

# Work Stress among Nurses in an Indonesian General Hospital: Prevalence and Associated Factors

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## ABSTRACT

**OBJECTIVE:** This study investigates the prevalence and factors associated with work stress among nurses in an Indonesian general hospital.

**METHODOLOGY:** A cross-sectional study was conducted among 147 nurses using convenience sampling. In addition to socio-demographic information, data collection included assessments of the nurses' mental workload and work-related stress using the National Aeronautics and Space Administration Task Load Index (NASA-TLX) questionnaire and the Work Stress Questionnaire (WSQ), respectively.

**RESULTS:** Age ( $p = 0.002$ ), income ( $p = 0.001$ ), competency achievement ( $p = 0.001$ ), and mental workload ( $p = 0.001$ ) were significantly associated with work stress. Logistic regression analysis identified that those with a high mental workload are around 22 times more likely to suffer from work stress compared to those with a lower mental workload.

**CONCLUSION:** The study recommends managing nurses' workloads to align with their physical and mental capabilities.

**KEYWORDS:** Work stress, nurses, mental workload, Indonesia, Logistic regression, Occupational Health

## INTRODUCTION

Work-related stress is a critical issue in healthcare, with profound effects on individuals, organizations, and the larger social environment. Nurses are highly vulnerable to stress due to the demanding nature of their work, which requires them to deliver optimal care in often high-pressure environments. Their primary role involves providing nursing care through interactive processes with clients, where both sides engage, exchange energy, and manage stress to help reduce the clients' health issues. The quality of nursing services is greatly influenced by how well nurses perform their duties, particularly when adhering to established procedures<sup>1,2</sup>. Nurses facing excessive workloads experience reduced productivity, health issues, lower work motivation, and a decline in the quality of nursing care, which clients perceive negatively<sup>3</sup>. Stress at work can provide a dangerous reaction for everyone due to inappropriate pressure and workload. Many factors that cause work stress in nurses include night shifts, multiple role conflicts, diverse task demands and incompatibility of performance with compensation received by nurses<sup>4,5</sup>. Work stress among hospital nurses may also arise from biological, psychological, social, and physical factors<sup>6</sup>. Intense interactions with patients and their

families can lead to conflicts, time pressures, lack of social support, differences of opinion, and a sense of losing control over their work. These factors cause psychological strain, necessitating emotional resilience and maturity for effective performance<sup>7</sup>. Therefore, addressing work-related stress among nurses is essential for their well-being and ensuring the delivery of high-quality patient care.

Numerous studies on nurses' work stress suggest that it is shaped by multiple factors within the workplace. The primary contributors to work stress among nurses include excessive workloads, strained interpersonal relationships with colleagues, and restricted career development opportunities<sup>8,9</sup>. Also, low nurse-to-patient ratio, numerous tasks assigned, high service quality demands, and the emphasis on patient safety are key contributors to nurse stress<sup>10</sup>. The relationship between workload and stress significantly influences nurse performance in hospitals. Various job characteristics such as task volume, workload fluctuations, underutilization of skills, role ambiguity, job insecurity, shift work, role conflicts, limited autonomy, and interpersonal challenges serve as notable stressors. These factors can contribute to decreased job satisfaction, heightened burnout, and impaired patient care quality<sup>8</sup>.

Furthermore, gender, years of experience, and marital status might also shape nurses' susceptibility to work stress, job satisfaction, and overall performance<sup>8</sup>. Increased mental strain due to low nurse-to-bed ratios and discrepancies between income and job demands leads to psychological challenges like work stress. Despite the extensive literature on work-related stress among nurses, a gap exists in understanding how individual characteristics and systemic workplace

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issues interact. Specifically, further research is needed to explore the nuanced effects of gender, experience, and marital status in conjunction with environmental stressors such as low nurse-to-patient ratios and income disparities. This study examines the relationship between nurses' characteristics, mental workload, and work stress in public hospitals. This research is crucial as it sheds light on the pressing issue of work stress among nurses and aims to inform interventions that could enhance nurse well-being and improve the quality of patient care.

## METHODOLOGY

### Research Design

This study employed a cross-sectional design to investigate the prevalence and associated factors of work stress among nurses in a general hospital in Aceh province, Indonesia. This design allowed for data collection at a single point, facilitating an analysis of relationships between variables such as mental workload, demographic characteristics, and work stress.

### Sample

The sample consisted of 147 nurses selected through convenience sampling. Participants were required to meet specific inclusion criteria: hold a Diploma in Nursing, have at least two years of professional experience, and be employed as practicing nurses. This approach ensured that the sample reflected diverse experiences among nurses.

### Data Collection

Data were collected from March to May 2022 using Google Forms, including demographic information and specialized questionnaires. The National Aeronautics and Space Administration Task Load Index (NASA-TLX) assessed nurses' mental workload during patient care. This tool evaluates workload across six dimensions, with responses rated on a Likert scale from 10 (low) to 100 (high).<sup>11</sup> The Work Stress Questionnaire (WSQ)<sup>12</sup> was also employed to measure work-related stress, comprising 21 items that cover organizational ambiguity, individual demands, workplace influence, and disruptions to leisure activities.

### Data Analysis

Statistical analyses were performed using PSP software. Chi-square tests were utilized to explore associations between various demographic and professional variables related to work stress. Additionally, logistic regression analysis was conducted to identify key predictors of work stress among the nursing cohort, focusing on variables that demonstrated a p-value of less than 0.25.

### Ethical Consideration

Ethical approval for the study was obtained from the Faculty of Nursing at Syiah Kuala University (Ethics No: 112028110122). Informed consent was acquired from all participants before data collection, ensuring their right to confidentiality and the ability to withdraw from the study without penalty.

## RESULTS

Most respondents were aged 26–35 (45.6%), and most were female (72.1%). About one-third of the nurses (36.7%) held a nursing diploma, while 18.4% had a bachelor's degree. The largest group (74.1%) earned less than Rp.3,280,327, while the remaining 25.9% earned Rp.3,280,327 or more. Over half of the respondents (54.5%) had more than 4 years of work experience. Regarding mental workload, 54.4% reported a moderate workload, and 45.6% experienced a low workload. For work stress, 54.4% experienced stress, while 45.6% had normal stress levels. A detailed breakdown of respondents' characteristics is shown in **Table I**.

**Table I: Summary of Nurse Characteristics**

Characteristics Respondent	Total (n)	Percentage (%)
Age		
26–35 years old	67	45.6
36–45 years old	59	40.1
46–55 years old	21	14.3
Gender		
Man	41	27.9
Woman	106	72.1
Education		
Diploma in Nursing	66	44.9
Bachelor of Nursing	27	18.4
Registered Nurse	54	36.7
Monthly Income		
< Rp.3.280.327, -	109	74.1
≥ Rp.3.280.327, -	38	25.9
Work Experience		
≤ 4 Years	67	45.6
> 4 Years	80	54.5
Competency Achievement		
Pre nurse clinic	24	16.3
Clinic nurse	123	83.7
Mental workload		
Low	72	45.6
High	75	54.4
Work stress		
Normal	67	45.6
Stress	80	54.4

Among the 147 nurses, 43.3% experienced stress. Those aged 36–45 had a higher stress rate (57.6%). Age and work stress were significantly related ( $p = 0.008$ ). More than half of female nurses (55.7%) and male nurses (51.2%) experienced stress, but no significant relationship between gender and work stress was identified ( $p = 0.764$ ). Nurses with a diploma (53%) and bachelor's degree (50%) reported similar stress levels, with no significant association between education and stress ( $p = 0.348$ ). In terms of income, nurses earning less than Rp.3,280,327 experienced more stress (60.5%) than those earning more (33.3%). A significant relationship between income and work stress was found ( $p =$

0.01). Among nurses with more than 4 years of experience, 56.9% reported stress, compared to 41.7% with 4 years or less. However, no significant association between work experience and stress was observed ( $p = 0.251$ ). Notably, 96.2% of nurses with clinical nurse competence experienced stress, with a significant relationship confirmed ( $p = 0.001$ ). **Table II**

**Table II: The Relationship between Characteristics and Mental Workload and Work Stress**

Variable	Work Stress				X <sup>2</sup>	p
	Normal		Stress			
	n	%	n	%		
Age						
26–35 years old	38	56.7	29	43.3	9.555	0.008
36–45 years old	25	42.4	34	57.6		
46–55 years old	4	19.0	17	80		
Gender						
Man	20	48.8	21	51.2	0.235	0.764
Woman	47	44.3	59	55.7		
Education						
Diploma in Nursing	31	47.0	35	53.0	2.109	0.348
Bachelor of Nursing	9	33.3	18	66.7		
Ners	27	50.0	27	50.0		
Monthly Income						
< Rp.3.280.327, -	45	39.5	69	60.5	7.629	0.010
≥ Rp.3.280.327, -	22	66.7	11	33.3		
Work Experience						
≤ 4 Years	14	58.3	10	41.7	1.881	0.251
> 4 Years	53	43.1	70	56.9		
Competency						
Achievement						
Pre nurse clinic	64	95.5	3	4.5	123.806	0.000
Clinic nurse	3	3.8	77	96.2		
Mental workload						
Low	65	97.0	2	3.0	113.675	0.001
High	2	2.5	78	97.5		

A multiple logistic regression analysis was conducted to examine the association between various predictors and work stress among healthcare workers. The model included variables with a p-value of less than 0.25, specifically Age, Monthly Income, Competency Achievement, and Mental Workload. The results of the analysis are summarized in **Table III**.

The model intercept was -2.123, suggesting that the log odds of experiencing work stress are negative when all predictor variables are set to zero. Notably, age emerged as a significant factor influencing work stress. Respondents aged 26 to 35 exhibited a substantial increase in the odds of experiencing work stress, with an odds ratio of 1.580 and a p-value of 0.002. Similarly, those in the 36 to 45-year age group also demonstrated increased odds of experiencing stress, with an odds ratio of 1.384 and a p-value of 0.049.

Individuals earning greater than or equal to Rp in terms of monthly income. 3,280,327 were found to have significantly higher odds of experiencing work stress, reflected by an odds ratio of 3.007 ( $P < 0.001$ ).

Furthermore, competency achievement was a notable predictor, with those classified as clinic nurses showing a remarkable odds ratio of 10.066 ( $p < 0.001$ ), indicating a strong association with work stress. Lastly, a high mental workload was also linked to increased odds of experiencing work stress, with an odds ratio of 22.85 ( $P < 0.001$ ).

**Table III: Multiple logistic regression analysis of factors that predict the nurse's work stress**

Variable	Coefficient ( $\beta$ )	Standard Error	Z-Value	P-Value	Odds Ratio (OR)
Age (26-35 years old)	0.465	1.150	3.04	0.002	1.58
Age (36-45 years old)	0.325	0.165	1.97	0.049	1.384
Monthly income (≥ Rp. 3.280.327)	1.103	0.322	3.43	0.001	3.007
Competency achievement (clinical nurse)	2.310	0.345	6.68	0.001	10.006
Mental workload (high)	3.127	0.415	7.52	0.001	22.85

## DISCUSSION

This study examines the relationship between mental workload and work stress among nurses in an Indonesian general hospital. The results show that over half of the nurses experienced work-related stress, with a significant proportion reporting moderate mental workloads. Contributing factors to this stress include unmet expectations, insufficient respect for nursing professionals, internal issues such as interpersonal conflicts, and personal health challenges. These findings align with previous research, which has identified various stressors in nursing, such as night shifts, role ambiguity, inadequate social support, work-family conflicts, diverse and demanding tasks, compensation inequalities, heavy workloads, poor working conditions, job insecurity, lack of recognition, limited promotion opportunities, and nurse-to-patient ratio imbalances<sup>8–10,13</sup>.

Persistent work stress among nurses can lead to severe consequences, with stress stemming from biological, psychological, social, and physical factors<sup>14–16</sup>. Furthermore, heavy responsibilities, patient ratio imbalances, additional tasks imposed by leadership, and the demand for patient safety and quality services contribute significantly to the stress experienced by nurses<sup>17</sup>. This stress affects nursing professionals' mental and emotional well-being and compromises patient care quality, leading to increased errors and lower patient satisfaction. Studies have shown that inadequate staffing ratios correlate with higher levels of burnout among nurses, which in turn affects their ability to provide safe and effective care<sup>18</sup>. Additionally, the continuous pressure to meet organizational expectations and maintain high standards of patient care can result in long-term physical and psychological health issues for nurses, contributing to a cycle of stress and burnout that is

difficult to escape<sup>19</sup>. Addressing these stressors is crucial for improving nurse well-being and the overall quality of patient care.

The findings from this logistic regression analysis underscore several critical factors contributing to work stress among healthcare workers. The significant association between age and work stress suggests that younger healthcare professionals, particularly those aged between 26 and 45 years, may be more susceptible to higher levels of stress. This aligns with existing literature indicating that younger workers often face pressures from inexperience and the demands of their roles, which can lead to increased stress levels<sup>20</sup>.

The relationship between monthly income and work stress is particularly intriguing. While one might expect a higher salary to correlate with reduced stress, the results indicate that those earning more experience significantly higher levels of work stress. This could reflect the added responsibilities and expectations that accompany higher-paying positions. It highlights the need for a nuanced understanding of job satisfaction, suggesting that financial compensation alone does not guarantee mental well-being among workers<sup>21</sup>.

Competency achievement also played a critical role in predicting work stress. The striking odds ratio for clinic nurses suggests that individuals in clinical roles face unique stressors, emphasizing the importance of providing adequate support and resources tailored to their specific challenges. High stress levels experienced by clinic nurses could lead to burnout and negatively impact patient care, making it essential for healthcare organizations to recognize and address these challenges<sup>22-24</sup>.

The significant association between high mental workload and increased work stress is also concerning. This finding reinforces the necessity for implementing interventions to reduce cognitive overload among healthcare professionals. Strategies such as effective task delegation, ensuring regular breaks, and providing mental health resources could be vital in alleviating this burden<sup>25,26</sup>.

#### Limitations of the Study

This study has several limitations. The use of convenience sampling may limit the generalizability of the findings, as the sample may not represent all nurses in Indonesia. Additionally, the cross-sectional design restricts causal inferences between mental workload and work stress. Self-reported measures could introduce bias, as participants may underreport or overreport their stress levels. Finally, the study did not account for potential confounding factors, such as organizational culture or coping mechanisms, which could influence outcomes. These limitations suggest a need for caution in interpreting the results and highlight areas for future research.

#### CONCLUSION

In conclusion, this analysis offers valuable insights into the factors influencing work stress among

healthcare workers. Understanding the relationships between these variables is crucial for informing interventions to reduce stress levels, enhance job satisfaction, and ultimately improve the quality of care provided. The findings underscore the urgent need for healthcare organizations to address work stress, as it has far-reaching consequences for nurse retention and patient safety, making this research vital for informing future healthcare practices and policies. Future research should continue to explore these relationships and investigate additional variables that may contribute to work stress within this population.

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**Data Sharing Statement:** The corresponding author can provide the data proving the findings of this study on request. Privacy or ethical restrictions bound us from sharing the data publicly.

#### AUTHOR CONTRIBUTION

Marthoenis M: design the study, finalized the manuscript and submitted for publication

Ardianti RD: design the study, conducted data collection, initial data analysis and draft manuscript

Kamil H: design the study, supervise the data collection and data analysis

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