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The Influence of Work Environment and Compensation on Employee Performance with Work Stress as a Mediation Variable at PT Trans Energy Tanadoang

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ABSTRACT

This study aims to analyze the effect of work environment and compensation on employee performance through job stress as a mediating variable at PT Trans Energy Tanadoang. This study employed a quantitative approach using an *explanatory research* method with a total sampling technique involving 50 respondents. The data were analyzed using the *Partial Least Square-Structural Equation Modeling* (PLS-SEM) method with the assistance of SmartPLS 4 software. The results indicate that: (1) work environment has a positive and significant effect on employee performance; (2) compensation has a positive and significant effect on employee performance; (3) work environment has a negative and significant effect on job stress; (4) compensation has a negative and significant effect on job stress; (5) job stress has a negative and significant effect on employee performance; (6) job stress mediates the effect of work environment on employee performance; and (7) job stress mediates the effect of compensation on employee performance.

Keywords: Work Environment, Compensation, Job Stress, Employee Performance.

1. INTRODUCTION

The work environment is all the conditions around employees that affect the implementation of work and performance achievement (Herlambang et al., 2022). A comfortable, safe, and supported work environment supported by harmonious relationships between employees and leaders can increase motivation, reduce absenteeism, and encourage better performance (Rabuana & Yanuar, 2023).

In addition to the work environment, compensation is also an important component in human resource management because it can increase motivation, dedication, and the achievement of organizational goals if given appropriately (Handoko et al., 2021).

Another factor that also determines performance is work stress. Work stress is a mental and physical reaction due to pressure derived from workload, work environment conditions, and personal factors (Kaban & Jacksen, 2024).

This research was conducted on PT Trans Energy Tanadoang, a *Liquefied Petroleum Gas* (LPG) distributor company operating in the archipelago. The company's operational characteristics include land and sea distribution, delivery time pressure, weather conditions, and high physical workload, so that it has the potential to shape the dynamics of the work environment, compensation, work stress, and employee performance that are different from the previous research objects. In addition, most previous studies have only examined the relationship between the work environment and compensation to performance separately, while studies that integrate the two variables with work stress as mediating variables are still relatively limited (Kaban & Jacksen, 2024). This condition shows that there is a gap in terms of results, context, and research model, so a more comprehensive study is needed.

Based on the results of an interview with the *Human Resources* (HR) division of PT Trans Energy Tanadoang, employee performance is the main factor in supporting the success of *Liquefied Petroleum Gas* (LPG) distribution. Although the company's operational capacity continues to increase, the realization of distribution in the 2025-2026 period has actually decreased compared to the previous period. In 2018–2020 the

company was able to distribute around 9,360 tubes per month with 20 employees, while in the 2021–2024 period it increased to around 43,680 tubes per month with 30 employees. However, in the 2025–2026 period, when the number of employees increases to 50 people and is supported by an increase in the fleet of ships and distribution vehicles, the realization of distribution decreases to around 36,400 cylinders per month. The company's internal evaluation shows that the decline is related to the unstable performance of employees, especially in periods with high distribution loads. Assessments based on timeliness of distribution, productivity, and discipline show that distribution targets have not been consistently achieved. Therefore, this study is important to analyze the influence of the work environment and compensation on the performance of employees with work stress as a mediation mechanism at PT Trans Energy Tanadoang.

The results of the interviews show that PT Trans Energy Tanadoang has tried to improve employee performance through the provision of various work facilities, such as operational vehicles, communication tools, administrative rooms, rest areas, as well as warehouse arrangement and the addition of supporting facilities to support operational effectiveness. However, there are still several obstacles, including hot warehouse temperatures, limited workspaces, operational disruptions on ships, and the need to update work tools. In addition, employee relations and communication with superiors have been quite good, although uneven workload sharing and abrupt work instructions are still a source of pressure for some employees. These conditions indicate that the work environment that has been improved still leaves several factors that have the potential to increase work stress and affect the implementation of daily work (Afandi, 2018).

From the compensation aspect, the company has implemented a system in the form of basic salary, meal and transportation allowances, incentives based on the number of deliveries, and operational allowances for certain positions. Compensation payments are made in a timely manner and evaluated annually taking into account the company's development and minimum wage adjustments. However, employees still provide input regarding the incentive scheme which is considered not to fully reflect the level of difficulty of each distribution route. In addition, the high workload of field employees is considered to have not been fully offset by a compensation system that is able to reduce work pressure. These findings show that the improvement of the compensation system is still needed to be more fair according to job characteristics while supporting the improvement of employee motivation and performance (Hasibuan, 2019).

The results of the interviews also show that the most dominant problem is high work stress, especially in the distribution and field operations. According to HR, the pressure that employees often complain about comes from the high distribution load, target delivery time, strenuous physical activity, and increasing distribution volume in certain periods, such as ahead of holidays and the end of the month. This condition causes a decrease in performance when the workload increases so that the achievement of the company's targets becomes less consistent. In addition, high distribution volume, suboptimal condition of operational facilities, and increased work pressure are the main factors affecting the decline in performance. Thus, work stress not only impacts the psychological condition of employees, but also affects the productivity and success of the company in achieving operational targets (Robbins & Judge, 2022).

Overall, the results of the interviews indicate that the problems faced by PT Trans Energy Tanadoang are not only related to operational aspects, but also influenced by the psychological condition of employees while carrying out their work. Although companies have made efforts to improve the work environment and provide adequate compensation, complaints about work stress still arise frequently, especially when distribution activities increase. This condition causes employee performance to not be fully stable so that distribution targets are difficult to achieve consistently. Therefore, this study was conducted to examine the influence of the work environment and compensation on employee performance by placing work stress as a mediating variable, so as to provide an overview of the mechanism of the relationship between variables at PT Trans Energy Tanadoang.

The purpose of this study is to analyze the influence of work environment, compensation, and work stress on employee performance; examine the influence of the work environment and compensation on work stress; and analyze the role of work stress as a mediating variable in the relationship between the work environment and compensation for employee performance at PT Trans Energy Tanadoang.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1 Social Exchange Theory (SET)

Social Exchange Theory (SET) was first introduced by Homans (1958) who explained that social relations are formed through the process of exchange based on the principle of reciprocity. Individuals tend to maintain relationships that provide greater benefits than costs, so that behaviors that produce positive consequences will be repeated, while detrimental behaviors will be avoided (Homans, 1958). The concept was then developed by Blau (1964) by emphasizing that social exchange includes not only economic aspects, but also rewards, attention, trust, support, and respect. Interactions that take place continuously will form a moral obligation (felt obligation) to reciprocate the treatment received so that the relationship develops to be more stable, based on trust, commitment, and sustainable social relationships (Blau, 1964).

In the context of organizations, social exchange theory views the relationship between the organization and employees as an exchange relationship that takes place on an ongoing basis. Organizations provide various benefits to employees, while employees reciprocate them through attitudes and behaviors that support the achievement of organizational goals (Melkamu, 2023). These benefits are not only in the form of economic rewards, but also include socioemotional resources, such as organizational support, supervisor support, awards, recognition, supportive work characteristics, and fair treatment (Saks, 2006). Organizational treatment, including fairness, rewards, support of superiors, and good working conditions, forms the perception that the organization values contributions and cares about the well-being of employees. This perception fulfills socio-emotional

needs while fostering a felt obligation to make a positive contribution to the organization (Rhoades & Eisenberger, 2002). Quality social exchange relationships have also been shown to increase commitment and performance, while reducing burnout, psychological strain, and work stress (Kurtessis et al., 2015).

According to the perspective of social exchange theory, the relationship between the organization and employees is influenced by the assessment of fairness, balance, and the benefits derived from the process of social exchange (Zhang et al., 2025). Factors such as work environment, compensation, job security, and participation in decision-making are seen as social exchange factors that determine the quality of the relationship (Melkamu, 2023).

Based on the development of social exchange theory, this study views the work environment and compensation as the benefits that the organization provides to employees in social exchange relationships. Employees will evaluate these benefits based on perceptions of fairness, balance, and the principle of reciprocity. When the work environment is perceived as conducive and compensation is considered fair, social exchange relationships will develop positively, strengthen the relationship between the organization and employees, reduce work stress, and encourage performance improvement. On the other hand, if the exchange relationship is considered unfair or unbalanced, this condition can give rise to psychological distress that develops into work stress and reduces the ability of employees to make optimal contributions. Therefore, this study places work stress as a psychological mechanism that explains the influence of the work environment and compensation on employee performance through the process of social exchange, so that the relationship between work environment, compensation, work stress, and employee performance can be comprehensively explained within the framework of social exchange theory.

2.2 Employee Performance

Employee performance is the level of individual success in carrying out tasks and responsibilities which is reflected in the quality and quantity of work results during a certain period in accordance with the responsibilities given (Mangkunegara, 2017). Performance is not only oriented to the end result, but also pays attention to the process of implementing work so that organizational goals can be achieved effectively (Armstrong, 2009). In addition to being influenced by individual abilities and efforts, performance achievement also depends on the support of the organization in providing supportive facilities and work environment (Mathis & Jackson, 2017). In addition, the work behavior shown during the performance of tasks is an important part of performance appraisal because it contributes to organizational effectiveness (Borman & Brush, 1993).

Meanwhile, Mathis & Jackson (2017) put forward six performance indicators consisting of quantity, quality, punctuality, attendance, efficiency of work completed, and effectiveness of work completed. These indicators assess the quantity and quality of work results, accuracy of task completion, attendance rate, ability to utilize resources efficiently, and success in producing work in accordance with organizational targets. Lazer & Wikstrom (1977) measured performance through three aspects, namely technical ability, conceptual ability, and interpersonal relationship skills, which reflect the employee's competence in carrying out work, solving problems, and building good working relationships.

In this study, employee performance indicators refer to Mangkunegara (2017), namely work quality, work quantity, responsibility, cooperation, and initiative. The selection of these indicators is based on their ability to describe the work results and work behavior of employees as a whole and in accordance with the characteristics of the research object.

2.3 Work Stress

Work stress is a condition of stress experienced by employees due to work demands that affect mental, emotional, physical, and psychological balance so that it can hinder the implementation of work (Hasibuan, 2014). This condition arises when work demands exceed the individual's ability to cope with them, thus potentially reducing health and the ability to complete tasks (Nurfazar et al., 2025). Factors that cause work stress include high workload, excessive work demands, difficult targets to achieve, and limited work completion time (Afandi, 2018).

According to Afandi (2018), indicators of work stress include work demands, role demands, relationships between employees, organizational structure, and leadership style. The five indicators describe the pressures derived from work conditions, role responsibilities, interactions with colleagues, clarity of organizational structure, and leadership patterns applied in the organization.

Meanwhile, Nurfazar et al. (2025) put forward six indicators of work stress, namely time pressure, lack of support from superiors, uncomfortable work environment, lack of appreciation, imbalance of authority and responsibility, and unclear roles. These indicators describe various sources of stress that can affect the psychological state and productivity of employees.

In this study, the indicators of work stress refer to Hasibuan (2014), namely conflict, communication, work time, leadership attitude, and workload. The indicator was chosen because it was able to represent the main source of work stress experienced by employees and was assessed according to the characteristics of the research object.

2.4 Work Environment

The work environment is all the conditions that are around employees and can affect the implementation and results of work (Nitisemito, 1982). The environment includes physical and non-physical aspects, such as spatial layout, work facilities, relationships between employees, and various other conditions that affect comfort during work (Siagian, 2015). A conducive work environment is able to create a comfortable work atmosphere so as to increase morale, effectiveness in carrying out tasks, and support the achievement of organizational goals (Dwianto & Damanik, 2024). On the other hand, unsupportive working conditions can increase work pressure, reduce concentration, and trigger stress that has an impact on decreased employee performance (Nursanti & Julianti, 2021).

Nitisemito (1982) stated that the work environment is measured through three indicators, namely the work atmosphere, relationships with colleagues, and the availability of work facilities. The working atmosphere is related to the conditions of the workplace which includes cleanliness, lighting, tranquility, completeness of facilities, and environmental conditions that support the implementation of work. Relationships with

colleagues show the creation of harmonious and conflict-free interactions so that they can increase employee comfort and loyalty to the organization. Meanwhile, the availability of work facilities illustrates the adequacy of facilities and infrastructure that help employees carry out their duties effectively.

2.5 Compensation

Compensation is all forms of compensation that the company provides to employees as an appreciation for the contributions that have been made (Hasibuan, 2017). The form of compensation is not only in the form of financial rewards, but also includes non-financial compensation such as benefits and work facilities aimed at improving employee welfare (Handoko et al., 2021). In human resource management, compensation has an important role as a form of organizational appreciation as well as a strategy to increase motivation, maintain a qualified workforce, and encourage the achievement of company goals (Ernawati et al., 2023). In addition to improving employee welfare, a properly managed compensation system is also able to strengthen commitment and encourage more optimal contributions to the organization (Rianda & Winarno, 2022).

According to Hasibuan (2017), compensation is measured through five main indicators, namely salary, wages, incentives, benefits, and facilities. Salary is a routine payment that employees receive in exchange for work done, while wages are given based on the amount of work time or hours that have been completed. Incentives are given as an additional reward for work achievements that exceed predetermined standards. Allowances are compensation beyond the basic salary that aims to improve employee welfare, for example through the provision of Hari Raya Allowance (THR). The facilities are in the form of providing work facilities and infrastructure that support the smooth implementation of work while increasing employee comfort.

3. RESEARCH MEHODOLOGY

This study uses a quantitative approach with the type of explanatory research which aims to explain the relationship between variables and test hypotheses through numerical data analysis. The quantitative approach is based on the positivism paradigm and utilizes research instruments to obtain data that is then analyzed using statistical techniques to test the hypothesis that has been formulated (Sugiyono, 2025). In this study, the analysis was directed to determine the influence of the work environment and compensation on employee performance, either directly or through work stress as a mediating variable.

The research applied a cross-sectional design, which is the collection of data carried out once (one-shot) in a certain period to answer the research objectives (Sekaran & Bougie, 2010).

The research was carried out at PT Trans Energy Tanadoang which is located on Jalan S. Siswomiharjo, Benteng, Benteng District, Selayar Islands Regency, South Sulawesi 92811. This location was chosen because the company has a dynamic work environment and involves employees directly in operational activities, so it is considered appropriate to examine the influence of compensation and work environment on employee performance with work stress as a mediating variable.

An entire object or subject that has certain characteristics and is set by the researcher as the target of the research. The population in this study is all employees of PT Trans Energy Tanadoang which totals 50 people and comes from various divisions, namely Human Resources, Finance, Sales Admin, Distribution Driver, Ship Crew, and Stock Admin.

Samples are part of the population that represents the characteristics of the population (Sugiyono, 2025). This study uses a non-probability sampling technique with a census approach (total sampling), where all members of the population are used as research samples (Sugiyono, 2025).

The data collection technique in this study was carried out through interviews and the distribution of printed questionnaires (paper based questionnaires) directly to the respondents. The interview was conducted at an early stage with the Human Resources (HR) of PT Trans Energy Tanadoang to obtain an overview of the company's condition, especially related to the work environment, compensation, work stress, and employee performance. The research instrument used a paper based questionnaire that was systematically compiled to measure the relationship between work environment, compensation, work stress, and employee performance at PT Trans Energy Tanadoang.

This study uses the Partial Least Square-Structural Equation Modeling (PLS-SEM) method as a data analysis technique. According to Hair et al. (2019), PLS-SEM is a method that combines interdependence and dependency techniques to analyze relationships between constructs simultaneously.

4. RESULTS AND DISCUSSION

4.1 Research Results

Respondents were dominated by male employees as many as 39 people (78%), while female employees amounted to 11 people (22%). The dominance of the male workforce reflects the characteristics of PT Trans Energy Tanadoang as a company engaged in gas cylinder distribution operations, where field work such as land operations and ship crews require more male workers.

Respondents consisted of 7 people aged ≤20 years (14%), 11 people aged 21-30 years (22%), 31-40 years old as many as 15 people (30%), and 17 people >40 years old (34%).

The education level of the respondents was quite diverse, namely 13 elementary school (26 people), junior high school 16 people (32), high school/vocational school as many as 9 people (18%), diploma (D1-D4) as many as 1 person (2%), S1 as many as 10 people (20%), and S2 as many as 1 person (2%). The majority of respondents came from elementary and junior high school education levels with a total of 58%.

Respondents came from three work units, namely offices as many as 16 people (32%), land operations as many as 19 people (38%), and sea operations as many as 15 people (30%). The distribution shows a relatively balanced representation of each work unit. Because the study used a saturated sample technique (census), all 50 respondents represented the employee population of PT Trans Energy Tanadoang.

Respondents with working period less than 1 year amounted to 5 people (10%), 26 people (52%) with working period of 1–5 years, and working period more than 5 years were 19 people (38%). The results showed that most employees had worked for 1–5 years, followed by the group with more than 5 years of service.

This study uses descriptive statistical analysis to describe the characteristics of the data through the distribution of frequency, percentage, and mean values in each questionnaire item. To make the interpretation of the results more systematic, the assessment categories were determined using the class interval method. Based on the calculation of the class interval, a value of 0.8 was obtained, which was then used as the basis for grouping the mean value of respondents into five categories, namely very low (1.00–1.80), low (1.81–2.60), medium (2.61–3.40), high (3.41–4.20), and very high (4.21–5.00) (Simamora, 2005). The classification is used to explain the level of respondents' assessment of each research variable.

The results of the analysis showed that the work environment variable (X1) obtained a mean value of 3.483 so that it was in the high category. These findings indicate that respondents consider the work environment at PT Trans Energy Tanadoang to have provided good support for the implementation of the work. This positive assessment is reflected in a conducive work atmosphere, fairly harmonious relationships between colleagues, and the availability of work facilities that support employee operational activities.

Based on the measured indicators, the availability of work facilities obtained the highest mean value of 3,520 in the high category. These results show that the facilities provided by the company have helped employees in carrying out their work. Based on the results of the interviews, the company provides various supporting facilities such as personal protective equipment (PPE), operational vehicles, communication tools, and other work facilities that support the smooth running of operational activities. In contrast, the work atmosphere indicator obtained the lowest mean value, which was 3,460, although it was still in the high category. These conditions show that the working atmosphere is still considered good, but it is influenced by the company's operational characteristics, such as working conditions on the ship, weather changes, limited movement space, and the density of the work area at certain times.

At the item level, the highest mean value is obtained items X1.2.1, i.e. "I have a good working relationship with a coworker", and item X1.3.2, i.e. "The work facilities provided by the company help me in completing the work". Both items obtained a mean value of 3,540 in the high category. These results show that good working relationships and the availability of work facilities are the aspects of the work environment that receive the highest appreciation from respondents. The findings were reinforced by the results of interviews which explained that the relationship between employees was going well and the company had provided facilities that made it easier to complete the work. On the other hand, item X1.2.2 with the statement "My coworkers help each other in completing work" obtained the lowest mean value of 3,400. However, the results of the interviews show that these differences in perceptions are influenced by the sometimes uneven distribution of the burden, although this condition can generally be resolved through good internal communication.

The compensation variable (X2) obtained a mean value of 3.309 so it is included in the medium category. These results show that respondents consider the compensation provided by PT Trans Energy Tanadoang to be quite good, although there are still several aspects that need to be improved. The compensation in question includes salaries, wages, incentives, benefits, and facilities received by employees. Based on the results of the interviews, the company provides compensation in the form of basic salary, meal and transportation allowances, incentives based on the number of deliveries, and operational allowances for certain positions. In addition, evaluations of the compensation system are also carried out periodically to keep them in accordance with the needs of the company and employees.

Judging from each indicator, incentives obtained the highest mean value of 3,420 and were in the high category. This shows that the incentives provided by the company are considered to be able to increase employee motivation and performance. The results of the interview explained that the provision of incentives is based on the number of deliveries, punctuality, and administrative order as a form of reward for performance achievements. On the other hand, the wage indicator obtained the lowest mean value of 3,160 in the medium category. These findings show that respondents' perceptions of wages for additional hours are still lower than other aspects of compensation, even though companies have made efforts to provide wages that comprise the additional work performed.

At the item level, the X2.1.1 statement, i.e. "My salary was paid on time by the company", obtained the highest mean value of 3,460 in the high category. These results show that the timeliness of salary payments is the most appreciated aspect of compensation by respondents. This finding is also supported by the results of interviews which state that compensation payments have always been made according to schedule without experiencing delays. Meanwhile, item X2.2.1 with the statement "I received a living wage for the additional hours of work provided by the company" obtained the lowest mean value of 3,160 and was in the medium category. This condition indicates that respondents' assessment of the feasibility of overtime wages is still not as high as other aspects of compensation. Based on the results of the interviews, the company evaluates the compensation system every year by considering adjustments to the minimum wage and the company's performance conditions so that the compensation policy can continue to be adjusted to the needs of the organization and employees.

Based on Table 4.9, the work stress variable (Z) obtained a mean variable of 3,326 so it is included in the medium category. These results show that the level of work stress felt by PT Trans Energy Tanadoang employees is at a moderate level. This means that respondents still face pressure in carrying out their work, especially related to daily operational activities. Based on the results of the interviews, the sources of pressure that are most often experienced come from the high distribution load, the demands of delivery time, and the physical work that is quite heavy, especially in the operational part of the field.

Judging from the mean indicator, the working time indicator obtained the highest score of 3,440 in the high category. This shows that pressure related to working time is the most dominant aspect felt by employees. The results of the interviews revealed that stress levels tend to increase ahead of holidays and the end of the month when the demand for LPG distribution increases, so the demand for completing work in a limited time becomes even greater. In contrast, the workload indicator obtained the lowest mean indicator of 3,250 and belongs to the medium category. However, the results of the interviews show that physical workload is still one of the causes of stress, especially for distribution drivers and crew members who have to meet delivery targets and carry out high-intensity operational activities.

At the item mean level, item Z1.3.1 with the statement "My working hours often exceed normal working hours" obtained the highest value of 3,440 so it is in the high category. The results showed that respondents most agreed with working hours that

exceed normal working hours as a factor that causes work stress. The interview findings also reinforce that the increasing demand for LPG distribution in certain periods causes time pressures to be even greater. Meanwhile, the lowest mean value of the item is found in item Z1.5.2 with the statement "The workload I received exceeded the set working capacity" of 3,180 in the medium category. This shows that respondents' perception of workloads that exceed capacity is still at a moderate level. Based on the results of the interviews, the company has made various efforts to reduce work pressure through discussions between HR and employees, adjustment of distribution routes, division of tasks, and providing additional break time if needed.

Based on Table 4.10, the employee performance variable (Y) obtained a mean variable of 3,576 which is included in the high category. This value is the highest compared to other variables in this study. These results show that most respondents consider their performance to have gone well, so that they are able to carry out their duties and responsibilities in accordance with the company's regulations. Based on the interview results, these achievements are supported by a clear division of tasks, cooperation between employees, and work experience that helps smooth operational activities.

Based on the mean indicator, the work quality indicator obtained the highest score of 3,690 in the high category. These results show that the quality of work results is the aspect that gets the best rating, which reflects the employee's efforts in completing the work carefully according to the company's standards. The results of the interviews also show that the company emphasizes the importance of precision in every work process to minimize errors, especially in LPG distribution activities. Meanwhile, the work quantity indicator obtained the lowest mean indicator of 3,480, but remained in the high category. This shows that employees' ability to meet work targets is considered good, although relatively lower than other indicators. This condition is influenced by the characteristics of operational work that depend on the volume of distribution and the situation in the field so that the amount of work completed can be different in each period.

At the item mean level, the highest score is obtained item Y1.1.2 with the statement "I pay attention to every detail of the work so that the work results meet the set standards" and item Y1.4.2 with the statement "I am able to work well together in a team". Both items obtained a mean of 3,700 in the high category. These results show that thoroughness in working and the ability to work together are the aspects that are most appreciated by respondents. These findings are in line with the characteristics of a company's work that requires team coordination and rigor in order for the distribution process to take place effectively. The lowest mean value of the item is found in item Y1.4.1 with the statement "I am willing to help a colleague when needed" of 3,460, but it remains in the high category. These results show that the attitude of mutual assistance between employees has been well implemented, although there is still an opportunity to further strengthen collaboration in the implementation of work.

This study used the Partial Least Squares-Structural Equation Modeling (PLS-SEM) method with the help of SmartPLS 4 software to analyze data from 50 respondents. The PLS-SEM approach was chosen because it has the ability to process data flexibly without requiring strict normal distribution. The analysis process is carried out through two stages, namely a measurement model (outer model) to evaluate the quality of research instruments based on aspects of validity and reliability, and a structural model (inner model) to test the relationship between variables while proving the research hypothesis.

Convergent validity testing aims to ensure that each indicator is able to represent the measured construct consistently. Evaluation was carried out through outer loading and Average Variance Extracted (AVE) values. According to Hair et al. (2019), the ideal indicator has an outer loading above 0.70, while the construct is declared to meet convergent validity if it has an AVE value of at least 0.50. However, indicators with outer loading in the range of 0.40–0.70 can still be maintained if their removal does not provide a significant improvement in model quality, especially in Composite Reliability and AVE values.

Table 4.1 Loading indicator results

Variabel	Question Items	*Outer loading*	Remarks	AVE
Work Environment (X1)	X1.1.1	0.754	Valid	0.638
	X1.1.2	0.858	Valid	
	X1.2.1	0.785	Valid	
	X1.2.2	0.781	Valid	
	X1.3.1	0.788	Valid	
	X1.3.2	0.821	Valid	
Compensation (X2)	X2.1.1	0.765	Valid	0.613
	X2.1.2	0.813	Valid	
	X2.2.1	0.783	Valid	
	X2.3.1	0.802	Valid	
	X2.4.1	0.781	Valid	
	X2.5.1	0.774	Valid	
	X2.5.2	0.763	Valid	
Employee Performance (Y)	Y1.1.1	0.771	Valid	0.613
	Y1.1.2	0.835	Valid	
	Y1.2.1	0.782	Valid	
	Y1.3.1	0.788	Valid	
	Y1.3.2	0.814	Valid	
	Y1.4.1	0.567	Valid	
	Y1.4.2	0.856	Valid	

Variabel	Question Items	*Outer loading*	Remarks	AVE
	Y1.5.1	0.747	Valid	
	Y1.5.2	0.816	Valid	
	Y1.5.3	0.839	Valid	
Kerja stress (Z)	Z1.1.1	0.802	Valid	0.595
	Z1.2.1	0.772	Valid	
	Z1.3.1	0.728	Valid	
	Z1.4.1	0.847	Valid	
	Z1.4.2	0.749	Valid	
	Z1.5.1	0.764	Valid	
	Z1.5.2	0,732	Valid	

Source: SmartPLS 4 (Processed by researcher)

The results of the analysis showed that almost all indicators in the variables of work environment (X1), compensation (X2), work stress (Z), and employee performance (Y) had an outer loading value above 0.70. Only one indicator, Y1.4.1, obtained an outer loading value of 0.567. Even though it is below the ideal value, the indicator still meets the minimum limit so it is still worth maintaining because the entire construct already has an AVE value above 0.50.

In detail, the working environment variable (X1) has an outer loading value of 0.754–0.858 with an AVE of 0.638, which shows that 63.8% of the variation of the indicator can be explained by the construct. The compensation variable (X2) obtained an outer loading between 0.763–0.813 and AVE of 0.613, thus being able to explain 61.3% of the variance of the indicator. Furthermore, the work stress variable (Z) has an outer loading range of 0.728–0.847 with an AVE of 0.595, while the employee performance variable (Y) has an outer loading between 0.567–0.856 with an AVE of 0.613. Although there is one indicator with an outer loading value below 0.70, the AVE value that has exceeded the minimum limit indicates that the employee performance construct still meets the convergent validity requirements.

Overall, the entire research construct met the convergent validity requirement, which was indicated by the AVE value above 0.50 and the dominance of the outer loading value above 0.70. Thus, the research instrument is declared valid to measure each construct and is suitable for use at the structural model (inner model) testing stage.

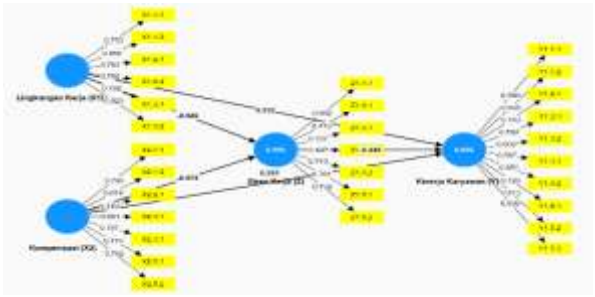


Figure 4.1 Measurement Model
Source: SmartPLS 4 (Processed by the researcher

Discriminant validity testing is performed to ensure that each construct has different characteristics and does not overlap with each other. Referring to Hair et al. (2019), the evaluation is carried out using cross loading values, where an indicator is declared to meet discriminant validity if the loading value of the original construct is higher than the loading value of other constructs.

Table 4.2 Cross Loading Results

Item	Work Environment (X1)	Compensation (X2)	Employee Performance (Y)	Kerja stress (Z)
X1.1.1	0.753	-0.063	0.479	-0.289
X1.1.2	0.859	-0.072	0.648	-0.493
X1.2.1	0.783	0.057	0.570	-0.476
X1.2.2	0.782	0.080	0.583	-0.419
X1.3.1	0.788	-0.015	0.554	-0.370

Item	Work Environment (X1)	Compensation (X2)	Employee Performance (Y)	Kerja stress (Z)
X1.3.2	0.823	-0.043	0.507	-0.406
X2.1.1	0.132	0.766	0.491	-0.571
X2.1.2	-0.084	0.814	0.363	-0.393
X2.2.1	-0.056	0.783	0.384	-0.366
X2.3.1	-0.069	0.801	0.402	-0.409
X2.4.1	0.004	0.781	0.407	-0.488
X2.5.1	-0.097	0.774	0.396	-0.432
X2.5.2	0.063	0.762	0.470	-0.401
Y1.1.1	0.581	0.384	0.780	-0.633
Y1.1.2	0.576	0.395	0.838	-0.730
Y1.2.1	0.523	0.412	0.783	-0.704
Y1.3.1	0.470	0.632	0.788	-0.599
Y1.3.2	0.603	0.341	0.802	-0.615
Y1.4.1	0.442	0.338	0.567	-0.376
Y1.4.2	0.574	0.401	0.854	-0.726
Y1.5.1	0.528	0.369	0.726	-0.598
Y1.5.2	0.561	0.574	0.813	-0.646
Y1.5.3	0.635	0.340	0.838	-0.676
Z1.1.1	-0.457	-0.422	-0.714	0.802
Z1.2.1	-0.435	-0.470	-0.655	0.773
Z1.3.1	-0.261	-0.453	-0.619	0.727
Z1.4.1	-0.429	-0.501	-0.692	0.847
Z1.4.2	-0.330	-0.402	-0.503	0.749
Z1.5.1	-0.433	-0.427	-0.583	0.764
Z1.5.2	-0.442	-0.387	-0.590	0.732

Source: SmartPLS 4 (Processed by researcher)

The results of cross loading showed that all indicators had the highest loading values in the variables they measured. In the work environment variable (X1), for example, the X1.1.2 indicator has a load of 0.859, higher than its correlation with compensation, employee performance, and work stress. The same is also seen in the compensation variable (X2), where the X2.1.2 indicator obtains a load of 0.814 which is greater than the relationship with other constructs. In the employee performance variable (Y), indicator Y1.4.2 showed a loading value of 0.854, while indicator Z1.4.1 in the work stress variable (Z) had a loading of 0.847, which is also higher than its correlation with other variables.

Based on these results, all indicators are proven to have the highest cross loading value in their original constructs. These findings show that each indicator is able to measure the specific variable in question without overlapping with other constructs. Therefore, all variables in the study have met the criteria of discriminant validity according to the guidelines of Hair et al. (2019).

The results of cross loading analysis showed that all indicators had the highest loading value in the construct they represented. This condition indicates that each indicator is able to accurately represent the original construct and can be distinguished from other constructs. Thus, the requirements for discriminant validity based on *cross loading* have been met so that each construct in the model has distinctly different characteristics and does not overlap.

Table 4.3 HTMT Results

Construct Pairs	***Heterotrai monotrait ratio* (HTMT)**
Work Environment (X1) <-> Compensation (X2)	0.136
Work Stress (Z) <-> Work Environment (X1)	0.574
Compensation (X2) <-> Employee Performance (Y)	0.582
Work Stress (Z) <-> Compensation (X2)	0.626
Work Environment (X1) <-> Employee Performance (Y)	0.771
Work Stress (Z) <-> Employee Performance (Y)	0.886

Source: SmartPLS 4 (Processed by researcher)

Discriminatory validity testing was also carried out using the Heterotrait Monotrait Ratio (HTMT) as presented in the HTMT value for all construct pairs, namely Work Environment–Compensation (0.136), Work Stress–Work Environment (0.574), Compensation–Employee Performance (0.582), Work-Stress – Compensation (0.626), Work Environment–Employee Performance (0.771), and Work Stress–Employee Performance (0.886), all of which are below the limit of value 1 as recommended by Henseler et al. (2015). These results confirm that each construct has a good level of differentiation so that the requirements for discriminant validity in the research model have been met.

The reliability test aims to ensure that the research instrument has a good level of consistency in measuring each construct (Sugiyono, 2025). In the PLS-SEM approach, internal consistency is evaluated through Cronbach's Alpha and Composite Reliability (Hair et al., 2019). A construct is declared reliable if both values reach a minimum of 0.70 so that the instrument is considered stable and suitable for use at the next stage of analysis.

Table 4.4 Reliability Test

	Cronbach's Alpha	***Composite Reliability***
Work Environment (X1)	0.886	0.893
Compensation (X2)	0.895	0.899
Employee Performance (Y)	0.928	0.933
Kerja stress (Z)	0.886	0.890

Source: SmartPLS 4 (Processed by researcher)

All research variables have met the reliability criteria. The Work Environment variable obtained a Cronbach's Alpha value of 0.886 and Composite Reliability of 0.893. The Compensation variable shows values of 0.895 and 0.899, respectively. Employee Performance had the highest reliability score with Cronbach's Alpha of 0.928 and Composite Reliability of 0.933, while Work Stress obtained scores of 0.886 and 0.890. All of these values are above the minimum required limit so that it can be concluded that the entire construct has good internal consistency and is suitable for use as a measuring tool in research.

Structural Model (Inner Model) evaluation is carried out to test the relationship between latent variables while proving the research hypothesis. According to Hair et al. (2019), the analysis of the inner model is carried out after the outer model meets the requirements for validity and reliability. The evaluation of the structural model in this study includes testing the Path Coefficient and R-Square (R^2).

Table 4.5 Path Coefficient

Influence Relationships	**Path Coefficient**	***t-statistics***	***p-values***	**Remarks**

Work Environment (X1) -> Employee Performance (Y)	0.532	5.740	0.000	Signifikan
Work Environment (X1) -> Work Stress (Z)	-0.526	6.794	0.000	Signifikan
Compensation (X2) -> Employee Performance (Y)	0.352	3.894	0.000	Signifikan
Compensation (X2) -> Work Stress (Z)	-0.573	6.666	0.000	Signifikan
Work Stress (Z) -> Employee Performance (Y)	-0.336	3.433	0.001	Signifikan

Source: SmartPLS 4 (Processed by researcher)

It shows that all relationships between variables have t-statistics greater than 1.96 and p-values less than 0.05, so that all influence paths are declared significant. The Work Environment has a positive effect on Employee Performance with a path coefficient of 0.532, while on Work Stress shows a negative effect of -0.526. Compensation also has a positive effect on Employee Performance of 0.352 and a negative effect on Work Stress of -0.573. In addition, Work Stress has a negative influence on Employee Performance with a path coefficient of -0.336. Overall, the model shows two positive relationships, namely Work Environment to Employee Performance and Compensation to Employee Performance, while the other three relationships are negative, namely Work Environment to Work Stress, Compensation for Work Stress, and Work Stress to Employee Performance. The bootstrapping results provide a visual overview of the direction of the relationship and the magnitude of the path coefficient produced.

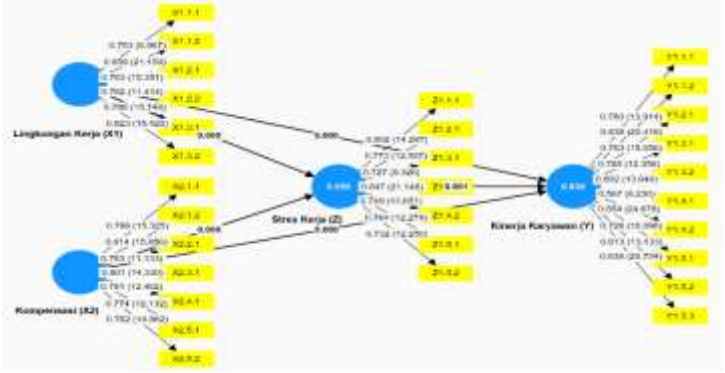


Figure 4.2 Bootstrapping
Source: SmartPLS 4 (Processed by researcher)

The R-Square coefficient of determination (R^2) is used to measure the ability of exogenous variables to explain variations in endogenous variables. According to Hair et al. (2019), the R-Square value indicates a level of in sample predictive power, with the interpretation that a value of ≥0.75 indicates strong predictive ability, ≥0.50 indicates moderate predictive ability, and ≤0.25 reflects weak predictive ability.

Table 4.6 R-Square

Affected variables	***R-Square***	***R-Square Adjusted***
Employee Performance (Y)	0.836	0.825
Kerja stress (Z)	0.599	0.582

Source: SmartPLS 4 (Processed by researcher)

The Employee Performance variable obtained an R-Square of 0.836 with an Adjusted R-Square of 0.825. The results show that Work Environment, Compensation, and Work Stress together are able to explain 82.5% of the variation in Employee Performance, while the remaining 17.5% are influenced by other factors outside the model. An Adjusted R-Square value that exceeds 0.75 indicates that the model has strong predictive capabilities in explaining changes in Employee Performance.

Meanwhile, the Work Stress variable has an R-Square of 0.599 with an Adjusted R-Square of 0.582. This means that Work

Environment and Compensation were able to explain 58.2% of the variation in Work Stress, while the remaining 41.8% were influenced by other variables that were not included in the study. The Adjusted R-Square value above 0.50 indicates that the model has predictive ability in the moderate category, so that the two exogenous variables are quite capable of explaining changes in Work Stress.

The effect size (f^2) evaluation aims to determine the magnitude of the contribution of each exogenous variable to the endogenous variable in the structural model. Referring to Hair et al. (2019), an f^2 value of 0.02 indicates a small influence, 0.15 indicates a moderate influence, and 0.35 indicates a large influence. Based on these criteria, all relationships in this study were dominated by the category of large influences, except for the relationship between work stress and employee performance which was in the medium category.

Table 4.7 F-Square

Variable Relationships	*F-Square*	Influence
Work Environment (X1) -> Employee Performance (Y)	1.018	Large
Work Environment (X1) -> Work Stress (Z)	0.689	Large
Compensation (X2) -> Employee Performance (Y)	0.414	Large
Compensation (X2) -> Kerja stress (Z)	0.820	Large
Work Stress (Z) -> Employee Performance (Y)	0.275	Medium

Source: SmartPLS 4 (Processed by researcher)

The results of the analysis showed that the work environment (X1) contributed the most to employee performance (Y) with an f^2 value of 1.018, making it the most dominant relationship in the model. In addition, the work environment (X1) also has a major influence on work stress (Z) with an f^2 value of 0.689. The compensation variable (X2) showed a great influence on employee performance (Y) with an f^2 value of 0.414, while work stress (Z) obtained an f^2 value of 0.820 which is also included in the large category. Meanwhile, work stress (Z) affects employee performance (Y) with an f^2 value of 0.275 so it is classified as a moderate influence. Overall, the results show that the work environment and compensation have a strong contribution in explaining changes in endogenous variables, while the contribution of work stress to employee performance is at a moderate level.

Predictive relevance (Q^2) testing was used to assess the model's ability to predict endogenous variables. According to Ghozali & Kusumadewi (2023), the Q^2 value is obtained through the blindfolding procedure, where the model is declared to have good predictive ability if the Q^2 value is greater than zero. Hair et al. (2019) explained that Q^2 calculation can be done using the cross-validated redundancy and cross-validated communality methods. This study uses a cross-validated redundancy approach because it is able to evaluate the measurement model and structural model simultaneously so that it is more suitable for PLS-SEM analysis.

Table 4.8 Q2 Predictive Relevance

Variabel	Q^2
Employee Performance (Y)	0.489
Kerja stress (Z)	0.341

Source: SmartPLS 4 (Processed by researcher)

Based on the test results, the employee performance variable (Y) obtained a Q^2 value of 0.489, while work stress (Z) had a Q^2 value of 0.341. Both values are above zero, indicating that the model has good predictive ability for each endogenous variable. Thus, the exogenous variables in this study are able to provide relevant predictions of changes in employee performance and work stress. Overall, a positive Q^2 value indicates that the model is not only able to explain the relationships between variables, but also has good predictive relevance.

Standardized Root Mean Square Residual (SRMR) was used to assess the degree of compatibility between the observation data correlation matrix and the correlation matrix of the model's estimated results. According to Hair et al. (2019), the smaller the SRMR value, the better the fit model level, while a value exceeding 0.10 indicates an indication of problems with the model.

Table 4.9 Model Fit

	Saturated Model	*Estimated Model*
SRMR	0.081	0.081

Source: SmartPLS 4 (Processed by researcher)

The results of the analysis showed that the SRMR value in the saturated model and the estimated model were both 0.081. This value indicates that the difference between the observation data and the estimated results is relatively small so that the model is able to represent the empirical data well. Although slightly above the conservative limit of 0.08, the value is still below the rule of thumb limit of 0.10 stated by Hair et al. (2019). Therefore, the research model is considered to have an adequate fit model and is suitable for use as a basis for continuing hypothesis testing.

The hypothesis test aims to test the significance of the relationship between variables in the research model. The test was carried out by comparing the null (H_0) hypothesis and the alternative (H_1) hypothesis. In the PLS-SEM analysis, the test uses a bootstrapping procedure through the evaluation of the original sample value, sample mean, standard deviation, t-statistics, and p-values. A hypothesis is declared significant if it has t-statistics > 1.96 and p-values < 0.05, so that H_0 is rejected and H_1 is accepted (Rahadi, 2023).

Direct effect testing is used to determine the direct influence of independent variables on dependent variables with a 95% confidence level. A relationship is declared significant when t-statistics > 1.96, while values below that limit indicate that H_0 is maintained.

Table 4.10 Uji Direct Effect

Relationships Between Variables	***Original sample***	***Sample mean***	**STDEV**	***t-statistics***	***p-values***
Work Environment (X1) -> Employee Performance (Y)	0.532	0.524	0.093	5.740	0.000
Compensation (X2) -> Employee Performance (Y)	0.352	0.348	0.090	3.894	0.000
Work Stress (Z) -> Employee Performance (Y)	-0.336	-0.337	0.098	3.433	0.001
Work Environment (X1) -> Work Stress (Z)	-0.526	-0.529	0.077	6.794	0.000
Compensation (X2) -> Work Stress (Z)	-0.573	-0.573	0.086	6.666	0.000

Source: SmartPLS 4 (Processed by researcher)

Based on the results of the SmartPLS 4 analysis, all direct relationships in the model met the significance criteria. The work environment has a positive effect on employee performance (original sample = 0.532; t-statistics = 5.740; p-values = 0.000), which shows that the better the work environment, the higher the employee's performance. On the other hand, the work environment has a negative effect on work stress (original sample = -0.526; t-statistics = 6.794; p-values = 0.000), so that a conducive work environment can reduce employee stress levels.

In addition, compensation has a positive and significant effect on employee performance with an original sample of 0.352, t-statistics of 3.894, and p-values of 0.000, which shows that increased compensation is followed by improved performance. Compensation has also been shown to have a negative effect on work stress (original sample = -0.573; t-statistics = 6.666; p-values = 0.000), so good compensation can reduce the work pressure felt by employees. Meanwhile, work stress has a negative and significant effect on employee performance (original sample = -0.336; t-statistics = 3.433; p-values = 0.001), which indicates that increased work stress will decrease performance. Thus, all hypotheses in direct effect testing are declared acceptable.

Indirect effect testing was carried out to determine the indirect influence of independent variables on dependent variables through mediating variables, namely work stress.

Table 4.11 Uji Inderect Effect

Intervariable Relationships	***Original sample***	***Sample mean***	**STDEV**	***t-statistics***	***p-value***
Work Environment (X1) -> Work Stress (Z) ->Employee Performance (Y)	0.176	0.180	0.062	2.825	0.005
Compensation	0.192	0.193	0.064	3.004	0.003

Intervariable Relationships	*Original sample*	*Sample mean*	STDEV	*t-statistics*	*p-value*
(X2) -> -> Work Stress (Z) -> Employee Performance (Y)					

Source: SmartPLS 4 (Processed by researcher)

The results of the analysis showed that the work environment had a positive and significant indirect influence on employee performance through work stress, with an original sample of 0.176, t-statistics of 2.825, and p-values of 0.005. These findings suggest that work stress acts as a mediator in the relationship between the work environment and employee performance.

Furthermore, compensation also has a positive and significant indirect influence on employee performance through work stress. This is shown by the original sample of 0.192, t-statistics of 3.004, and p-values of 0.003. Thus, work stress has been shown to mediate the relationship between compensation and employee performance. All indirect effect results met the significance criteria because they had t-statistics > 1.96 and p-values < 0.05.

Overall, the results of the hypothesis testing showed that all of the research hypotheses, namely H1 to H7, were accepted. The work environment and compensation have a significant effect on employee performance and work stress, while work stress has a significant effect on employee performance. In addition, work stress has also been shown to mediate the relationship between the work environment and employee performance as well as the relationship between compensation and employee performance.

In the relationship between the work environment and employee performance, all mediation requirements are met. The work environment has a significant effect on employee performance (t-statistics = 5,740; p-values = 0.000) and on work stress (t-statistics = 6,794; p-values = 0.000), while work stress also has a significant effect on employee performance (t-statistics = 3,433; p-values = 0.001). In addition, the results of the indirect effect showed a significant influence (original sample = 0.176; t-statistics = 2.825; p-values = 0.005).

Similar results were found in the relationship between compensation and employee performance. Compensation has a significant effect on employee performance (t-statistics = 3.894; p-values = 0.000) and on work stress (t-statistics = 6.666; p-values = 0.000). Work stress also has a significant influence on employee performance (t-statistics = 3.433; p-values = 0.001). Indirect effect testing produced an original sample of 0.192, t-statistics of 3.004, and p-values of 0.003, so that the indirect effect was declared significant. Therefore, based on the criteria of Baron & Kenny (1986), work stress acts as a partial mediation in the relationship between compensation and employee performance.

4.2 Discussion

1. The Influence of the Work Environment on Employee Performance

The results of the hypothesis test show that the work environment has a positive and significant effect on the performance of PT Trans Energy Tanadoang employees. These findings indicate that the more conducive the work environment that employees feel, the better the performance will be produced. A comfortable work environment supports the optimal implementation of tasks through the creation of harmonious working relationships and the availability of adequate facilities. The results of the descriptive analysis showed that the indicator of relationship with colleagues obtained the highest score, followed by the indicator of the availability of work facilities. This shows that good communication between employees and supporting facilities are the aspects that employees feel the most benefited by.

This condition is relevant to the operational characteristics of PT Trans Energy Tanadoang as an LPG distribution company which involves coordination between office employees, land operations teams, distribution drivers, and ship crews. These activities require effective communication, teamwork, and support from work facilities so that the distribution process runs safely, on time, and according to the target. The majority of respondents from the land and sea operations units further strengthened that a good work environment contributes to increased focus, quality of work completion, and employee contribution in supporting company activities.

The findings of this study support the social exchange theory put forward by Blau (1964), namely that positive treatment of the organization will encourage employees to reciprocate through work behavior that benefits the organization. This explanation is reinforced by Zhang et al. (2025) who stated that a fair and supportive work environment strengthens social exchange relationships and encourages the formation of positive reciprocity. Thus, employees are encouraged to improve the quality of work as a form of reciprocity for the support provided by the company.

The results of this study are consistent with the research of Dwianto and Damanik (2024), Herlambang et al. (2022), and Napitu et al. (2025) which concluded that the work environment has a positive and significant effect on employee performance. Therefore, PT Trans Energy Tanadoang needs to maintain the quality of the work environment through strengthening communication and coordination between units, conducting regular operational briefings, and periodic evaluation of work facilities. This step is expected to be able to maintain work comfort, reduce the potential for operational errors, and maintain optimal employee performance.

2. The Effect of Compensation on Employee Performance

The results of the study show that compensation has a positive and significant effect on the performance of PT Trans Energy Tanadoang employees. The better the compensation received, the higher the performance shown by the employee. Adequate compensation encourages employees to get better work, meet targets, and carry out responsibilities optimally. Descriptive analysis shows that salary indicators get the highest rating, especially on the timeliness of salary payments. In addition, the results of the interviews show that the company also provides incentives and work facilities as a form of appreciation for employee contributions.

The importance of compensation is increasingly visible because PT Trans Energy Tanadoang is engaged in LPG distribution

which requires physical readiness, precision, responsibility, and high coordination between land operations, marine operations, and administration. The majority of respondents are over 30 years old with elementary and junior high school education, so income from work is the main source of meeting economic needs. Therefore, timely salary payments, incentives, and work facilities are perceived as a form of company appreciation that encourages improvement in work quality, responsibility, and productivity.

These findings support the social exchange theory of Blau (1964), which explains that the mutual relationship between the organization and employees will result in a moral obligation to reciprocate the positive treatment of the organization through work behavior that benefits the company. Wang et al. (2022) added that compensation is a form of social economic exchange that reflects an organization's appreciation of employee contributions. This condition encourages the emergence of positive reciprocity, which is an increase in dedication, responsibility, and quality of work implementation in return for the compensation received.

The results of this study are in line with the research of Handoko et al. (2021), Ihsan et al. (2024), Ikwan and Dewi (2024), and Riza and Fazri (2023) which stated that compensation has a positive and significant effect on employee performance. Thus, compensation is an important factor in improving the performance of PT Trans Energy Tanadoang employees. Companies need to maintain consistency in timely salary payments and conduct periodic evaluations of incentives, additional wages, and work facilities to keep up with the workload. These efforts are expected to strengthen the perception of fairness, increase work motivation, and maintain employee performance in supporting the smooth distribution of LPG.

3. The Effect of Work Stress on Employee Performance

The results of the hypothesis test showed that work stress had a negative and significant effect on the performance of PT Trans Energy Tanadoang employees. This means that an increase in the level of work stress will be followed by a decrease in employee performance. Psychological pressure that arises during work has an impact on decreasing concentration, accuracy, and ability to complete tasks, so that the quality of work, productivity, and the achievement of company targets also decrease. These findings indicate that work stress is an important factor that affects the effectiveness of work execution in companies.

Based on the results of the descriptive analysis, the main source of work stress comes from the length of working time. The working time indicator received the highest rating, especially on the statement that working hours often exceed normal working hours, while the perception of workloads that exceed capacity received a relatively neutral rating. This shows that work pressure is more triggered by a long work duration than the volume of work that must be completed. The results of the interviews reinforced the findings, namely that operating hours often exceed normal hours due to delays in LPG distribution influenced by weather conditions, limited access to inter-island transportation, and high distribution volumes. As a result, employees must complete the entire distribution process, stock recording, and daily reporting, thus triggering physical and mental fatigue that has an impact on the quality of work.

The operational characteristics of PT Trans Energy Tanadoang also strengthen the emergence of work stress. LPG distribution activities require coordination between land operations, marine operations, and administration which are highly dependent on weather conditions, ship schedules, and loading and unloading processes. This situation causes the work rhythm to be erratic, working hours are getting longer, and increases employee fatigue. This condition is also supported by the characteristics of respondents who are dominated by land operational employees (38%), marine operations (30%), and age groups over 30 years old (64%), so that most respondents face high physical and coordination demands. Even if they have enough work experience, the constant pressure of work still has the potential to reduce concentration, precision, productivity, and quality of work.

The findings of this study support the social exchange theory put forward by Blau (1964), who explains that the reciprocal relationship between the organization and employees affects the contribution made to the organization. When employees experience psychological distress, their ability to maintain positive social exchange relationships and make optimal contributions decreases (Anwar et al., 2022). These results are also in line with Latifa et al. (2025) who stated that increased work stress has an impact on decreased employee performance. Thus, the higher the work stress experienced by PT Trans Energy Tanadoang employees, the more difficult it is for them to maintain productivity, work quality, and responsibility as a form of reciprocity to the company. These findings are consistent with the research of Damayanti and Subagja (2023) and Paramita and Supartha (2022) which also found a negative and significant effect of work stress on employee performance.

Overall, this study shows that work stress is a factor that contributes to the decline in employee performance of PT Trans Energy Tanadoang. Therefore, companies need to manage work stress through evaluation of work duration, more effective distribution scheduling, improved coordination between units, provision of adequate rest time, and strengthening communication and support to employees. This step is expected to be able to reduce the level of work stress so that productivity, work quality, and employee performance can be optimally maintained.

4. The Influence of the Work Environment on Work Stress

The results of the hypothesis test showed that the work environment had a negative and significant effect on the work stress of PT Trans Energy Tanadoang employees. These findings show that the better the quality of the work environment that employees feel, the lower the level of work stress experienced. A comfortable work environment, harmonious working relationships, and the availability of adequate facilities are able to create a sense of security so that psychological stress during work can be minimized.

The results of the descriptive analysis showed that the indicators of relationships with colleagues and the availability of work facilities obtained the highest score on the work environment variable. Statements about good working relationships with colleagues and the availability of work facilities that support the completion of work obtained the highest average scores. On the other hand, the working time indicator remains a major source of stress with items regarding working hours that exceed normal hours earning the highest scores on the work stress variable. This condition shows that although work duration is still the main cause of stress, harmonious working relationships and adequate facilities can reduce the pressure felt by employees during their duties.

The results of the interviews show that the company strives to create a conducive work environment through a clear division of tasks, the provision of facilities according to operational needs,

and good communication and cooperation between employees. These efforts help facilitate the completion of work and facilitate the resolution of various operational obstacles without causing excessive psychological pressure. This is important because LPG distribution activities involve coordination between land operations, marine operations, and administration which are influenced by weather conditions, ship schedules, and loading and unloading processes. Good working relationships and adequate facilities help smooth distribution, reduce operational barriers, and reduce uncertainty during work.

The characteristics of the respondents also support the results of the study, namely the majority have a working period of more than one year (90%), with details of 52% working for 1–5 years and 38% more than five years. In addition, most of the respondents came from land (38%) and marine operations (30%) units, so they had experience in dealing with the company's operational dynamics. This experience makes it easier for employees to adapt to the demands of the job when the company is able to provide harmonious working relationships, good communication, and adequate work facilities, so that work stress levels can be suppressed.

These findings reinforce the social exchange theory of Blau (1964), who explains that the reciprocal relationship between the organization and employees is formed through a process of mutually beneficial social exchange. In this perspective, the work environment is one of the social exchange factors that reflects the organization's attention to employee welfare (Melkamu, 2023). When the work environment meets employee expectations, social exchange relationships develop into positive reciprocity (Zhang et al., 2025). Positive organizational treatment is also able to strengthen the quality of social exchange relationships while reducing psychological strain and work stress (Kurtessis et al., 2015). The results of this study are in line with the findings of Kaban and Jacksen (2024) and Zahrah and Yuliana (2025) who stated that the work environment has a negative and significant effect on employee work stress.

Overall, this study shows that the work environment plays an important role in reducing the work stress of PT Trans Energy Tanadoang employees. Therefore, companies need to maintain the quality of working relationships, communication between employees, and the provision of work facilities that have been assessed positively. In addition, regular maintenance of operational facilities and a clear and coordinated division of tasks need to be carried out so that the work environment remains conducive, work stress levels remain low, and the LPG distribution process can run effectively.

3. The Effect of Work Stress on Employee Performance

The results of the hypothesis test showed that work stress had a negative and significant effect on the performance of PT Trans Energy Tanadoang employees. This means that an increase in the level of work stress will be followed by a decrease in employee performance. Psychological pressure that arises during work has an impact on decreasing concentration, accuracy, and ability to complete tasks, so that the quality of work, productivity, and the achievement of company targets also decrease. These findings indicate that work stress is an important factor that affects the effectiveness of work execution in companies.

Based on the results of the descriptive analysis, the main source of work stress comes from the length of working time. The working time indicator received the highest rating, especially on the statement that working hours often exceed normal working hours, while the perception of workloads that exceed capacity received a relatively neutral rating. This shows that work pressure is more triggered by a long work duration than the volume of work that must be completed. The results of the interviews reinforced the findings, namely that operating hours often exceed normal hours due to delays in LPG distribution influenced by weather conditions, limited access to inter-island transportation, and high distribution volumes. As a result, employees must complete the entire distribution process, stock recording, and daily reporting, thus triggering physical and mental fatigue that has an impact on the quality of work.

The operational characteristics of PT Trans Energy Tanadoang also strengthen the emergence of work stress. LPG distribution activities require coordination between land operations, marine operations, and administration which are highly dependent on weather conditions, ship schedules, and loading and unloading processes. This situation causes the work rhythm to be erratic, working hours are getting longer, and increases employee fatigue. This condition is also supported by the characteristics of respondents who are dominated by land operational employees (38%), marine operations (30%), and age groups over 30 years old (64%), so that most respondents face high physical and coordination demands. Even if they have enough work experience, the constant pressure of work still has the potential to reduce concentration, precision, productivity, and quality of work.

The findings of this study support the social exchange theory put forward by Blau (1964), who explains that the reciprocal relationship between the organization and employees affects the contribution made to the organization. When employees experience psychological distress, their ability to maintain positive social exchange relationships and make optimal contributions decreases (Anwar et al., 2022). These results are also in line with Latifa et al. (2025) who stated that increased work stress has an impact on decreased employee performance. Thus, the higher the work stress experienced by PT Trans Energy Tanadoang employees, the more difficult it is for them to maintain productivity, work quality, and responsibility as a form of reciprocity to the company. These findings are consistent with the research of Damayanti and Subagja (2023) and Paramita and Supartha (2022) which also found a negative and significant effect of work stress on employee performance.

Overall, this study shows that work stress is a factor that contributes to the decline in employee performance of PT Trans Energy Tanadoang. Therefore, companies need to manage work stress through evaluation of work duration, more effective distribution scheduling, improved coordination between units, provision of adequate rest time, and strengthening communication and support to employees. This step is expected to be able to reduce the level of work stress so that productivity, work quality, and employee performance can be optimally maintained.

4. The Influence of the Work Environment on Work Stress

The results of the hypothesis test showed that the work environment had a negative and significant effect on the work stress of PT Trans Energy Tanadoang employees. These findings show that the better the quality of the work environment that employees feel, the lower the level of work stress experienced. A comfortable work environment, harmonious working relationships, and the availability of adequate facilities are able to create a sense of security so that psychological stress during work can be minimized.

The results of the descriptive analysis showed that the indicators

of relationships with colleagues and the availability of work facilities obtained the highest score on the work environment variable. Statements about good working relationships with colleagues and the availability of work facilities that support the completion of work obtained the highest average scores. On the other hand, the working time indicator remains a major source of stress with items regarding working hours that exceed normal hours earning the highest scores on the work stress variable. This condition shows that although work duration is still the main cause of stress, harmonious working relationships and adequate facilities can reduce the pressure felt by employees during their duties.

The results of the interviews show that the company strives to create a conducive work environment through a clear division of tasks, the provision of facilities according to operational needs, and good communication and cooperation between employees. These efforts help facilitate the completion of work and facilitate the resolution of various operational obstacles without causing excessive psychological pressure. This is important because LPG distribution activities involve coordination between land operations, marine operations, and administration which are influenced by weather conditions, ship schedules, and loading and unloading processes. Good working relationships and adequate facilities help smooth distribution, reduce operational barriers, and reduce uncertainty during work.

The characteristics of the respondents also support the results of the study, namely the majority have a working period of more than one year (90%), with details of 52% working for 1–5 years and 38% more than five years. In addition, most of the respondents came from land (38%) and marine operations (30%) units, so they had experience in dealing with the company's operational dynamics. This experience makes it easier for employees to adapt to the demands of the job when the company is able to provide harmonious working relationships, good communication, and adequate work facilities, so that work stress levels can be suppressed.

These findings reinforce the social exchange theory of Blau (1964), who explains that the reciprocal relationship between the organization and employees is formed through a process of mutually beneficial social exchange. In this perspective, the work environment is one of the social exchange factors that reflects the organization's attention to employee welfare (Melkamu, 2023). When the work environment meets employee expectations, social exchange relationships develop into positive reciprocity (Zhang et al., 2025). Positive organizational treatment is also able to strengthen the quality of social exchange relationships while reducing psychological strain and work stress (Kurtessis et al., 2015). The results of this study are in line with the findings of Kaban and Jacksen (2024) and Zahrah and Yuliana (2025) who stated that the work environment has a negative and significant effect on employee work stress.

Overall, this study shows that the work environment plays an important role in reducing the work stress of PT Trans Energy Tanadoang employees. Therefore, companies need to maintain the quality of working relationships, communication between employees, and the provision of work facilities that have been assessed positively. In addition, regular maintenance of operational facilities and a clear and coordinated division of tasks need to be carried out so that the work environment remains conducive, work stress levels remain low, and the LPG distribution process can run effectively.

5. The Effect of Compensation on Work Stress

The results of the hypothesis test showed that compensation had a negative and significant effect on the work stress of PT Trans Energy Tanadoang employees. The better the compensation received, the lower the level of work stress experienced. Compensation that is fair, decent, and in accordance with employee contributions provides a sense of security so that it can reduce psychological pressure at work. This condition is reflected in timely salary payments, the provision of incentives according to company regulations, and the provision of work facilities that support the implementation of duties. The results of the descriptive analysis showed that the salary indicator obtained the highest assessment on the compensation variable, while the working time indicator was the aspect with the highest score on the work stress variable. Although working hours are still a major source of stress, the certainty of timely salary payments can provide peace of mind so that the psychological impact due to job demands can be suppressed.

The results of the interviews reinforce these findings by showing that companies strive to fulfill employee rights through a consistent compensation system, including timely salary payments, incentives, and the provision of work facilities. This condition makes employees feel that their contributions are appreciated so that they are able to carry out their work more calmly despite facing high operational demands. This is important because LPG distribution activities at PT Trans Energy Tanadoang require physical readiness, punctuality, and great responsibility, both for operational and administrative employees. The certainty of compensation received helps reduce concerns about meeting economic needs so that work pressure can be minimized.

The characteristics of the respondents also support the results of this study. The majority of respondents had a working period of more than one year (90%), consisting of a working period of 1-5 years of 52% and more than 5 years of work (38%), and dominated by elementary and junior high school graduates (58%). This condition shows that most respondents have understood the company's compensation system and made work as the main source of income. Therefore, the provision of fair compensation through salaries, incentives, and work facilities is perceived as a form of reward that increases a sense of security while reducing work stress.

The findings of this study support the social exchange theory proposed by Blau (1964), namely that the reciprocity relationship between the organization and employees is built through the principle of reciprocity. According to Melkamu (2023), compensation is one of the social exchange factors that represent the benefits of the organization to employees. When compensation is perceived as fair, employees feel that the organization has fulfilled its obligations so that the relationship of social exchange becomes more positive. In line with that, Kurtessis et al. (2015) explained that positive organizational treatment is able to reduce psychological strain and work stress. The results of this study are also consistent with the research of Purinanta and Wardhani (2025) and Paramita and Supartha (2022) which stated that compensation has a negative and significant effect on work stress.

Overall, this study confirms that compensation is an important factor in reducing the work stress of PT Trans Energy Tanadoang employees. Therefore, companies need to maintain the timeliness of salary payments and conduct periodic evaluations of incentives, benefits, and work facilities to keep them in line with job demands. This step is expected to improve employee welfare,

keep work stress low, and support the effectiveness of the LPG distribution process.

6. The Effect of Work Stress in Mediating the Work Environment on Employee Performance

The results of the hypothesis test showed that work stress significantly mediated the influence of the work environment on the performance of PT Trans Energy Tanadoang employees with the nature of partial mediation. This means that the work environment not only improves performance directly, but also through its ability to reduce work stress levels. A conducive work environment allows for performance improvement through two paths, namely direct influence on the implementation of work and indirect influence through a reduction in psychological pressure.

In LPG distribution operations, a work environment supported by adequate facilities, harmonious working relationships, and good communication can reduce obstacles in the work process. This condition helps to reduce psychological pressure due to job demands so that employees can maintain concentration, precision, and quality of work even in the face of dynamic work rhythms. Thus, the work environment not only creates comfort, but also maintains psychological stability that contributes to improved performance.

This finding is in line with the social exchange theory from Blau (1964) which explains that the relationship between the organization and employees is built on the principle of reciprocity. Melkamu (2023) states that the work environment is one of the social exchange factors that reflect the benefits of the organization to employees. A safe, comfortable, and supportive work environment will strengthen social exchange relationships so that employees feel cared for by the organization. Furthermore, Zhang et al. (2025) explain that positive social exchange relationships encourage the formation of positive reciprocity, while Noblet and Rodwell (2008) affirm that the quality of such relationships affects the psychological state of employees. This result is also strengthened by Latifa et al. (2025) who stated that a work environment that is able to reduce work stress will improve employee performance.

The results of this study are consistent with the research of Fitriya et al. (2025), Kaban and Jacksen (2024), and Nursanti and Julianti (2021) which shows that work stress plays a mediating variable between the work environment and various employee work behaviors. The similarity of these findings confirms that a conducive work environment not only has a direct impact on work results, but also maintains psychological stability so that employees are able to work optimally.

Overall, this study shows that work stress is a psychological mechanism that explains how the work environment improves the performance of PT Trans Energy Tanadoang employees. A good work environment strengthens social exchange relationships, creates a more stable psychological state, and allows employees to perform optimally. Therefore, companies need to maintain the quality of the work environment through improving communication, providing adequate work facilities, and evaluating working conditions that have the potential to cause psychological pressure so that the positive impact of the work environment on performance is maintained.

7. The Effect of Work Stress in Mediating Compensation on Employee Performance

Work stress has been proven to significantly mediate the effect of compensation on employee performance at PT Trans Energy Tanadoang in the form of partial mediation. These results show that compensation not only has a direct effect on performance improvement, but also has an indirect impact through a decrease in work stress levels. Thus, fair compensation in accordance with employee contributions can improve performance while reducing work pressure experienced by employees.

In PT Trans Energy Tanadoang's operational activities engaged in LPG distribution, job demands in the form of physical readiness, punctuality, and high responsibility make compensation an important factor in maintaining the psychological condition of employees. Timely salary payments, providing incentives according to the provisions, and providing adequate work facilities create the perception that the company values employee contributions. This condition helps reduce work stress so that employees are able to maintain concentration, work quality, productivity, and responsibility in completing tasks. Therefore, compensation contributes to improved performance both directly and through a reduction in work stress.

The findings of this study are in line with the social exchange theory put forward by Blau (1964), which explains that the relationship between the organization and employees is built through the principle of reciprocity. In that perspective, compensation is seen not only as a financial reward, but also as a form of organizational appreciation for employee contributions (Wang et al., 2022). When compensation is perceived as fair, employees feel valued and their socio-emotional needs are better met (Rhoades & Eisenberger, 2002). On the other hand, exchange relationships that are considered unbalanced have the potential to cause psychological distress that can hinder individual contributions to the organization (Anwar et al., 2022). In addition, Latifa et al. (2025) emphasized that increased work stress will have an impact on decreased employee performance. In this study, fair compensation has been proven to be able to reduce work stress while encouraging employees to maintain work quality as a form of reciprocity to the company.

The results of this study are also consistent with the findings of Paramita and Supartha (2022) who stated that work stress mediates the relationship between compensation and employee performance. The similarity of these results shows that a good compensation system not only directly increases motivation and performance, but also creates a more conducive psychological state through a reduction in work stress levels.

Overall, the study confirms that work stress is an important mechanism that explains the relationship between compensation and employee performance. Compensation that is perceived to be fair is able to strengthen social exchange relationships, create a sense of appreciation, and reduce work stress so that employees are encouraged to provide optimal performance (Rhoades & Eisenberger, 2002). Therefore, PT Trans Energy Tanadoang needs to maintain the accuracy of salary payments, evaluate the provision of incentives and work facilities regularly, and ensure that the compensation system remains in accordance with the demands of each operational unit. This step is expected to maintain the psychological well-being of employees, reduce work stress, and improve performance in a sustainable manner.

Conclusion

The results of the analysis using Partial Least Squares-Structural Equation Modeling (PLS-SEM), it can be concluded that the work environment and compensation have been proven to have a positive and significant influence on improving employee performance. On the other hand, work stress has a negative and significant effect on performance, so the higher the level of stress

experienced by employees, the lower their performance. In addition, the work environment and compensation also have a significant negative effect on work stress, which suggests that good working conditions and adequate compensation can reduce employee stress levels. The results of the study also prove that work stress plays a role as a partial mediating variable in the relationship between the work environment and employee performance as well as between compensation and employee performance at PT Trans Energy Tanadoang.

For PT Trans Energy Tanadoang, the results of the study show several aspects that still need attention. In the work environment variable, the work atmosphere indicator received the lowest assessment so that the company needs to continue to improve environmental comfort through maintaining cleanliness, providing adequate lighting and air circulation, and ensuring safe and comfortable working conditions both in the office area and land and sea distribution operations. These improvements are expected to be able to create a more conducive work environment so that it can support the improvement of employee performance.

In the compensation aspect, the wage indicator obtained the lowest average value, so companies are advised to evaluate the wage system by considering the workload, responsibilities, work characteristics of each operational unit, and the development of living costs. A fair wage policy that is in accordance with employee conditions is expected to increase motivation while supporting the achievement of more optimal performance.

Regarding work stress, workload indicators are an aspect that still needs attention. Therefore, companies need to review the distribution of workloads in each operational unit so that they are more proportionate and in accordance with the abilities and responsibilities of each employee. This step is expected to be able to control stress levels so that work productivity is maintained.

In the employee performance variable, the work quantity indicator received the lowest rating. To overcome this, companies are advised to evaluate work targets and task divisions so that the implementation of work becomes more effective. In addition, the implementation of appropriate coaching and training is also needed to improve the ability of employees to achieve the targets that have been set.

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