Vol. 6, No. 12, December 2025
E-ISSN:2723 – 6692
P-ISSN:2723– 6595
http://jiss.publikasiindonesia.id/

Analysis of The Relationship Between Workload and Stress In Emergency Department Nurses

Anjayani Wuri Triyanti*, Marcella Marcella, Satriya Pranata, Fatkhul Mubin
Universitas Muhammadiyah Semarang, Indonesia
Email: ridhandesta@gmail.com*, marcellanurse12@gmail.com,
satriya.pranata@unimus.ac.id, Mubin@unimus.ac.id

KEYWORDS
Emergency department; workload; work stress.

ABSTRACT
Emergency Department (ED) nurses are frontline healthcare providers who must remain ready 24 hours a day to deliver rapid emergency services. A high workload and complex cases often lead to work-related stress that affects both the quality of nursing care and nurses' well-being. This study aims to analyze the relationship between workload and stress levels among ED nurses through a systematic literature review. The review included 10 research journals published within the last five years that used quantitative or mixed-method designs and focused on ED nurses in hospital settings. Data were analyzed descriptively with critical appraisal to assess article quality and relevance. Findings show that ED nurse workload varies, with light workload ranging from 15.9%–68.8%, moderate workload from 17.5%–69.7%, and heavy workload from 0%–60%. A significant relationship was identified between workload and work stress. High workload—including large patient volumes, high task intensity, and case complexity—increases physical and psychological pressure on nurses, triggering stress. Workload is influenced by internal factors (gender, age, education, length of service) and external factors (patient numbers, nurse–patient ratio, work systems, facilities). Productive and non-productive nursing activities also contribute. The study concludes that workload significantly affects ED nurse stress. Hospitals must balance workload with nurses' capacities, while nurses require adequate skills to manage the demands of emergency care.

INTRODUCTION

The issue of nurse workload and work-related stress has become a global concern within healthcare systems, particularly in emergency departments that operate under high-pressure and unpredictable conditions (Aeni et al., 2020; Jameson et al., 2018; Macphee et al., 2017; SmithBattle et al., 2021). The World Health Organization (WHO) has emphasized that excessive workload and occupational stress among healthcare workers can negatively affect service quality, patient safety, and workforce sustainability. In many countries, increasing patient volumes, limited human resources, and rising expectations for rapid and accurate medical responses have intensified the psychological and physical burdens experienced by emergency nurses. These challenges are further exacerbated by the need for continuous

vigilance, rapid clinical decision-making, and exposure to critical and traumatic situations, making emergency nurses one of the most vulnerable professional groups to work-related stress (Fischer et al., 2019; Guttikonda & Vadapalli, 2018; Okoliegbe et al., 2024; Pedersen et al., 2023).

In Indonesia, these global challenges align with national health development priorities. The Indonesian Ministry of Health, through the vision of Indonesia Sehat 2025, aims to promote a healthy lifestyle and improve public access to quality health services by strengthening healthcare institutions and empowering health resources (Maniaci et al., 2023; Von Essen & Englander, 2013). Hospitals play a central role in achieving this vision, particularly through the effectiveness of their health service organizations (Huettemann et al., 2024; Rawashdeh, 2018; Todd et al., 2024). Among hospital units, the Emergency Room (ER) is a critical service area that provides continuous, 24-hour care for patients in urgent and life-threatening conditions. ER nurses are required to deliver fast, precise, and responsive care—often under time pressure and resource constraints—while managing diverse patient conditions simultaneously (Ferreira et al., 2020; Kim et al., 2022; Pavedahl et al., 2024). These demands frequently result in high workloads that may contribute to increased levels of occupational stress and fatigue.

Although several studies have examined workload and stress among nurses, most focus on general inpatient settings or specific clinical departments, with limited empirical evidence concentrating on emergency room nurses in the Indonesian context. Moreover, existing studies often assess workload or stress independently, without thoroughly analyzing their direct relationship within high-intensity service environments such as ER units. This gap highlights the need for focused research that examines how workload contributes to work stress among ER nurses, particularly within hospital systems striving to meet national healthcare quality standards.

Therefore, this study aims to analyze the relationship between workload and work stress among nurses working in the Emergency Room (ER). The findings of this study are expected to provide both theoretical and practical benefits. Theoretically, the study contributes to the development of nursing and occupational health literature by strengthening empirical evidence on workload–stress relationships in emergency care settings. Practically, the results can serve as a reference for hospital management and policymakers in designing effective workload management strategies, improving nurse well-being, enhancing service quality, and supporting the achievement of Indonesia Sehat 2025.

METHOD

Meta-analysis is a statistical method used to combine the results of multiple studies on similar topics to obtain stronger and more reliable conclusions. According to Borenstein et al. (2021), meta-analysis produces a pooled effect size that describes the direction and strength of the relationship between variables more accurately than individual studies. The main purposes of meta-analysis are to determine the overall direction and magnitude of relationships across studies, identify moderating factors that may influence study outcomes, and provide a stronger scientific foundation for evidence-based nursing (EBN) practice. The benefits of meta-analysis include increasing the external validity of research findings, reducing individual study bias, and serving as a robust basis for developing nursing policies and interventions. To achieve these

objectives, meta-analysis follows systematic steps, including defining the research topic and problem formulation, conducting a systematic literature search, setting inclusion and exclusion criteria, extracting data from selected studies, calculating effect sizes, pooling results using fixed-effect or random-effect models, and testing heterogeneity and publication bias using statistical indicators such as I^2 and funnel plots.

Several meta-analyses and systematic reviews have examined the relationship between workload and stress among emergency room nurses, consistently showing a positive association. Hermansyah (2019) reported a moderate positive correlation between workload and work stress ($r = 0.45$), indicating that increased workload significantly contributes to higher stress levels. Similarly, Li LZ et al. (2024) found that nurse burnout is closely related to increased stress and declining service quality, while Liang et al. (2025) demonstrated a statistically significant relationship between workload and burnout with moderate to strong effect sizes. Based on these theoretical and empirical findings, a conceptual framework can be developed illustrating workload as a key factor influencing stress and burnout among emergency room nurses, which in turn may affect performance and quality of care.

Workload (physical, mental, emotional)

⬇

Stres Work (psychological, physiological, behavioral)

Connection This show that burden Work tall contribute to improvement stress work, especially If No accompanied by with support social, environmental conducive work and good coping skills from a individual.

RESULTS AND DISCUSSIONS

Journal Analysis

Table 1. Critical Appraisal Workload Relationship with Stress Among Nurses in the Emergency Room

No	Title and Author	Method	Results
1.	Connection between Workload and Stress Work Nurses in the Installation Emergency Emergency Umi Apriliani et al 2024 *Journal of Nursing Studies*	Method: Literature review Subject : 7 journals Instruments : Worksheet Analysis : Litrev	Based on results study of the 7 journals reviewed show that all over journal obtained existence correlation significant positive between burden work and stress work as a nurse in the ER, with p-Value value ranges between 0.0000 to 0.0002, which indicates very significant relationship .
2.	Workload Relationship With Work Stress on Nurses in the Installation Room Emergency Immanuel Hospital Emergency Bandung Ridwanto et al	Method: Quantitative with cross-sectional approach Subjects : 31 people Instrument : Questionnaire	The data results obtained part big is burden Work currently as many as 21 (67.7%) respondents and as many as 21 (67.7%) respondents experience stress Work moderate . Based on results analysis of the data obtained there is significant relationship between burden work and

No	Title and Author	Method	Results
	2024 Journal Knowledge Nursing and Health (JIKK)	Analysis : Spearman Rank Test	stress work for nurses in the installation room Emergency Emergency Immanuel Hospital Bandung (p-value 0.002 or p-value < α value) with mark correlation coefficient 0.536 closeness the relationship medium and direction the relationship positive
3.	Workload Relationship With Stres Working as an Emergency Nurse Eva Erviana 2024 Journal of Health Society	Method: Cross sectional Subjects : 48 people Instrument : Questionnaire Analysis : Fisher Exact Test	research results were obtained part large (66.7%) load Work light , and some large (87.5%) mild stress . The statistical test results obtained Sig value < 0.005, namely 0.001 , means there is significant relationship between burden Work with stress work as a nurse implementer at the Emergency Room of Sayang Regional Hospital, Cianjur Regency .
4.	Workload Relationship with Stress Level Working as a Nurse in the Nakula Sadewa Ward , Panembahan Regional Hospital Senopati Bantul Rima Anggraini et al 2024 Aisyiyah University Yogyakarta	Method: Cross sectional Subjects : 24 people Instrument : Questionnaire Analysis : Spearman Rank Test	Research result obtained (47.8%) load Work moderate , and (91.7%) mild stress . The statistical test results obtained mark coefficient correlation 0.166 (very low) with significance of 0.439 because p-value > 0.05 then Ha is rejected and Ho is accepted , which means No There is meaningful relationships between burden Work with incident stress work as a nurse in the Nakula Sadewa Ward , Panembahan Regional Hospital Senopati Bantul.
5.	Relationship between Workload and Work Environment With Stres Work Nurse ICU and Emergency Room Isna Aglusi Badri 2020 Human Care Journal	Method: Cross sectional Subjects : 47 people Instrument : Questionnaire Analysis : Chi-square test	Research result is nurses who have burden Work heavy as much as 55.3%, nurses own good environment 53.2 % and nurses who experienced stress Work heavy as much as 53.2%. After statistical tests were conducted obtained connection meaningful between burden work and environment Work with stress Work nurses (p<0.05).
6.	Workload Relationship With Stres Work Nurse At Nashrul Ummah Islamic Hospital in Lamongan Ike Prafita Sari et al 2020 Majapahit Hospital	Method: Cross sectional Subjects : 20 people Instrument : Questionnaire Analysis : Spearman Rank Test	Analysis results connection between Workload with Stres Work respondents obtained results of 11 respondents who have burden Work in Medium category shows that part big experience Stres work in the moderate category is also as many as 6 respondents (54.5%). Viewed from statistical test results (Spearman Correlation) were obtained result r = 0.534 α = 0.019 (p < 0.05), then can concluded that there is meaningful relationships between Workload and Stres

No	Title and Author	Method	Results
			working in the Emergency Room and ICU of Nashrul Ummah Hospital, Lamongan
7.	Workload Relationship On Work Stress in Emergency Room Nurses at Dr. Kanujoso Regional General Hospital Djatiwibowo Balikpapan Nur Alpian et al 2024 Journal Occupational Safety , Health and Protection Environment	Method: Cross sectional Subjects : 43 people Instrument : Questionnaire Analysis : Chi-square test	From the results analysis obtained that respondents who are not stressed tend to feel burden light work as many as 22 respondents , and respondents with stress levels tend to feel burden hard work as many as 21 respondents . Hypothesis test results variables burden work and stress levels using chi square were obtained p-Value value of 0.000 <0.005 then Ho is rejected and Ha is accepted which means there is connection between burden Work with stress levels in nurses Emergency room of Kanujoso Regional Hospital .
8.	Workload Relationship With Stress Level Work Nurse In Installation Emergency Emergency Puput Risti Kusumaningrum et al 2022 Journal Leadership and Management Nursing (JKMK)	Method: Cross sectional Subjects : 22 people Instrument : Questionnaire *Personal Stress Inventory.* Analysis : Spearman Rank Test	Research result burden Work nurse nurse data obtained with burden Work currently as many as 8 respondents (36.4%), and burden Work tall as many as 8 people (36.4%), while level stress Work nurse nurse data obtained with stress Work currently as many as 16 respondents (72.7%). After done data analysis using correlation *Spearman Rank* obtained mark *p value* of 0.01 or more small from 0.05 with *Correlation Coefficient* is 0.536. The conclusion from study This is There is connection between Workload With Stress Level Work Nurse in the Emergency Room.
9.	*Correlation Between Nurses Workload and Work Stress in the Emergency Department* Taopik Hidayat et al 2025 Journal Priority Nursing	Method: Cross sectional Subjects : 29 people Instrument : Questionnaire NASA-TLX (*Task Load Index*) for measure burden work and questionnaire stress Work using HSE (*Health and Safety Executive*). Analysis : Spearman Rank Test	Research result show that 62.1% of nurses experience burden Work high , while 58.6% experienced stress Work currently . Spearman's rank test shows correlation significant positive between burden work and stress work (p = 0.001; r = 0.642), which means that improvement burden Work relate with improvement stress work . Findings This highlight importance management burden Work For reduce level stress among nurse . Repair scheduling work , improve ratio staff , and provide management programs stress in a way regular recommended For increase well-being and performance service nurse . As conclusion , there is significant relationship between burden work and stress work among nurse at the

No	Title and Author	Method	Results
			Emergency Room of Jampang Kulon Hospital .
10.	*The Correlation Between Workload And Occupational Stress Of Nurses In The Emergency Department of Regional Public Hospital , Prof. Dr. WZ Johannes Kupang Regional Public Hospital* Antonius Rino V et al 2019 Indonesian Journal of Nursing and Midwifery	Method: Cross sectional Subjects : 40 people Instrument : Questionnaire Analysis : Chi-square test	Research result obtained (82.5%) load Work moderate , and (67.5%) work stress moderate . The statistical test results obtained p -value 0.000 or more low of á 0.05, which means that H0 is rejected and indicates that burden Work correlated with stress Work nurse on site study .

Journal findings used as the sample in this study are literature sources that meet the required research criteria. A total of 10 journals related to the relationship between workload and nurses' stress levels in the emergency room were analyzed, and the results are described as follows.

Nurses, as the caring profession, are health professionals in hospitals who possess the competence, responsibility, and authority to provide health services. They serve as the frontline of hospital care, particularly in emergency unit services. Emergency room nurses work quickly to assist patients who require immediate medical attention, including those with severe illnesses and trauma. The heavy duties and responsibilities carried out physically and mentally often lead nurses to experience high workloads (Prasetyo, 2020). Based on the reviewed studies, light workload ranged from 15.9%–68.8%, moderate workload from 17.5%–69.7%, and heavy workload from 0%–60%. Overall, most nurses in the emergency room experience a moderate level of workload.

Findings from journals 5 and 6 explain in greater detail that workload can be influenced by productive and non-productive nursing activities. Productive activities include direct and indirect nursing care, while non-productive activities involve non-clinical tasks. The high workload in emergency rooms largely results from strict and rapid service demands necessary to maintain patients' conditions and save lives. Additional workload arises from continuous monitoring, documentation, prevention of patient-condition deterioration, and the obligation to convey accurate information to patients' families (Sugesti, 2018).

Journal 7 highlights that workload is influenced by both internal and external factors. Internal factors involve individual characteristics such as gender, length of service, and age. External factors include job demands, organizational structure, working hours, and physical work environment conditions such as temperature, noise, lighting, and dust exposure. Interpersonal relationships at work also contribute to workload and stress levels. High workload among nurses is common, but excessive workload has significant impacts. Nurses who face pressure daily, especially in emergency rooms, may experience physical and mental fatigue,

headaches, digestive disorders, irritability, and other emotional reactions that may lead to work stress.

Stress level findings across journals show light stress at 18.5%–58.8%, moderate stress at 41.2%–78.8%, and high stress at 0%–53.2%. Overall, most nurses experience moderate work stress. Work stress may last from several hours to several days, marked by stomach aches, muscle tension, difficulty sleeping, and perceived emotional burden. Several journals indicate that nurse stress occurs when the number of tasks exceeds available personnel. According to Higley in Cox (1996) as cited in Haryanti et al. (2019), nursing is inherently a profession full of stress. Nurses face suffering, trauma, death, lack of recognition, and continuous pressure, often feeling undervalued. Stress increases when the patient-to-nurse ratio is unbalanced..

Journal 5 highlights that emergency room nurses carry out three main responsibilities: life support, patient monitoring, and prevention of complications. These responsibilities become heavier when dealing with critical patients who have complex problems, contributing to higher stress levels. Study findings categorize nurse stress into biological, social, and psychological stress. Biological stress is indicated by increased tension in the neck, shoulders, and back; increased pulse and respiratory rates; sweating; headaches; digestive issues; changes in appetite and weight; and restlessness. Social stress is shown through decreased productivity, frequent mistakes, absenteeism, and conflict with colleagues. Psychological stress includes anxiety, depression, fatigue, sleep disturbances, loss of motivation, difficulty concentrating, and mental exhaustion.

When stress reaches its peak, nurses experience performance decline, impaired decision-making, loss of self-control, and inability to function effectively. In severe cases, nurses may become ill, unable to work, or resign from their jobs. Of the 10 journals analyzed, nine concluded that there is a relationship between workload and work stress among emergency room nurses, whereas one journal (journal no. 4) found no significant relationship. The absence of a relationship in journal no. 4 was attributed to the sample characteristics: all nurses were female, within productive age (31–40 years), had adequate educational backgrounds (mostly Diploma III), and had long working experience (11–20 years). These factors supported effective coping mechanisms, reducing stress levels. Additionally, task division in the Nakula Sadewa Ward was well organized, resulting in lighter workloads and lower stress levels.

Based on the reviewed literature, it can be concluded that workload has the potential to cause work stress among nurses. Proper management is essential to reduce workload levels and, consequently, stress levels—thereby improving nurse performance and the overall quality of hospital services. The literature review provides valuable insights into the relationship between workload and work stress among emergency room nurses. Although limitations remain in the reviewed studies, the findings sufficiently answer the research objective by demonstrating that workload is associated with nurse stress in emergency settings.

CONCLUSION

Research results show that workload significantly influences stress levels among emergency room nurses. A high workload—including the number of patients, task intensity, and case complexity—increases the physical and psychological pressure experienced by nurses, thereby triggering work stress. The dynamic and demanding conditions of the ER, which

require rapid responses, further amplify this impact. Therefore, effective workload management is essential to reduce nurse stress and maintain the quality of services in the emergency room.

REFERENCES

Aeni, H. F. Riatul, Banowati, L., & Nur'alinda, T. (2020). Correlation between physical workload and musculoskeletal disorders complaints among nurses at hospital. *Indonesian Journal of Occupational Safety and Health, 9*(1), 88–94. https://doi.org/10.20473/ijosh.v9i1.2020.88-94

Alpian, N., Zulfikar, I., & Wahyuni, S. (2024). Relationship between workload on work stress in the emergency room nurses of Dr. Kanujoso Regional General Hospital Djatiwibowo Balikpapan. *Identification, 10*(1), 143–149.

Anggraini, R., Masitoh, R., & Ariyani, N. (2024, October). Relationship between workload and stress level of nurses in the Nakula Sadewa Ward, Panembahan Regional Hospital Senopati Bantul. In *Proceedings of the National Seminar on Research and Community Service to the Community of LPPM Aisyiyah University Yogyakarta* (Vol. 2, pp. 1859–1865).

Antonius Rino Vanchapo, A. R. V., Mahoklory, S. S. M., & Merlin, N. M. M. (2019). The correlation between workload and occupational stress of nurses in the emergency department of RSUD Prof. Dr. W. Z. Johannes Kupang. *Indonesian Journal of Nursing & Midwifery, 7*(1), 18–23.

Apriliani, U. (2024). Relationship between workload and work stress of nurses in the emergency department. *Edukalia Journal, 5*(1), 45–52.

Badri, I. A. (2020). Relationship between workload and work environment with work stress of nurses in ICU and emergency room. *Human Care Journal, 5*(1), 379–390.

Borenstein, M., Hedges, L. V., Higgins, J. P. T., & Rothstein, H. R. (2021). *Introduction to meta-analysis*. Wiley.

Erviana, E. (2024). Relationship between workload and work stress in emergency room nurses. *Journal of Health Society, 13*(2), 105–111.

Ferreira, M. T., Fernandes, J. F., Jesus, R. A., & Araújo, I. M. (2020). Emergency room approach: Safe nursing staffing. *Revista de Enfermagem Referência, 2020*(1), e19086. https://doi.org/10.12707/RIV19086

Fischer, S. K., Williams, K., Wang, L., Capio, E., & Briman, M. (2019). Development of an IL-6 point-of-care assay: Utility for real-time monitoring and management of cytokine release syndrome and sepsis. *Bioanalysis, 11*(19), 1757–1769. https://doi.org/10.4155/bio-2019-0192

Guttikonda, S. N. R., & Vadapalli, K. (2018). Approach to undifferentiated dyspnea in the emergency department: Aids in rapid clinical decision-making. *International Journal of Emergency Medicine, 11*(1), 19. https://doi.org/10.1186/s12245-018-0181-z

Hidayat, T., Abdillah, H., Hamidah, E., & Hadiyanto, H. (2025). Correlation between nurses' workload and work stress in the emergency department. *Journal Nursing Priority, 8*(2), 102–111.

Huettemann, R., Sevov, B., Meister, S., & Fehring, L. (2024). How to establish digital health ecosystems from the perspective of health service organizations: A taxonomy developed based on expert interviews using a modified Delphi approach. *Digital Health, 10*, 1–14. https://doi.org/10.1177/20552076241271890

Jameson, B. E., Engelke, M. K., Anderson, L. S., Endsley, P., & Maughan, E. D. (2018). Factors related to school nurse workload. *Journal of School Nursing, 34*(3), 211–221. https://doi.org/10.1177/1059840517718063

Kim, S., Gu, M., & Sok, S. (2022). Relationships between violence experience, resilience, and nursing performance of emergency room nurses in South Korea. *International Journal of Environmental Research and Public Health, 19*(5), 2617. https://doi.org/10.3390/ijerph19052617

MacPhee, M., Dahinten, V. S., & Havaei, F. (2017). The impact of heavy perceived nurse workloads on patient and nurse outcomes. *Administrative Sciences, 7*(1), 7. https://doi.org/10.3390/admsci7010007

Maniaci, G., La Cascia, C., Giammanco, A., Ferraro, L., Palummo, A., Saia, G. F., Pinetti, G., Zarbo, M., & La Barbera, D. (2023). The impact of healthy lifestyles on academic achievement among Italian adolescents. *Current Psychology, 42*(6), 4431–4442. https://doi.org/10.1007/s12144-021-01614-w

Okoliegbe, I., Brodie, L., Cowie, A., Tan, B., Clements, S., Muir, Z., & El Sakka, N. (2024). Implementation and impact of rapid SARS-CoV-2 point-of-care testing on patient flow in the frailty pathway: A quality improvement approach. *PLOS ONE, 19*(1), e0296294. https://doi.org/10.1371/journal.pone.0296294

Pavedahl, V., Muntlin, Å., von Thiele Schwarz, U., Meranius, M. S., & Holmström, I. K. (2024). Fundamental care in the emergency room: Insights from patients with life-threatening conditions. *BMC Emergency Medicine, 24*(1), 133. https://doi.org/10.1186/s12873-024-01133-4

Pedersen, M. L., Gildberg, F. A., Laulund, R., Jørgensen, K., & Tingleff, E. B. (2023). Nurses' clinical decision-making in the use of rapid tranquillization in adult mental health inpatient settings: An integrative review. *International Journal of Mental Health Nursing, 32*(5), 1258–1273. https://doi.org/10.1111/inm.13181

Rawashdeh, A. M. (2018). The impact of green human resource management on organizational environmental performance in Jordanian health service organizations. *Management Science Letters, 8*(10), 1049–1058. https://doi.org/10.5267/j.msl.2018.7.006

Ridwanto, R., & Kurnia, G. M. (2024). Relationship between workload and work stress among nurses in the emergency installation of Immanuel Hospital Bandung. *Journal Knowledge Nursing and Health, 1*(4), 15–24.

Sari, I. P. S. (2020). Relationship between workload and work stress of nurses at RSI Nashrul Ummah Lamongan. *Majapahit Hospital: Journal Mojokerto Health Polytechnic Health Science, 12*(1), 9–17.

SmithBattle, L., L'Ecuyer, K. M., Meyer, G., & Shatto, B. (2021). The quest for workload equity in nurse faculty teaching. *Nursing Outlook, 69*(1), 34–43. https://doi.org/10.1016/j.outlook.2020.06.007

Todd, A. L., Petrunoff, N., Frommer, M., & Nutbeam, D. (2024). The value of health service-based research to health service organisations: A qualitative study with senior health service executives. *Health Research Policy and Systems, 22*(1), 49. https://doi.org/10.1186/s12961-024-01149-z

von Essen, E., & Englander, M. (2013). Organic food as a healthy lifestyle: A phenomenological psychological analysis. *International Journal of Qualitative Studies on Health and Well-Being, 8*(1), 20559. https://doi.org/10.3402/qhw.v8i0.20559