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Correlation Between Nurses Workload and Work Stress in the Emergency Department

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ABSTRACT

Workload and work stress among nurses, especially in the Emergency Room (ER), are crucial issues that affect the quality of health services. This study aims to determine the relationship between nurses' workload and work stress in the ER of Jampang Kulon Regional General Hospital. A quantitative correlational research design was used with a cross-sectional approach. The population consisted of 29 ER nurses, selected through total sampling. Data were collected using the NASA-TLX (Task Load Index) questionnaire to measure workload and a work stress questionnaire developed based on the HSE (Health and Safety Executive) standards. The results showed that 62.1% of nurses experienced a high workload, while 58.6% experienced moderate work stress. The Spearman rank test indicated a significant positive correlation between workload and work stress ($p = 0.001$; $r = 0.642$), meaning that an increase in workload is associated with an increase in work stress. This finding highlights the importance of workload management to reduce stress levels among nurses. Improving work scheduling, increasing staffing ratios, and providing regular stress management programs are recommended to enhance the nurses' well-being and service performance. In conclusion, there is a significant relationship between workload and work stress among nurses in the ER of Jampang Kulon Hospital.

Keywords: workload, work stress, emergency room, nurses

INTRODUCTION

Health services in the Emergency Room (ER) are a vital part of hospital care systems that demand both physical and mental readiness from healthcare workers, particularly nurses. ER nurses are required to work quickly, accurately, and responsively in handling patients with critical and varied conditions, which potentially leads to a high workload (Nursalam, 2020). A consistently high workload can trigger work-related stress, which in turn affects service quality, healthcare worker well-being, and even patient safety (Hikmawati et al., 2020).

Work stress is a physiological and psychological response that arises when job demands are not balanced with an individual's capacity to handle them (Sari et al., 2021). In the ER context, work stress can be caused by time pressure, lack of resources, long working shifts, and a high number of patients (Yuliana & Mirasari, 2020). In the ER context, work stress is often driven by an imbalance between workload and available resources. A study by Hunsaker et al., (2025) found that 74% of emergency nurses reported high levels of emotional exhaustion due to

excessive workload and insufficient staffing. Similarly, research by Adriaenssens et al., (2012) showed that emergency nurses experiencing prolonged shifts and high patient acuity had significantly higher stress scores (mean score 4.1 on a 5-point scale). These findings highlight how time pressure, limited resources, long working hours, and a high patient volume contribute substantially to occupational stress in emergency settings.

Therefore, it is crucial to examine the extent to which workload contributes to the stress levels experienced by nurses in the emergency room. Previous studies have reported a high prevalence of work-related stress among emergency nurses. For example, a study by Adriaenssens et al. (2012) revealed that 45% of emergency nurses experienced high levels of psychological distress, largely associated with work demands. In Indonesia, research conducted by Widyastuti & Tristiana, (2020) found that 68.3% of nurses working in emergency departments experienced moderate to severe levels of work stress, highlighting the urgent need to address contributing factors such as workload.

The purpose of this study is to determine the relationship between nurses' workload and work stress in the ER of Jampang Kulon Regional General Hospital. This research is motivated by the need for effective human resource management in hospital settings, as well as the importance of creating a work environment that supports mental health and optimal nursing performance.

The NASA Task Load Index (NASA-TLX) has been widely adopted in various healthcare settings, including in Indonesia, due to its comprehensive assessment of subjective workload through six dimensions (mental demand, physical demand, temporal demand, performance, effort, and frustration) (Tarwaka, 2022). Several studies in Indonesian hospitals have confirmed its reliability and applicability among nurses, with Cronbach's alpha values ranging from 0.78 to 0.89 Prasetyo et al., (2020). Similarly, the work stress questionnaire based on the Health and Safety Executive (HSE), adapted by Tarwaka, (2015), has been validated in multiple Indonesian occupational settings. This tool has shown strong internal consistency and has been frequently used to assess stress among nurses in Indonesian hospitals, making it a suitable instrument for this study (Widyastuti & Tristiana, 2020).

Previous studies in Indonesia have shown that 68.3% of nurses in emergency departments experience moderate to severe work stress levels (Widyastuti & Tristiana, 2020), and more than 60% report high perceived workload based on NASA-TLX scores (Nurjanah et al., 2021).

These findings indicate that work environment pressures in ER settings significantly impact nurses' psychological well-being and performance.

The results showed a significant relationship between workload and work stress, indicating that an increase in workload tends to be followed by an increase in stress levels. The novelty of this study lies in its use of validated instruments (NASA-TLX and HSE/Tarwaka) to measure both workload and work stress specifically in the context of emergency department nurses in a regional public hospital in Indonesia, which remains underrepresented in existing literature. By understanding the relationship between these two variables in this high-pressure setting, this research is expected to serve as a basis for planning context-specific workload management and targeted stress-reduction interventions for ER nurses.

METHODS

This study applied a quantitative correlational method with a cross-sectional approach to investigate the relationship between nurses' workload and work stress in the Emergency Room (ER) of Jampang Kulon Regional General Hospital. The participants were ER nurses who had worked for at least six months, were on active duty during the data collection period, and provided informed consent. Nurses who were on leave or unable to complete the questionnaire were excluded (Sugiyono, 2020).

A total sampling technique was used, involving all 29 eligible nurses working in the ER (Sugiyono, 2018). The unit of analysis was individual nurses, and data collection was conducted from March to April 2025. Respondent profiles included gender, age, years of service, and education level.

Data were collected through two instruments: the NASA Task Load Index (NASA-TLX) to assess perceived workload across six dimensions (mental, physical, and temporal demands, performance, effort, and frustration), and a work stress questionnaire based on the Health and Safety Executive (HSE) standards, covering key workplace stress factors. Responses were rated using Likert scales. Instrument validity and reliability had been tested before implementation.

This research received ethical clearance from the Health Research Ethics Committee of the Faculty of Health Sciences, Muhammadiyah University of Sukabumi, with approval number: 088/KET/KE-FKES/I/2025. All participants gave informed consent, and data confidentiality was strictly maintained.

RESULTS

The research results can be seen in the table below:

Table 1. Distribution of Respondents' Characteristics (n=29)

Characteristic	Frequency	%
Gender		
Male	15	51.7
Female	14	48.3
Education		
Bachelor of Nursing (Ners)	21	72.4
Diploma (D3)	8	27.6
Workload		
Low	2	6.9
Moderate	14	48.3
High	13	44.8
Work Stress		
Mild	2	6.9
Moderate	16	55.2
Severe	11	37.9
Work Experience		
Very New	4	13.8
New	10	34.5
Moderately Experienced	9	31.0
Highly Experienced	6	20.7

Based on Table 1 out of the 29 nurses who participated as respondents, the majority were male (51.7%) and held a Bachelor of Nursing degree (Ners) (72.4%). This indicates that most nurses working in the emergency department at RSUD Jampang Kulon have a professional level of nursing education, which is expected to equip them with stronger clinical decision-making skills under pressure.

In terms of workload, most nurses experienced a moderate workload (48.3%), meaning that while they face considerable demands in their daily tasks, these demands may still be manageable. However, a notable proportion (44.8%) reported a high workload, which reflects the intense nature of emergency care settings where nurses must handle multiple critical patients, often under time pressure and with limited resources. Only 6.9% of nurses experienced a low workload, suggesting that underutilization is rare in this unit.

Regarding work stress, the majority of nurses experienced moderate levels of stress (55.2%), indicating that while stress is present, it may not have reached critical levels yet. However, the presence of severe work stress in 37.9% of nurses is concerning, as it suggests a substantial portion of the nursing staff may be at risk for burnout, decreased performance, or negative

health outcomes. The small number of nurses reporting mild stress (6.9%) further confirms the high-stress nature of emergency nursing in this hospital.

In terms of work experience, most nurses were categorized as New (34.5%) or Moderately Experienced (31.0%), indicating that a majority of the workforce consists of nurses who are still in the early or middle stages of their professional development. Meanwhile, 20.7% were Highly Experienced, reflecting a solid core of senior nurses who can provide leadership and mentorship in the unit. The remaining 13.8% were Very New, which may imply a need for additional training and supervision for these individuals. The distribution of work experience suggests a relatively balanced mix of experience levels, but also emphasizes the importance of providing appropriate support for newer nurses, particularly in high-pressure environments like the emergency department.

In addition, the characteristics of respondents based on age were presented using descriptive statistical analysis, since the data are numerical. A complete overview is presented in Table 4.2 below:

Table 2. Descriptive Statistics of Age and Length of Service (n=29)

Characteristic	N	Minimum	Maximum	Mean
Age (years)	29	30	43	34.28

Based on the descriptive analysis, the age of nurses in the ER of Jampang Kulon Regional General Hospital ranged from 30 to 43 years, with an average age of 34.28 years.

Table 3. The Relationship Between Workload and Work Stress Among Nurses (n=29)

Workload	Work Stress						Total		p-value
	Mild		Moderate		Severe				
	f	%	f	%	f	%	N	%	
Low	2	6.9	0	0	0	0	2	6.9	
Moderate	0	0	14	87.5	0	0	14	48.3	**0.001**
High	0	0	2	12.5	11	100	13	44.8	
Total	**2**	**6.9**	**16**	**55.2**	**11**	**37.9**	**34**	**100.0**	

The bivariate analysis showed a significant relationship between nurses' workload and work stress in the Emergency Room of Jampang Kulon Regional General Hospital (p-value = 0.001). Among the 29 participating nurses, those with a low workload all experienced mild stress (6.9%). The majority of nurses with a moderate workload experienced moderate stress (87.5%), while all nurses with a high workload experienced severe stress (100%). These findings indicate that the higher the nurses' workload, the more likely they are to experience higher levels of work stress.

DISCUSSION

Respondent Characteristics Overview

The results of this study indicate a significant relationship between workload and work stress among nurses in the emergency department. High workload contributes to stress because nurses must simultaneously perform complex clinical tasks, manage documentation, coordinate with teams, and communicate with patients' families all within urgent timeframes. These demands are even more pronounced in emergency settings due to unpredictable case severity and rapid decision-making requirements (Utami et al., 2022).

Several contributing factors may strengthen the association between workload and stress. First, inadequate compensation or a perceived mismatch between effort and reward can lead to emotional strain and job dissatisfaction. Nurses in high-intensity units who feel underpaid often report increased stress levels and decreased motivation (Widyastuti & Tristiana, 2020).. Second, organizational factors, such as high nurse-to-patient ratios, lack of support staff, and poor workload distribution, increase individual burdens and contribute to chronic job stress (Pratama & Dewi, 2021).

Moreover, shift work and long working hours common in emergency departments can disrupt sleep cycles, cause physical fatigue, and reduce the nurse's ability to recover, thus compounding work-related stress (Ningsih & Mulyadi, 2021). Limited social and managerial support also impairs resilience among nurses, especially in high-pressure environments, resulting in emotional exhaustion and reduced coping capacity (Rahmawati et al., 2023). Therefore, interventions to reduce stress in emergency nurses should not only focus on managing personal workload, but also address systemic issues such as fair compensation, staffing adequacy, scheduling, and work culture improvements.

Overview of Nurses' Workload

Workload is an important factor that can affect nurses' well-being and performance in the workplace. The results of this study showed that most nurses in the Emergency Room of RSUD Jampang Kulon had workloads categorized as moderate to heavy. High workload in an emergency setting is typically due to the large number of patients, the critical condition of patients, and the demand to work quickly and accurately in emergency situations (Yuliana & Mirasari, 2020). This condition can increase both physical and mental pressure on nurses, ultimately affecting the quality of nursing services.

High workload is also related to the level of work stress experienced by nurses. Previous research has shown that nurses working under high-pressure conditions tend to experience greater physical, emotional, and psychological fatigue compared to those with lighter workloads (Fadilah & Anwar, 2022) . Besides the number of patients, other factors affecting workload include shift duration, administrative demands, and the limited number of nursing staff in hospitals (Done, 2019). An imbalance between work demands and an individual's capacity to cope can increase the risk of work stress and burnout.

To manage nurses' workload, effective strategies are needed, such as adjusting work schedules, increasing the number of nursing staff, and providing support from hospital management. Research has shown that more proportional task distribution and stress management training can help reduce the negative impact of high workloads (Luthans, 2021). Therefore, it is important for hospitals to identify and address the factors contributing to high workloads in order to maintain nurses' well-being and improve the quality of healthcare services for patients.

Overview of Nurses' Work Stress

Work stress is one of the major challenges faced by nurses, especially those working in emergency units (ER). The results of this study showed that most nurses experienced moderate to high levels of work stress. This finding aligns with previous studies indicating that the ER work environment is often high-pressure due to emergency patients, demands for fast-paced work, and clinical decisions that must be made quickly (Sari & Wulandari, 2019). Prolonged work stress can affect nurses' physical and mental well-being, which in turn can impact the quality of nursing care.

High levels of work stress among nurses are also associated with high workloads and lack of support in the work environment. Sutrisno (2021) stated that prolonged work stress can lead to emotional exhaustion, reduced work motivation, and even burnout. Other contributing factors to work stress in ER nurses include long working hours, pressure from patients' families, and limited resources such as insufficient healthcare staff compared to the number of patients (Haryanti et al., 2020). If work stress is not managed properly, it can lead to decreased productivity and increased risk of errors in nursing actions.

To reduce work stress levels, appropriate strategies are needed from both the hospital and the nurses themselves. Sari et al. (2021) emphasizes the importance of social support in the workplace, such as good supervision from superiors, strong teamwork, and effective stress management programs. In addition, more flexible work schedules, sufficient rest opportunities,

and training related to stress coping strategies can help nurses deal with daily work pressures. With good stress management, nurses can maintain their well-being while continuing to provide optimal care for patients.

The Relationship Between Nurses' Workload and Work Stress in the ER at RSUD Jampang Kulon

The results of this study showed a significant relationship between nurses' workload and work stress levels in the Emergency Room of RSUD Jampang Kulon. Nurses with high workloads tended to experience more severe work stress compared to those with lighter workloads. This finding is consistent with the study by Aini and Purwaningsih, (2019) which found that high workload among nurses in emergency departments is strongly related to increased levels of work stress. Excessive workloads cause nurses to experience physical and emotional fatigue, thereby increasing the risk of errors in nursing practices.

Factors such as a high number of patients, case complexity, and demands to provide rapid service in emergency situations contribute to the increased workload of nurses in the ER. A study by Done, (2019) at Dr. Soetomo General Hospital in Surabaya revealed that nearly all nurses with heavy workloads experienced work stress, indicating a strong correlation between workload and stress. In addition, the imbalance between job demands and available resources such as insufficient nursing staff further exacerbates work stress conditions.

To address this issue, it is important for hospital management to evaluate and adjust nurses' workloads, such as by increasing the number of nursing staff or implementing an effective work rotation system. Research by Hikmawati et al. (2020) emphasizes that proper workload management can help reduce nurses' work stress levels, thereby improving the overall quality of nursing services. Furthermore, stress management training and social support from colleagues and supervisors can help nurses better cope with job pressures BE (Agustin & Mundakir, 2019).

CONCLUSION

The results of this study indicate a significant relationship between nurses' workload and their level of work-related stress in the Emergency Room (ER) at RSUD Jampang Kulon. Nurses with higher workloads tend to experience greater levels of occupational stress compared to those with lighter workloads. Contributing factors include a high number of patients, case complexity, and the demands of providing rapid care in emergency situations.

LIMITATION

This study has several limitations that should be considered when interpreting the results. First, the study was conducted only in one hospital, RSUD Jampang Kulon, so the findings cannot be generalized to all nurses in various healthcare facilities with different working conditions. Second, this study used a quantitative method with a cross-sectional approach, which can only describe the relationship between workload and work stress at a single point in time, without being able to explain causal relationships in depth.

In addition, the data collected were subjective in nature, as the study used questionnaires as the research instrument. Respondents may have different perceptions regarding workload and work stress, which could affect the accuracy of the data obtained. Lastly, this study did not consider other factors that may also contribute to nurses' work stress, such as work environment, social support, and individual coping strategies. Therefore, future studies are recommended to expand the research scope, use a longitudinal design, and consider other variables that may influence nurses' work stress levels.

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