

THE INFLUENCE OF WORKLOAD AND WORK ENVIRONMENT ON PERFORMANCE WITH WORK STRESS AS A MEDIATING VARIABLE AT SHANGHAI JIN DUO SHIPPING CO., LTD

Ergo Halomoan Tua Pandiangan¹, Rudi Bambang Trisilo²

Department of Management, Faculty of Economics and Business, Trilogi University, Jakarta, Indonesia

E-mail: 1ergopandiangan@gmail.com

ABSTRACT

This study examines the impact of workload and work environment on employee performance, with work stress as a mediating variable at Shanghai Jin Duo Shipping Co., Ltd. A quantitative approach was employed, collecting primary data from 47 employees through questionnaires. Path analysis was used to process the data. The findings reveal that workload and work environment significantly influence work stress, which in turn affects employee performance. While workload does not directly impact performance, the work environment has a significant effect. Moreover, work stress mediates the relationships between workload and performance, as well as the work environment and performance. These insights can help the company develop effective managerial strategies to enhance employee performance and well-being.

Keywords

workload, work environment, work stress, performance, mediation, path analysis

1. INTRODUCTIONS

Background

The shipping industry plays a crucial role in Indonesia's economy as a maritime nation, heavily relying on sea transport for connectivity and trade. Globally, the industry serves as a vital link between producers and consumers, making it an essential part of daily life. However, shipping jobs are highly demanding, characterized by long working hours, harsh conditions, and significant safety risks. Prolonged working hours can lead to fatigue, which negatively impacts employee performance and increases accident risks. Inadequate energy intake relative to workload further accelerates fatigue, reducing productivity. Additionally, the challenging work environment contributes to work stress, with factors such as high workloads, extended shifts, and poor physical conditions exacerbating employee stress, potentially leading to severe health and performance issues.

Shanghai Jin Duo Shipping Co., Ltd., a China-based shipping company, has faced declining employee performance over the past three years, from 89.7 to 83.3. This decline is likely influenced by high workloads and a demanding work environment, which contribute to increased work stress. Research suggests that workload significantly affects work stress, as employees handling excessive tasks often experience emotional and physical strain. Studies have also highlighted the role of work-life balance as a mediator, helping employees manage work pressures while maintaining well-being. However, some

findings indicate that other factors, such as workplace conditions and social support, may have a greater impact on stress than workload alone.

The work environment also plays a key role in employee stress and performance. A negative work environment, characterized by poor facilities, excessive noise, and strained interpersonal relationships, can increase stress levels. Conversely, a supportive and well-managed work environment enhances motivation and reduces psychological pressure. While some studies confirm a direct link between work environment and stress, others suggest that factors like shift patterns and organizational culture may play a more dominant role. Similarly, work stress has a complex relationship with performance. High stress levels can reduce focus, productivity, and motivation, ultimately impacting efficiency. However, in some cases, performance may be influenced more by external support and compensation rather than stress levels.

Workload management is crucial in optimizing employee performance. Uneven workload distribution can demotivate employees, while well-structured workloads can improve efficiency. Some studies highlight a strong relationship between workload and performance, while others argue that stress and organizational support act as mediating factors. The work environment also significantly impacts performance, particularly in industries that require high concentration and physical endurance. A conducive work environment improves morale and effectiveness, while a poorly managed one can hinder productivity. Despite this, some research indicates that discipline and rewards play a more significant role in performance than the work environment itself.

Based on these observations, this study aims to analyze the impact of workload and work environment on performance, with work stress as a mediating factor at Shanghai Jin Duo Shipping Co., Ltd. The research seeks to provide insights into the relationships between these variables and offer practical recommendations for improving workload management and workplace conditions to enhance employee performance. By focusing on stress as a mediator, this study contributes to both academic literature and corporate human resource strategies, supporting efforts to maintain competitiveness in the global shipping industry.

Theoretical Framework And Literature Review

Workload refers to the amount of work assigned to an employee within a specific timeframe, taking into account factors such as task volume and standard time allocation. Budiasa (2021) defines workload as the ratio between the total required time to complete a task and the standard time allocated. It is not just about task quantity but also how time is managed to meet targets efficiently. Juanda and Nasution (2024) describe workload as an excessive number of tasks that must be completed within a given period, impacting both physical and psychological conditions if they exceed an individual's capacity. Permendagri (2008) further explains workload as the result of work volume multiplied by standard time, ensuring efficiency across organizational units. Effective workload management is essential for maintaining productivity without causing excessive stress.

Several factors influence workload, including motivation, job satisfaction, and the work environment. Nasution (2022) states that motivation drives employees to handle high workloads efficiently, while a lack of motivation can make even minimal tasks feel overwhelming. Job satisfaction, influenced by salary, career growth, and work relationships, also affects workload perception. Employees satisfied with their job tend to be more resilient, whereas dissatisfaction increases the perception of workload pressure. Additionally, a conducive work environment with adequate facilities and supportive colleagues can mitigate workload-related stress, whereas a poor environment amplifies it.

Workload indicators include target achievement, working conditions, time utilization, and job standards (Budiasa, 2021). High and complex targets increase workload intensity. Workplace conditions, such as available resources and risk levels, also affect workload perception. Time management efficiency plays a crucial role, as employees with limited time or extended working hours may experience a heavier workload. Lastly, high job standards demand greater efficiency and accuracy, adding to workload intensity.

The work environment encompasses all factors that influence employees' ability to perform tasks effectively. Sedarmayati (2017) categorizes it into physical aspects such as tools, workspace, and technical setups, and psychological aspects including interpersonal relationships, stress levels, and motivation. A well-structured environment enhances efficiency and job satisfaction, while poor conditions can increase stress and lower productivity. Rahmawati et al. (2021) highlight the significance of social and psychological factors, including teamwork, managerial support, and overall workplace culture.

Key factors affecting the work environment include physical and psychological elements (Afandi, 2018). Physical factors, such as workspace design, lighting, and noise levels, influence comfort and efficiency. Poor ergonomic conditions or excessive noise can negatively impact performance. Psychological factors, such as workload pressure, unclear job roles, and interpersonal conflicts, contribute to workplace stress. Addressing both aspects is vital for creating a balanced and productive environment.

Work stress arises when job demands exceed an individual's capacity to cope, affecting both physiological and behavioral responses. Hasibuan (2019) defines work stress as the interaction between workplace demands and an employee's ability to manage them. Kristanti and Pangastuti (2019) describe it as pressure caused by demanding job expectations, which can lead to psychological and physical strain. Prolonged stress can reduce motivation and focus, leading to decreased performance and well-being.

Several factors contribute to work stress, including workload demands, job control, role ambiguity, and social support (Natalia et al., 2022). Excessive workload, combined with limited autonomy, increases stress levels. Role conflicts and unclear expectations create uncertainty, adding to psychological pressure. Support from colleagues and supervisors plays a crucial role in mitigating stress, while a lack of support exacerbates workplace tensions.

Indicators of work stress include workload intensity, leadership style, working hours, conflicts, communication effectiveness, and job authority (Hasibuan, 2019). A heavy workload often leads to fatigue and emotional exhaustion. Poor leadership, characterized by unclear expectations or lack of support, increases stress levels. Long working hours and unresolved workplace conflicts also contribute to heightened stress. Clear communication and adequate job control help mitigate stress-related issues.

Employee performance is defined as the ability to meet job expectations and achieve organizational goals efficiently. Sarif, Mappamiring, and Malik (2020) describe performance as the outcome of efforts to fulfill predefined objectives using available resources. Widodo (2022) emphasizes that performance reflects both quality and quantity of work, measuring an individual's contribution to the organization. Mangkunegara (2015) highlights the importance of productivity, accountability, and initiative in assessing performance.

Factors affecting performance include motivation, job satisfaction, and discipline (Susanto, 2019). Motivated employees tend to work more efficiently and remain

committed to achieving targets. Job satisfaction, influenced by career development opportunities and work environment, enhances employee engagement. Discipline ensures adherence to organizational procedures, leading to increased reliability and effectiveness.

Performance indicators include task efficiency, operational safety, teamwork, accountability, and initiative (Sarif et al., 2020). Effective task execution and optimal resource utilization reflect strong performance. Ensuring workplace safety minimizes disruptions and maintains productivity. Collaboration within teams enhances efficiency, while accountability and initiative demonstrate proactive engagement in job responsibilities.

Understanding the interactions between workload, work environment, work stress, and performance is essential for organizations seeking to optimize productivity and employee well-being. A balanced approach to workload management, supportive work conditions, and stress mitigation strategies can enhance overall performance and organizational success.

2. METHODOLOGY

This study explores the relationship between workload, work environment, and employee performance, with work stress as a mediating variable. Workload, including task volume and complexity, influences employee stress levels, while the work environment, encompassing physical and social factors such as facilities, relationships, and organizational culture, plays a critical role in well-being and productivity. Work stress emerges as a psychological and physical response to excessive work demands, affecting efficiency and performance quality. This research hypothesizes that work stress mediates the impact of workload and work environment on performance, either exacerbating negative effects or helping employees adapt. The study aims to provide insights into human resource management in the shipping industry, particularly at Shanghai Jin Duo Shipping Co., Ltd.

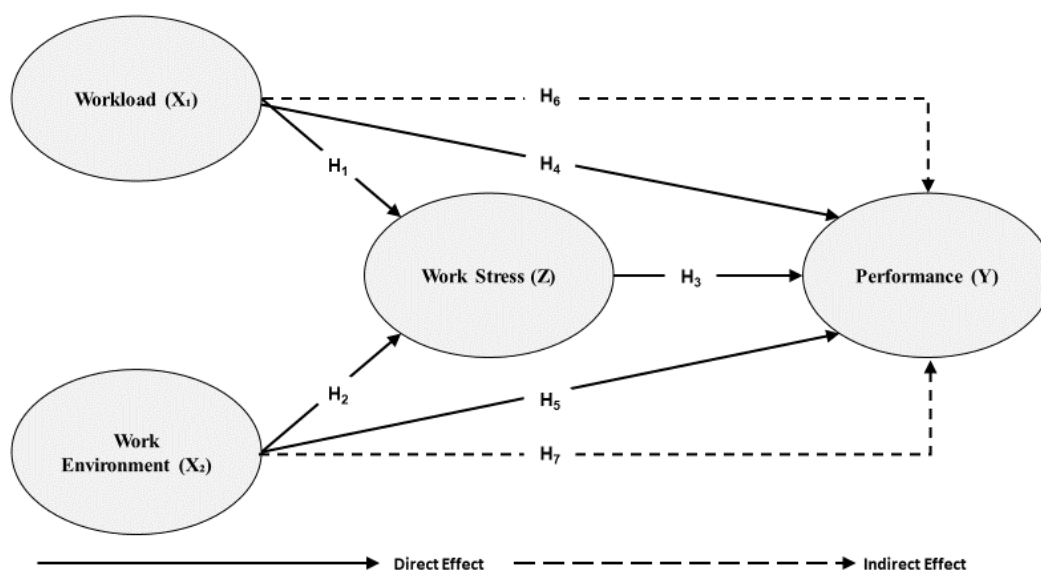


Figure 1. Conceptual Framework

Based on the conceptual framework and previous studies, the hypotheses of this research are as follows:

1. Workload significantly affects work stress.
2. Work environment significantly affects work stress.
3. Work stress significantly affects employee performance.
4. Workload significantly affects employee performance.
5. Work environment significantly affects employee performance.
6. Work stress mediates the relationship between workload and employee performance.
7. Work stress mediates the relationship between work environment and employee performance.

This research employs a cross-sectional design with an observational-analytical approach to examine these relationships. The study includes 47 employees at Shanghai Jin Duo Shipping Co., Ltd., using a saturated sampling technique to ensure comprehensive data collection. Data is gathered through structured questionnaires using a Likert scale to measure workload, work environment, work stress, and performance.

Path analysis is used to assess direct and indirect relationships among variables, with statistical processing conducted using SPSS. Validity and reliability tests ensure measurement accuracy and consistency, where Cronbach's Alpha values above 0.7 indicate acceptable reliability. Path analysis assumptions, including normality, linearity, multicollinearity, and heteroscedasticity, are tested to ensure model accuracy.

Hypothesis testing involves several statistical methods, including correlation coefficient tests to measure variable relationships, the coefficient of determination (R^2) to evaluate explanatory power, the F-test to determine overall model significance, the t-test to assess individual variable significance, and the Sobel test to examine mediation effects.

The results of this study are expected to provide empirical evidence on how workload and work environment impact employee performance through work stress. These findings can help organizations implement better workload management strategies, improve workplace conditions, and develop effective stress management policies to enhance employee productivity and well-being.

3. RESEARCH RESULTS AND DISCUSSION

This study examines the impact of workload and work environment on employee performance, with work stress as a mediating variable at Shanghai Jin Duo Shipping Co., Ltd. The research findings are derived from descriptive analysis, path analysis, and hypothesis testing to establish relationships among these variables.

Descriptive Analysis Results

The study involved 47 employees, all of whom were male. The majority of respondents (87.2%) were aged 26–40 years, indicating a workforce in their prime career stage. Regarding education, 40.4% had a diploma degree, and 27.7% held a bachelor's or higher degree. In terms of work experience, 42.6% had been employed for more than 10 years, while 25.5% had worked for 3–5 years.

Responses regarding workload indicate that 44.7% of employees disagreed that their workload was misaligned with their job conditions, while 38.3% were neutral about their targets being unrealistic. This suggests that, overall, employees perceive their workload as manageable.

Regarding the work environment, 48.9% disagreed that leadership failed to foster a positive work culture, while 46.8% remained neutral about the adequacy of workplace

safety and health facilities. This suggests a generally positive work environment but with room for improvement in safety measures.

In terms of work stress, 51.1% disagreed that workload caused excessive pressure, and 51.1% also rejected the idea that communication challenges significantly contributed to stress. However, 40.4% felt their work schedule was demanding, highlighting moderate stress levels.

Performance evaluation showed positive results, with 70.2% agreeing they adhered to safety protocols and 68% confirming their teamwork effectiveness. These findings suggest a high level of employee responsibility and engagement, despite some concerns over stress and workload management.

Hypothesis Testing and Path Analysis Results

The path analysis results confirm the following relationships:

1. Workload significantly affects work stress ($\beta = 0.475$, $t = 4.460$, $p < 0.05$), indicating that higher workload increases stress.
2. Work environment significantly affects work stress ($\beta = 0.499$, $t = 4.691$, $p < 0.05$), meaning a poor work environment raises stress levels.
3. Work stress negatively impacts performance ($\beta = -0.550$, $t = -3.880$, $p < 0.05$), implying that higher stress leads to lower employee performance.
4. Workload does not directly affect performance ($\beta = -0.176$, $t = -1.459$, $p > 0.05$), suggesting stress fully mediates the workload-performance relationship.
5. Work environment negatively impacts performance ($\beta = -0.253$, $t = -2.064$, $p < 0.05$), indicating that a poor environment reduces performance.
6. Work stress mediates the relationship between workload and performance (Sobel test = -2.927 , $p < 0.05$), confirming work stress plays a crucial role in reducing performance due to workload.
7. Work stress also mediates the relationship between work environment and performance (Sobel test = -2.992 , $p < 0.05$), indicating that work environment influences performance through stress levels.

The determination coefficient ($R^2 = 89.6\%$ for stress and 91.1% for performance) suggests that workload, work environment, and stress collectively explain a high proportion of performance variation among employees.

4. CONCLUSION

The study concludes that workload and work environment significantly influence work stress among employees at Shanghai Jin Duo Shipping Co., Ltd. Work stress negatively impacts performance, while workload does not directly affect performance. However, the work environment has a direct negative effect on performance. Additionally, work stress mediates the relationship between workload and performance and between work environment and performance.

5. REFERENCE

- Afandi, P. (2018). *Manajemen Sumber Daya Manusia: Teori, Konsep, dan Indikator*. Pustaka Pelajar.
- Budiasa, I. G. N. (2021). *Pengaruh Beban Kerja terhadap Kinerja Karyawan dengan Stres Kerja sebagai Variabel Mediasi*. *Jurnal Manajemen dan Bisnis*, **8**(2), 55–68.
- Hasibuan, M. (2019). *Manajemen Sumber Daya Manusia*. Bumi Aksara.

- Juanda, R., & Nasution, F. (2024). *Beban Kerja dan Produktivitas Karyawan: Studi Kasus di Industri Maritim*. Jurnal Manajemen dan Bisnis, **12**(1), 89–102.
- Kambuno, R., Simega, B., & Dewi, R. (2024). *Pengaruh Lingkungan Kerja terhadap Kinerja Karyawan di Institusi Pendidikan*. Jurnal Perilaku Organisasi, **9**(1), 45–58.
- Kristanti, Y., & Pangastuti, R. (2019). *Stres Kerja dan Dampaknya terhadap Produktivitas Karyawan: Perspektif Psikologi*. Jurnal Psikologi Industri dan Organisasi, **14**(3), 112–130.
- Lestari, S. (2024). *Peran Kepuasan Kerja dalam Mengurangi Stres Akibat Beban Kerja di Perusahaan Pelayaran*. Jurnal Ilmu Manajemen, **7**(2), 32–48.
- Mangkunegara, A. A. A. P. (2015). *Evaluasi Kinerja Sumber Daya Manusia*. Refika Aditama.
- Natalia, R., Gunawan, A., & Prasetyo, H. (2022). *Dampak Stres Kerja terhadap Kinerja Karyawan: Peran Mediasi Motivasi*. Jurnal Pengembangan Sumber Daya Manusia, **15**(2), 76–90.
- Nasution, F. (2022). *Motivasi Karyawan dan Perannya dalam Manajemen Beban Kerja*. Jurnal Manajemen Sumber Daya Manusia, **10**(1), 58–72.
- Nugraha, R. W., & Rahmi, P. P. (2024). *Hubungan antara Stres Kerja dan Produktivitas Karyawan di Industri Manufaktur*. Jurnal Manajemen Industri, **11**(2), 65–80.
- Permendagri. (2008). *Peraturan Menteri Dalam Negeri Nomor 12 Tahun 2008 tentang Standar Beban Kerja Pegawai Negeri Sipil*. Kementerian Dalam Negeri Republik Indonesia.
- Rahmawati, A., Sunaryo, H., & Widodo, T. (2021). *Lingkungan Kerja dan Kepuasan Karyawan: Studi Kasus di Sektor Transportasi*. Jurnal Riset Manajemen, **9**(1), 34–49.
- Sarif, M., Mappamiring, & Malik, A. (2020). *Pengukuran Kinerja dalam Industri Maritim: Pengaruh Lingkungan Kerja dan Motivasi*. Jurnal Ekonomi dan Bisnis, **18**(3), 101–115.
- Sedarmayati. (2017). *Manajemen Sumber Daya Manusia: Strategi Meningkatkan Kinerja Organisasi*. PT Refika Aditama.
- Siswanto, A., Amin, D., Wirawan, S., & Chamariyah, A. (2024). *Pengaruh Lingkungan Kerja Fisik dan Non-Fisik terhadap Kinerja Personel Militer*. Jurnal Kajian Pertahanan dan Keamanan, **14**(1), 88–103.
- Sugiharto, O., Suherman, E., & Khalida, L. R. (2024). *Dampak Beban Kerja terhadap Stres Kerja: Studi di Industri Minyak dan Gas*. Jurnal Ilmu Organisasi, **10**(2), 77–92.
- Susanto, H. (2019). *Motivasi dan Kinerja: Peran Komitmen Organisasi*. Jurnal Manajemen Sumber Daya Manusia, **6**(3), 45–60.
- Universitas Trilogi. (2018). *Buku pedoman penulisan tesis dan artikel terpublikasi program Magister Manajemen*. Universitas Trilogi. Retrieved from <https://info.trilogi.ac.id/>
- Widodo, A. (2022). *Manajemen Sumber Daya Manusia dan Produktivitas Karyawan: Peran Evaluasi Kinerja*. Jurnal Riset Bisnis dan Manajemen, **13**(1), 67–83.
- Yofani, A. Z., & Chaira, T. I. (2024). *Konflik di Tempat Kerja dan Pengaruhnya terhadap Motivasi serta Kinerja Karyawan*. Jurnal Etika Bisnis, **11**(2), 54–72.
- Yuliyanti, I. D., Yulianto, H., & Wicaksono, D. A. (2024). *Peran Lingkungan Kerja dalam Tingkat Stres Karyawan: Studi di Pabrik Garmen*. Jurnal Hubungan Industri, **12**(1), 99–115