primary dimensions revealed distinct patterns (Table 1).

The levels of emotional tiredness were relatively evenly distributed: low (34.7%), moderate (32.2%), and high (33.1%). Conversely, depersonalization had a markedly unequal distribution, with 69.4% of respondents indicating an increased emotional detachment from patients. Also, personal achievement was greatly hurt, as 58.7% of respondents said they were very burned out, which means they were less successful and less satisfied with their jobs, even though the workforce was generally mature and experienced.

Table 1- Characteristics of Respondents

Characteristics	n = (121)	%
Age (Year)		
17 – 25	3	2,5
26 – 35	57	47,1
36 – 45	38	31,4
46 – 55	16	13,2
56 – 65	7	5,8
Sex		
Male	38	31,4
Female	83	68,6
Education		
D3	57	47,1
D4	2	1,7
S1	38	31,4
Profesi	22	18,2
S2	2	1,7
Length of work		
0 – 1 year	8	6,6
1 – 2 years	19	15,7
3 – 4 years	14	11,6
> 4 years	80	66,1
Job Placement		
Nurse Anesthetist	39	32,2
Operating Room	82	67,8
Emotional Exhaustion		
Low	42	34,7
Moderate	39	32,2
High	40	33,1
Depersonalization		
Low	10	8,3
Moderate	27	22,3
High	84	69,4
Personal Accomplishment		
High Burnout	71	58,7
Moderate Burnout	29	24,0
Low Burnout	21	17,4

Source: Primary Data, 2025

Analysis of Correlation

Pearson's correlation analysis was utilized to look at the link between weekly working hours and burnout elements (Table 2). A weak negative correlation was identified between working hours and emotional exhaustion ($r = -0.175$, $p = 0.055$), although this result was not statistically significant. Depersonalization also had a very modest negative connection with working hours ($r = -0.094$, $p = 0.305$), which means that there was no linear relationship.

Conversely, a statistically significant negative association was identified between weekly working hours and personal achievements ($r = -0.183$, $p = 0.044$). This result shows that longer work hours are linked to a lower sense of competence, effectiveness, and job satisfaction. This finding indicates that extended working hours correlate with a reduced feeling of competence, efficacy, and professional satisfaction. All of these results suggest that long work hours mostly make people feel less accomplished, rather than immediately making them more emotionally drained or depersonalized (Figure 1).

Regression Analysis

Multiple linear regression was used to assess the combined effects of the three dimensions of burnout on overall burnout. The model demonstrated statistical significance (ANOVA $p = 0.007$), with a Durbin–Watson statistic of 1.769, indicating no autocorrelation, and VIF values below 2.0, suggesting an absence of multicollinearity (Table 3).

Emotional fatigue was identified as the sole significant predictor ($p = 0.007$), highlighting its critical role as the primary indicator of burnout in high-pressure clinical settings. In the multivariate model, depersonalization ($p = 0.198$) and personal success ($p = 0.115$) did not significantly influence overall burnout. The bivariate analysis found a strong link between working hours and personal achievement, but this link became weak when emotional weariness was taken into consideration. This suggests that emotional tiredness was the cause of this link.

In general, these results demonstrate that emotional exhaustion is the main reason why operating room nurses get burned out. On the other hand, long hours of work generally reduced job satisfaction because they made people emotionally fatigued. The results show that burnout has many different causes and that therapies that focus on building emotional resilience, fairly distributing work, and improving institutional support systems are very important.

Table 2- Pearson Correlation Analysis

Variable Y	Variable X	Correlation	P value	Notes
Average Weekly Working Hours	Emotional Exhaustion	-0,175	0,055	Weak negative correlation, not statistically significant
	Depersonalization	-0,094	0,305	Very weak negative correlation, not statistically significant
	Personal Accomplishment	-0,183	0,044	Weak negative correlation, statistically significant

Source: Primary Data, 2025

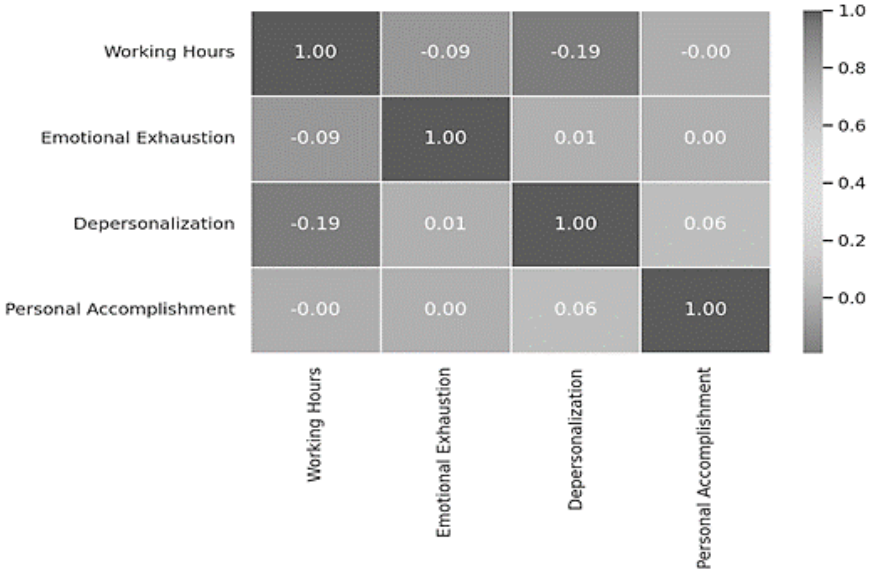

Figure 1- Correlation Matriks

Table 3- Results of Multiple Linear Regression Analysis

Variable	Sig. Coefficients	Collinearity Statistics		Sig. Anova	Durbin Watson
		Tolerance	VIF		
Emotional Exhaustion	.007	.718	1.393	0,007	1,769
Depersonalization	.198	.559	1.790		
Personal Accomplishment	.115	.745	1.343		

Source: Primary Data, 2025

Discussion

We found that burnout among operating room nurses was much more common than we thought. Almost 70% of them said they felt depersonalized, and more than half said they felt less accomplished. These individuals were seasoned experts rather than beginners or recent grads. These individuals were experienced professionals and not novices or recent graduates. This finding underscores that burnout is a systemic issue driven by relentless institutional demands rather than by individual inexperience [10-11].

One of the most remarkable findings was the correlation between working hours and professional achievements. Nurses who engaged in extended working hours reported feeling less effective, less motivated, and less fulfilled in their roles. This observation aligns with findings from colleagues in Banjarmasin, who demonstrated that heavy workloads rapidly lead to psychological strain and diminished job satisfaction [12]. Similar patterns were observed in other regions. Studies conducted in Saudi Arabia and Oman demonstrate that extended work shifts, along with organizational inefficiencies, create an environment that promotes burnout and exacerbates depressive symptoms [9,13]. Our findings reinforce this evidence, situating it specifically within the context of perioperative care, a domain in which precision and endurance are equally imperative [14].

Emotional exhaustion is most prominent at the core of burnout. Although it appears to be unrelated to working hours when considered in isolation, it emerges as the most significant predictor when multiple factors are considered. This finding corroborates the theory proposed by Maslach and Leiter, which posits that exhaustion is the primary catalyst, with depersonalization and diminished accomplishment as subsequent effects [15]. In high-intensity operating rooms, this kind of tiredness makes it harder to do the important things that keep patients safe.

It is noteworthy that depersonalization and accomplishment were not significant in the regression analysis. While these dimensions are not less important, they may be more influenced by the broader workplace environment, such as leadership, teamwork, and institutional culture, rather than merely by the number of hours worked. Previous research conducted in Indonesia and other regions underscored the substantial impact of these contextual factors [10]; depersonalization often emerges as a defensive response to chronic stress, whereas a gradual decline in the sense of accomplishment signifies deeper disengagement from work that was once perceived as meaningful [15].

The operating rooms are very busy, and the staff has to take care of patients and teach them at the same time. In this case, the fact that burnout is still common among experienced nurses shows that there are problems that transcend beyond how each person deals with stress. It shows structural difficulties, such as staffing ratios that are too low, recovery times that are too short, and organizational demands that are too high. The pattern we saw fits with what research around the world says: burnout is mostly caused by how institutions are set up, not by how weak people are [13].

Our results suggested that tackling emotional tiredness should be the main goal. In addition, structured shift rotations and protected recovery time may significantly reduce emotional exhaustion. Mindfulness-based interventions have also shown promise in reducing stress and burnout symptoms among nurses [16-17]. The research is unequivocal in asserting that such tactics cannot succeed in isolation. Studies from Saudi Arabia and Indonesia both suggest that individual coping mechanisms can be helpful, but they can also be easily overrun if workload, culture, and supervision are not taken into account [11]. For real development to happen, organizations need to change their policies to make sure that everyone has a fair amount of work, that leaders are supportive, and that the culture promotes the health and happiness of employees [11]. Real progress requires reform at the organizational level—policies that distribute workload fairly, foster supportive leadership, and cultivate a culture that values staff well-being.

This study is honest about some of its flaws. It is a cross-sectional study, so it can't show cause and effect, and since it was done in only one center, it could not be true for all hospital settings. Also, things like leadership style or ideas about justice were not measured, even though earlier studies have shown that these have a big effect [14]. As a result, future study should follow nurses throughout time at several different institutions to look at how they go from being tired to burned out and find ways that organizations may change this path. Our results show that emotional weariness is a major cause of burnout among operating room nurses, and long hours make it worse. The main conclusion is clear: burnout is a sign of

how organizations are set up and how labor is divided, not of personal flaws. Addressing it necessitates organizational reform alongside support for individual resilience [17].

Limitation

The study was performed at a single tertiary referral hospital; hence, these results may not be applicable to other healthcare institutions with varying organizational frameworks, staffing arrangements, or cultural environments. Self-report measures for measuring burnout may introduce response bias, as participants could underreport or overstate their experiences.

Additionally, specific organizational and psychosocial factors, such as leadership style, workplace culture, and support networks, were not examined, yet their potential significant influence on burnout. Further research with longitudinal and multicenter designs, as well as the inclusion of broader organizational variables, is recommended to obtain a more comprehensive understanding of burnout among perioperative nurses.

Conclusion

This study highlights emotional exhaustion as the most critical dimension of burnout among operating room nurses. Although depersonalization and a sense of failure were both quite high, only fatigue was a sure evidence of full burnout. Longer work hours were also linked to decreased professional success, which suggests that long schedules can have a small but harmful influence on nurses' sense of effectiveness. Subsequent research should include multicenter and longitudinal study designs that integrate organizational and interpersonal aspects to illustrate the temporal evolution of burnout. The current findings convey a clear message: safeguarding nurses from emotional tiredness is imperative for maintaining workforce sustainability and guaranteeing patient safety.

Ethical aspects and conflict of interest

Ethical approval for this study was granted by the Ethics Committee of Dr. M. Djamil Central General Hospital, Padang (Approval No: DP.04.03/D.XVI.10.1/137/2025).

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Author's Contributions

All authors contributed significantly to the development of this study. MS conceptualized the research idea and supervised the project. MZS conducted the data collection and performed statistical analysis. FS, FPH, and RS drafted the initial manuscript and contributed to the interpretation of findings. All authors reviewed and approved the final version of the manuscript and agreed to be accountable for all aspects of the work. Additional contributors included AA and AKPD, who provided support in literature review, coordination of field implementation, and critical revision of the manuscript.

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