JABA
Journal of Applied Business Administration
https://jurnal.polibatam.ac.id/index.php/JABA

The Impact of Work Stress on Employee Engagement at PT Pacific Rubber Works

Nurul Hadi[1*], Adrian Azhar Wijanarko[2]
[1, 2] Faculty of Business Management, Paramadina University, Cikarang

Abstract
The dynamics of the manufacturing sector in the industrial era 4.0 demand optimal management of employee engagement during complex production processes. This study analyzes the impact of work stress on employee engagement in employees of PT. Pacific Rubber Works. A quantitative explanatory method using purposive sampling involved 121 respondents, who were analyzed using simple linear regression. Results showed a very weak negative association ($r = -0.106$) that was not significant ($t = -1.163$; $p = 0.247$). The regression equation $Y = 33.175 - 0.062X$ indicates that each 1-unit increase in stress decreases engagement by 0.062 units. Work stress accounted for only 1.1% of the variance in employee engagement. ($R^2 = 0.011$), while 98.9% was influenced by other factors such as job satisfaction, work-life balance, and social support. The study concluded that the impact of stress on engagement does not follow conventional linear patterns in standardized manufacturing. It is recommended that management adopt a holistic approach that emphasizes dominant contextual factors to optimize employee engagement.
Keywords: Workload, Employee Engagement, Job Satisfaction, Work Stress, Work-life Balance.

Article History:
Received: November 4, 2025; Accepted: December 2, 2025; Published: December 15, 2025

[*]**Correspondence author:**
nurullhadii01@gmail.com

DOI:
https://doi.org/10.30871/jaba.11690

JEL Code:
M45, J28, J24, M12

INTRODUCTION

The dynamics of the manufacturing sector in the industrial era 4.0 present significant challenges for human resource management, especially in maintaining an optimal level of employee engagement in the midst of increasingly complex production demands. Employee engagement, or the degree of employee involvement, has become a vital construct that determines the success of an organization in achieving operational targets and maintaining competitiveness in the global market (Harmen & Sunjaya, 2022). This phenomenon becomes even more crucial when organizations are faced with the reality that employees who have a high level of engagement tend to show superior commitment to achieving organizational goals, increased productivity, and long-term loyalty that help reduce employee turnover rates (Saputra & Bantam, 2023). The manufacturing sector, with its characteristics of a work environment that demands high operational consistency, strict production targets, and a structured work system, creates conditions that are susceptible to the emergence of psychological pressure on employees. This condition can trigger a workload that, if not managed effectively, has the potential to degrade the level of employee involvement with the organization (Nugraha & Rukhviyanti, 2024). Prolonged work stress not only impacts a decline in individual performance, but can also result in systemic disengagement, which ultimately hinders the achievement of the company's strategic objectives (Stefani Febriani & Khairudin, 2023). Previous research indicates that work stress has a significant negative correlation with employee engagement, where increased stress intensity will result in a decrease in the level of employee attachment to the organization and the tasks they undertake (S Lubis & Damarwulan, 2025).

Employee engagement represents a positive psychological state characterized by high energy levels, deep dedication, and total absorption of the work done. Engaged employees exhibit proactive characteristics, enthusiasm for taking on challenges, and willingness to go the extra mile beyond their formal job description (Candra Susanto et al., 2024). However, this solid engagement construction can be disrupted by various stressors in the manufacturing work environment, such as excessive work demands or workload, role ambiguity, interpersonal conflicts, organizational uncertainty, and unconducive physical working conditions. These pressures create a state of exhaustion that eats away at employees' psychological resources, which in turn reduces their capacity to remain optimally engaged in organizational activities (Irawan & Komara, 2022).

Work stress is defined as an adaptive response to external work-related situations to external situations that produce physical, psychological, or behavioral deviations in members of an organization. In the context of manufacturing (Nyoman Sawitri, 2024), the sources of stress can be multidimensional, including organizational factors such as rigid hierarchical structures, unfair reward systems, and ineffective communication; work factors such as excessive quantitative and qualitative workloads, as well as unrealistic deadlines; and individual factors such as role conflicts and mismatches between abilities and job demands (Fikri et al., 2024). When such stressors accumulate without adequate coping strategies in place, employees experience burnout characterized by emotional exhaustion, depersonalization, and decreased personal achievement, all of which are antithetics of the engaged state. The relationship between work stress and employee engagement needs to be studied in depth given its strategic implications for the effectiveness of manufacturing organizations. Several empirical studies have shown that work stress serves as a negative predictor of engagement, but the causal mechanisms and moderating or mediating variables that influence this relationship still require further exploration, especially in the context of the manufacturing industry in Indonesia (Azmy et al., 2024). A comprehensive understanding of these dynamics will provide practical implications for management in designing appropriate interventions to mitigate the destructive effects of work stress while optimizing employee engagement levels.

PT. Pacific Rubber Works is a manufacturing company specializing in the production of rubber and plastic components for various industrial needs, including the automotive and electronics sectors. As a company that prioritizes quality and timeliness in every production

process, PT. Pacific Rubber Works operates within a highly dynamic work system that demands a high level of diligence and accountability from every employee. In this target-driven and demanding work environment, the potential for work-related stress or pressure is a critical factor that management must address, as it can significantly impact employee motivation and organizational commitment.

Given this background, the present study is deemed highly relevant for measuring the extent to which job stress levels may affect employee engagement in supporting the achievement of organizational goals. Accordingly, the findings of this research are expected to provide an accurate representation of the relationship between work stress and employee engagement at PT. Pacific Rubber Works.

RESEARCH METHOD

This study employs a positivism paradigm with a quantitative approach designed to examine the causal relationship between work stress as the independent variable and employee engagement as the dependent variable among employees at PT. Pacific Rubber Works. The quantitative method was selected for its capacity to measure phenomena objectively through numerical data collection that can be systematically analyzed using statistical procedures to test formulated hypotheses (Irawan & Komara, 2022). The research design is explanatory in nature, aiming to elucidate cause-and-effect relationships between variables through rigorous empirical hypothesis testing. The study population comprises all permanent employees of PT. Pacific Rubber Works across various operational departments who have completed a minimum of one year of service. This tenure criterion ensures that respondents possess adequate organizational experience to provide meaningful assessments of work stress and engagement levels. The sample selection employed purposive sampling technique, with sample size determination based on the Slovin formula at a 95% confidence level and 5% margin of error. Applying the formula $n = N / (1 + N \cdot e^2)$, where N represents the total population of 145 employees and e represents the error margin of 0.05, the minimum required sample was calculated to be 106 respondents. To enhance data validity and ensure comprehensive representation across various departments directly involved in operational activities, the actual sample comprised 121 respondents, representing 83.4% of the total population.

Data collection utilized a structured questionnaire instrument based on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The work stress variable was measured using thirteen statement items operationalized from five dimensions: workload, role ambiguity, role conflict, work environment conditions, and time pressure. The employee engagement variable was assessed through eight statement items derived from three fundamental dimensions: vigor (energy and mental resilience), dedication (sense of significance and enthusiasm), and absorption (concentration and immersion in work activities). Each dimension was operationalized into specific statement items to capture the multifaceted nature of employee engagement (Irawan & Komara, 2022). Prior to field implementation, the questionnaire underwent content validation by expert reviewers to ensure construct validity and item clarity. Data collection was conducted through direct questionnaire distribution to respondents, accompanied by comprehensive explanations regarding research objectives, data confidentiality protocols, and voluntary participation principles. Completed questionnaires underwent rigorous data cleaning and screening procedures to identify missing values, outliers, and inconsistent response patterns, ensuring data integrity for subsequent statistical analysis.

The collected data were analyzed using the Statistical Package for Social Sciences (SPSS) software. Instrument validation was performed through Pearson Product Moment correlation analysis, comparing calculated r values against the critical r table value of 0.176 ($n=121$, $\alpha=0.05$) to establish construct validity. Reliability assessment employed Cronbach's Alpha coefficient with an acceptable threshold of 0.60 to measure internal consistency among statement items. Descriptive statistical analysis was conducted to characterize respondent demographics and provide frequency distributions, means, and standard deviations for both research variables. The

primary analytical technique employed simple linear regression analysis to examine the causal relationship between work stress and employee engagement. The regression model specification followed the equation $Y = \alpha + \beta X + \varepsilon$, where Y represents employee engagement, X denotes work stress, α is the constant term, β is the regression coefficient, and ε represents the error term. Hypothesis testing involved multiple statistical procedures: the correlation coefficient test (r test) to assess the strength and direction of the relationship between variables, with interpretation guided by Guilford's correlation classification; the coefficient of determination test (R^2 test) to quantify the proportion of variance in employee engagement explained by work stress; the partial significance test (t-test) to evaluate the statistical significance of work stress's effect on employee engagement, with the decision criterion of rejecting the null hypothesis when |t calculated| > t table or significance value < 0.05; and the simultaneous significance test (F test) to assess the overall regression model validity, with model acceptance when F calculated > F table and significance value < 0.05. All hypothesis tests were conducted at a 95% confidence level ($\alpha = 0.05$) to ensure statistical rigor and minimize Type I error probability.

Tabel 1. Operational Definition of Research Variables

Variable	Dimension	Indicator	Item Code	Source
Work Stress (X)	Workload	1. Excessive work volume 2. Work complexity 3. Time allocation adequacy	P1, P2, P3	Robbins & Judge (2017); Sulistyojati & Harun (2024)
	Role Ambiguity	1. Clarity of job responsibilities 2. Understanding of work expectations 3. Clarity of authority limits	P4, P5	
	Role Conflict	1. Conflicting job demands 2. Incompatible work expectations 3. Contradictory instructions	P6, P7	
	Work Environment Conditions	1. Physical work environment 2. Safety and comfort conditions 3. Adequacy of facilities and equipment	P8, P9, P10	
	Time Pressure	1. Work deadline pressure 2. Time adequacy for task completion 3. Overtime frequency	P11, P12, P13	
Employee Engagement (Y)	Vigor	1. Energy and enthusiasm at work 2. Mental resilience 3. Willingness to invest effort	P14, P15, P16	Schaufeli et al. (2002); Sulistyojati & Harun (2024)
	Dedication	1. Sense of significance in work 2. Pride in job 3. Enthusiasm and inspiration 4. Challenge acceptance	P17, P18, P19	
	Absorption	1. Concentration and focus 2. Time passing quickly while working 3. Difficulty detaching from work 4. Full immersion in tasks	P20, P21	

RESULTS AND DISCUSSION

Results

Respondent Characteristics

This research examines the impact of work stress on employee engagement at PT. Pacific Rubber Works, involving 121 respondents selected through purposive sampling across various organizational departments. The demographic profile of participants reveals critical insights into the workforce composition, which provides essential context for understanding the relationship between work-related stress factors and employee engagement levels within the manufacturing environment.

Table 2. Demographic Characteristics of Respondents (N=121)

Characteristic	Category	Frequency (n)	Percentage (%)	Mean	SD
Age Group	20-25 years	65	53.7	2.40	1.091
	26-30 years	28	23.1		
	31-35 years	15	12.4		
	36-40 years	8	6.6		
	41-45 years	3	2.5		
	>45 years	2	1.7		
Gender	Male	39	32.2	-	-
	Female	82	67.8		
Position Level	Production Operator (Level 1)	102	84.3	-	-
	Supervisor (Level 2)	11	9.1		
	Team Leader (Level 3)	5	4.1		
	Manager (Level 4)	3	2.5		
Length of Service	<1 year	12	9.9	1.83	830
	1 year	45	37.2		
	2-4 years	59	48.8		
	5-7 years	3	2.5		
	>7 years	2	1.6		
Education Level	High School/Vocational	112	92.6	-	-
	Diploma (D3)	6	5.0		
	Bachelor's Degree (S1)	3	2.4		

Source: Primary data processed, 2025

The demographic analysis reveals several significant patterns characterizing the workforce at PT. Pacific Rubber Works. The age distribution demonstrates a predominantly young workforce, with over half of respondents (53.7%) falling within the 20-25 years age bracket, indicating the company's substantial reliance on early-career professionals. The mean age score of 2.40 (SD=1.091) suggests relative homogeneity in age composition, which may influence organizational dynamics and stress perception patterns.

Gender distribution shows notable female predominance, comprising 67.8% of the sample population compared to 32.2% male respondents. This gender composition reflects common patterns in manufacturing sectors, particularly in production operations requiring precision and manual dexterity. The occupational hierarchy reveals an overwhelmingly operational workforce, with production operators constituting 84.3% of respondents, while supervisory and managerial positions represent merely 15.7% collectively. This pyramid structure is characteristic of manufacturing organizations and has implications for understanding stress sources and engagement levels across different organizational strata.

Regarding tenure, the workforce demonstrates relative stability with the majority (48.8%) having 2-4 years of service, followed by 37.2% with exactly one year, resulting in a mean service

duration of 1.83 years (SD=0.830). This distribution suggests moderate employee retention and provides adequate organizational experience for meaningful engagement assessment. Educational qualifications show predominant high school or vocational education background (92.6%), aligning with the operational nature of most positions and potentially influencing stress coping mechanisms and engagement strategies within this manufacturing context.

Instrument Validity Test

The validity test of the research instrument was carried out using *Pearson Product-Moment correlation analysis* by comparing the calculated r value to the r table. With the number of respondents (n) = 121 and the significance level of α = 0.05, the table r value of 0.176 was obtained. The validity test results for all statement items are presented in the following table:

Table 3. Results of the Validity Test of Research Instruments

Items	Pearson Correlation (r calculated)	Sig. (2-tailed)	r Table	Information
P1	0,273	0,002	0,176	Valid
P2	0,468	0	0,176	Valid
P3	0,366	0	0,176	Valid
P4	0,689	0	0,176	Valid
P5	0,655	0	0,176	Valid
P6	0,578	0	0,176	Valid
P7	0,481	0	0,176	Valid
P8	0,311	0,001	0,176	Valid
P9	0,551	0	0,176	Valid
P10	0,449	0	0,176	Valid
P11	0,461	0	0,176	Valid
P12	0,682	0	0,176	Valid
P13	0,651	0	0,176	Valid
P14	0,225	0,013	0,176	Valid
P15	0,194	0,033	0,176	Valid
P16	0,342	0	0,176	Valid
P17	0,408	0	0,176	Valid
P18	0,283	0,002	0,176	Valid
P19	0,312	0	0,176	Valid
P20	0,368	0	0,176	Valid
P21	0,292	0,001	0,176	Valid

Source: Primary data processed, 2025

Based on Table 3, all statement items in the work stress questionnaire (P1-P13) and *employee engagement* (P14-P21) have a value of r calculated > r table (0.176) and a significance value of < 0.05, so it can be concluded that all statement items are declared valid and suitable for the measurement of research variables.

Instrument Reliability Test

The instrument reliability test uses *Cronbach's Alpha technique* to measure the internal consistency of the overall statement item. The results of the reliability test are presented in the following table:

Table 4. Results of the Reliability Test of Research Instruments

Cronbach's Alpha	N of Items	Reliability Standards	Information
0,793	21	0,6	Reliable

Source: Primary data processed, 2025

Cronbach's Alpha *value* of 0.793 > 0.60 indicates that the research instrument has a high level of internal consistency and is reliable for measuring the work stress and *employee engagement*. Thus, the instruments used in this study have met the requirements for validity and reliability, so that the data collected can be trusted for further analysis.

Description of Research Variables

Descriptive analysis of the work stress variable showed a total score ranging from 24 to 59 with an average of 42.78. The score distribution indicated the variability of the stress level experienced by the respondents, where 15.7% of respondents experienced low stress levels (< score of 35), 61.2% of respondents were in the moderate stress category (score 35-50), and 23.1% of respondents experienced high stress levels (score > 50). This shows that most employees of PT. Pacific Rubber Works experience a moderate level of work stress, but there are significant proportions who face substantial work stress. For *the employee engagement* variable, the total score of respondents ranged from 19 to 40 with an average of 30.05. The distribution showed that 18.2% of respondents had *a* low engagement rate (score < 26), 64.5% of respondents were in *the medium engagement* category (score 26-34), and 17.3% of respondents showed a high *engagement* level (score > 34). This data indicates that most employees have a moderate level of engagement with work and organization, but there is still room for an increase in overall *engagement* levels.

Simple Linear Regression Analysis

Testing of the causal relationship between work stress burden as an independent variable (X) and *employee engagement* as a dependent variable (Y) was performed using simple linear regression analysis. The results of the analysis are presented in the following table:

Table 5. Results of Simple Linear Regression Analysis

Type	Unstandardized Coefficients	Std. Error	Standardized Coefficients	t	Sig.
	B		Beta		
(Constant)	33,175	2,344	-	14,154	0
Work Stress	-0,062	0,053	-0,106	-1,163	0,247

Source: Primary data processed, 2025

Based on Table 5, the regression equation formed is: Y = 33.175 - 0.062X. The constant of 33.175 indicates that if there is no workload (X = 0), then the employee engagement level is predicted to be at a value of 33.175. The regression coefficient of -0.062 indicates that every one unit increase in the workload will result in a decrease *in employee engagement* by 0.062 units, assuming other factors are constant. The value of the negative coefficient confirms the opposite direction of the relationship between the two variables.

Correlation Coefficient Test (r test)

Correlation coefficient analysis was carried out to measure the strength and direction of the relationship between work stress and *employee engagement*. The results of the correlation coefficient test are presented in the following table:

Table 6. Correlation Coefficient Test Results (r)

Type	R	Interpretation
1	0,106	Very weak correlation (negative)

Source: Primary data processed, 2025

An R value of 0.106 indicates that there is a very weak negative relationship between work stress and *employee engagement*. The negative correlation coefficient shows that when the

workload increases, *employee engagement* rates tend to decrease, even though the strength of the relationship is very weak. The interpretation of the correlation value of 0.106 according to the Guilford classification is in the range of 0.00-0.20 which indicates a very low or negligible correlation.

Coefficient of Determination Test (R^2 Test)

The determination coefficient test was carried out to find out how much contribution independent variables contribute in explaining the variation of dependent variables. The test results are presented in the following table:

Table 7. Determination Coefficient (R^2) Test Results

Type	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0,106	0,011	0,003	3,859

Source: Primary data processed, 2025

Based on Table 7, the R Square value of 0.011 indicates that the workload is only able to explain 1.1% of the variation that occurs in *employee engagement*, while the remaining 98.9% is explained by other factors that were not studied in this study. The *Adjusted R Square* value of 0.003 or 0.3% confirms the very small proportion of variance after adjustment. These results indicate that work stress is not the dominant predictor of *employee engagement* in the context of PT. Pacific Rubber Works, and there are other variables that have a more substantial contribution explaining the level of employee engagement.

Partial Significance Test (t-test)

The t-test was conducted to evaluate the significance of the effect of work stress on *employee engagement* partially. The results of hypothesis testing are presented in the following table:

Table 8. Partial Significance Test Results (t-test)

Variable	t count	t table	Sig.	α	Decision	Conclusion
Work Stress → Employee Engagement	-1,163	±1,980	0,247	0,05	H_0 Accepted	Insignificant

Source: Primary data processed, 2025

Based on Table 8, the t-value is calculated as -1.163 with a significance value of 0.247. The comparison shows that |t counts| = 1.163 < t table = 1.980, and significance value 0.247 > 0.05. Based on the hypothesis testing criteria, these results indicate that H_0 is accepted and Ha is rejected, which means that the workload does not have a significant effect on *employee engagement* in employees of PT. Pacific Rubber Works. Although there is a theoretical negative relationship, this effect is not statistically significant in the context of this study.

Simultaneous Significance Test (F Test)

Simultaneous regression model significance testing uses the F test to evaluate the feasibility of the regression model. The test results are presented in the following table:

Table 9. Results of Simultaneous Significance Test (F/ANOVA Test)

Type	Sum of Squares	Df	Mean Square	F count	F Table	Sig.	Decision
Regression	20,145	1	20,145	1,353	3,92	0,247	Insignificant Models
Residual	1772,053	119	14,891	-	-	-	-
Total	1792,198	120	-	-	-	-	-

Source: Primary data processed, 2025

The results in Table 7 show that the F count is calculated as 1.353 with a significant value of 0.247. The comparison showed that the F count (1.353) < the F table (3.92) and the significance value was 0.247 > 0.05, which indicates that the regression model was not statistically significant. This means that simultaneous workload stress cannot predict *employee engagement* significantly, so the resulting regression model cannot be used to predict employee engagement levels based on the workload experienced. Overall, the results of the study indicate that although there is a negative relationship between work stress and *employee engagement* according to theoretical predictions, this effect is not statistically significant in the context of PT. Pacific Rubber Works'employees. These findings show that the dynamics of *employee engagement* at PT. Pacific Rubber Works are more influenced by other factors beyond the workload of stress that need to be explored further in future research.

Discussion

Causal Relationship Pattern between Work Stress Burden and Employee Engagement

The results of this study reveal a negative relationship between the workload of stress and employee engagement to employees of PT. Pacific Rubber Works, although the strength of the relationship is classified as very weak with a correlation coefficient of -0.106. The direction of this negative relationship is in line with the theoretical proposition that increased psychological distress in the work environment tends to lower the level of employee involvement with the organization. The regression equation Y = 33.175 – 0.062X indicates that every one unit increase in stress load will result in a decrease *employee engagement* of 0.062 units, confirming the existence of an opposite relationship between the two constructs. This pattern of relationship is empirically supported by research (Misbah, 2021) who found that work stress had a negative and significant effect on *employee engagement* in Skyrocket Supply employees, where high stress conditions consistently lower the level of employee psychological engagement. Further (Harmen & Sunjaya, 2022) through a study at the North Sumatra Provincial BKKBN Representative Office, it was also confirmed that work stress has a negative impact on *employee engagement*, confirming the consistency of these relationship patterns across different organizational contexts.

However, the results of this study also reveal a paradoxical phenomenon in which a very weak relationship magnitude (r = 0.106) indicates that the workload of stress is not a major determinant of *employee engagement* at PT. Pacific Rubber Works. This phenomenon can be explained through the perspective of *Job Demands-Resources Model* which states that the impact of job demands on employee engagement is highly dependent on the availability of organizational and personal resources that individuals have. (Sunyoto & Mulyono, 2025) in his research on garment companies in Yogyakarta found that although work stress has a significant negative effect on the psychological well-being of employees, the existence of protective factors such as *Work-life balance* and social support can moderate those negative impacts. (Sovia & Khoirunisa, 2025) also identified that work stress does have a significant positive effect on *turnover intention* in millennial employees with a beta coefficient of 0.417, but this effect can be minimized through an increase in *Work Engagement* which has a protective effect. PT. Pacific Rubber Works has repetitive and structured work characteristics and is likely to have developed the employee's psychological adaptation mechanism to stress, thus impacting the engagement to a minimum.

The Magnitude of the Impact of Work Stress on Employee Engagement

The analysis of the determination coefficient in this study revealed a crucial finding that work stress burden was only able to explain 1.1% of the variance that occurred in *employee engagement* (R^2 = 0.011), with the remaining 98.9% being influenced by other factors not identified in the study model. This very small magnitude of impact indicates that the workload has a minimal predictive contribution to fluctuations in employee engagement levels at PT. Pacific Rubber Works. These findings contrast with theoretical expectations that generally predict the substantial impact of stress on various organizational *outcomes*. The results of the partial significance test showed a calculated t-value of -1.163 with a significance of 0.247 > 0.05,

confirming that the effect of work stress on *employee engagement* was not statistically significant in the context of this study. Consequently, the alternative hypothesis that predicts a significant influence must be rejected, and it is concluded that the workload is not a reliable predictor of the level of engagement of PT. Pacific Rubber Works' employees.

The results regarding the magnitude of these insignificant impacts were partially confirmed by several previous studies with similar contexts. (Teting & Karhab, 2025) in his study at the East Kalimantan Provincial PUPR-PERA Office, it was found that workload did not have a significant effect on employee performance (significance = 0.416), although *employee engagement* show a significant positive influence. (Kosim et al., 2023) also identified similar patterns in employees of PT. Indonesian charisma, where the workload does not significantly affect performance, while *employee engagement* and job satisfaction makes a significant positive contribution. This phenomenon indicates that in certain organizational contexts, particularly manufacturing environments with standardized work systems, the impact of stress on Employee's psychology engagement does not always follow a linear pattern as predicted by conventional theory. (Hisbih et al., 2023) through his research at Permata Kuningan Hospital found that although the workload has a significant positive effect on work stress and *turnover intention*, its impact on *workplace well-being* insignificant, confirming the complexity of the mechanism of influence of workload on employee psychological variables.

The lack of magnitude of impact in this study can be explained through the perspective of *Conservation of Resources Theory* which emphasizes that individuals with adequate personal and social resources are able to maintain a level of *Commitment* despite facing high work demands. Demographic data showed that the majority of respondents aged 20-25 years (53.7%) with a service period of 2-4 years (48.8%), a group that generally had high psychological resilience and good adaptability to work stressor. (Karyadi & Tahalele, 2025) found that the effect of workload on *employee engagement* can be moderated by *Work-life balance*, where employees who are able to balance personal and professional lives show a high level of *engagement* which is more stable despite facing high workloads.

Contextual Factors Affecting the Relationship between Work Stress and Employee Engagement

The low magnitude of the impact of work stress on *employee engagement* in this study indicates that there are other contextual factors that have a more dominant role in determining the level of employee involvement in the manufacturing environment of PT. Pacific Rubber Works. The R^2 value of 0.011 explicitly indicates that 98.9% variance *employee engagement* explained by variables outside the research model, implying the complexity of employee psychological determinants that cannot be explained solely by the construct of work stress. (Salliyuana et al., 2024) in his study at BPJS Kesehatan Tapaktuan Branch, identified that *employee engagement* It is not only influenced by workload, but also by job satisfaction, job control, and organizational reward perceptions that have a substantial contribution to engagement rates. The study found that employees who felt valued and had control over the execution of tasks showed high levels of motivation and commitment regardless of the workload they faced.

The job satisfaction factor emerges as a crucial contextual variable that can moderate or even neutralize the negative impact of stress burden on *Commitment*. (Ginting, 2025) through his research on Gen-Z employees in *Coffee shop* The city of Pontianak found that job satisfaction plays a significant mediator that can reduce the negative effects of workload on *employee engagement*, with job satisfaction being able to change the impact of workload from negative to positive on employee engagement. (Kosim et al., 2023) also confirms that job satisfaction has a positive and significant effect on employee performance, indicating the protective role of satisfaction in maintaining positive organization outcome. In the context of PT. Pacific Rubber Works, there may be a psychological compensation mechanism in which factors such as job security, social security, or cohesiveness of the work team provide satisfaction that is able to maintain a level of engagement Although employees face a certain burden of stress.

The demographic characteristics of the respondents also indicate contextual factors that affect the relationship between the two variables. The dominance of respondents with high school/vocational education level (92.6%) and young age 20-25 years (53.7%) indicates an employee profile with job expectations that may differ from the employee population with a higher education background. (Mulyono & Sunyoto, 2025) found that *Work-life balance* has the most dominant influence on the psychological well-being of garment employees, indicating that for manufacturing employees with similar demographic characteristics, work-life balance factors may be more relevant than stress in determining the level of *Commitment*. (Sovia & Khoirunisa, 2025) It also emphasizes the importance of creating a supportive, flexible, and meaningful work environment to increase millennial employee retention, indicating that the younger generation has different work value priorities than previous generations. Further (Karyadi & Tahalele, 2025) found that *Work-life balance*, workload, and work stress simultaneously affect *employee engagement*, emphasizing the importance of a holistic approach in understanding the dynamics of employee engagement that cannot be explained through a single variable.

CONCLUSION

This research reveals a negative yet very weak relationship between work stress and employee engagement among employees at PT. Pacific Rubber Works, with a correlation coefficient of -0.106. The regression equation $Y = 33.175 - 0.062X$ demonstrates that each one-unit increase in work stress results in a 0.062-unit decrease in employee engagement. However, the partial significance test (t-test) yielded a t-value of -1.163 with significance of $0.247 > 0.05$, indicating that the effect of work stress on employee engagement is not statistically significant. The coefficient of determination ($R^2 = 0.011$) reveals that work stress explains only 1.1% of the variance in employee engagement, while the remaining 98.9% is attributable to other factors beyond the research model. These findings demonstrate that employee engagement dynamics at PT. Pacific Rubber Works are more complex and influenced by other contextual variables such as job satisfaction, work-life balance, organizational social support, and demographic characteristics of employees who are predominantly young (20-25 years) with high school/vocational education backgrounds, suggesting different engagement determinants than conventional stress-centric models predict.

Based on the research findings, it is recommended that PT. Pacific Rubber Works' management adopt a holistic approach to enhancing employee engagement by not solely focusing on stress reduction, but also optimizing other contextual factors that contribute more substantially. The company should develop job satisfaction enhancement programs through equitable reward systems, supportive work environments, and strengthened team cohesiveness. Implementation of improved work-life balance policies, particularly for younger-generation employees who constitute the majority of the workforce, is strongly recommended. Management should conduct comprehensive organizational climate assessments to identify specific engagement drivers within their manufacturing context. Future research should explore other variables such as job satisfaction, organizational support, leadership style, compensation systems, and career development opportunities that may have more dominant influences on employee engagement. Longitudinal studies examining the moderating effects of personal resources and organizational resources on the stress-engagement relationship are also suggested. Additionally, qualitative research approaches could provide deeper insights into psychological mechanisms underlying employee engagement in manufacturing environments with standardized work systems.

The research findings provide several important theoretical and practical implications. Theoretically, this study challenges the linear assumption of the stress-engagement relationship and supports the Conservation of Resources Theory and Job Demands-Resources Model, suggesting that the impact of job demands on engagement is contingent upon available organizational and personal resources. The minimal explanatory power of work stress (1.1%) implies that employee engagement in manufacturing contexts requires multidimensional

conceptualization beyond traditional stress frameworks. Practically, these findings necessitate organizational interventions that transcend conventional stress management programs. Organizations should invest in comprehensive employee well-being initiatives that address multiple engagement determinants simultaneously, including satisfaction enhancement, resource provision, and supportive organizational culture development. For human resource practitioners, this research emphasizes the importance of evidence-based interventions tailored to specific organizational contexts rather than applying generic stress reduction programs. The demographic profile implications suggest that engagement strategies for young, early-career manufacturing employees should incorporate contemporary work values such as flexibility, meaningfulness, and work-life integration rather than focusing predominantly on stress mitigation.

This research acknowledges several limitations that should be considered when interpreting the findings. First, the cross-sectional research design limits causal inference capabilities, as the data were collected at a single time point and cannot capture the dynamic nature of stress-engagement relationships over time. Second, the exclusive focus on work stress as the independent variable, while revealing its limited explanatory power, prevented comprehensive examination of other potentially more influential engagement determinants such as job satisfaction, organizational support, leadership quality, and compensation adequacy. Third, the sample characteristics, with 84.3% production operators and 92.6% high school/vocational education level, may limit generalizability to other organizational levels or more diverse educational backgrounds. Fourth, the reliance on self-report questionnaires introduces potential common method bias and social desirability effects, particularly regarding stress disclosure in organizational contexts. Fifth, the purposive sampling method, while appropriate for the research objectives, may not fully represent the entire employee population at PT. Pacific Rubber Works. Finally, the study did not examine potential moderating or mediating variables that could explain the weak relationship observed, such as coping strategies, resilience levels, or organizational climate perceptions.

REFERENCES

Azmy, A., Sigalingging, H. P., & Rahmawan, A. (2024). Pengaruh Employee Engagement Dan Work Environment Terhadap Employee Performance Melalui Job Satisfaction Pada Perusahaan Manufaktur Komponen Otomotif. *Jurnal Ilmiah Manajemen, Ekonomi, & Akuntansi (MEA)*, *8* (1), 854–872. https://doi.org/10.31955/mea.v8i1.3706

Candra Susanto, P., Ulfah Arini, D., Yuntina, L., Panatap Soehaditama, J., & Nuraeni, N. (2024). Konsep Penelitian Kuantitatif: Populasi, Sampel, dan Analisis Data (Sebuah Tinjauan Pustaka). *Jurnal Ilmu Multidisplin*, *3* (1), 1–12. https://doi.org/https://doi.org/10.38035/jim.v3i1

Fikri, A., Taufik, K., & Nurmansyah. (2024). Pengaruh Lingkungan Kerja dan Stres Kerja terhadap Employee Engagement dan Implikasinya pada Kinerja Karyawan. *Jurnal Cahaya Mandalika (JCM)*, *3*, 426–437. https://doi.org/https://doi.org/10.36312/jcm.v3i1.3291

Ginting, S. (2025). *Peran Kepuasan Kerja Dalam Mengurangi Efek Negatif Beban Kerja Terhadap Employee Engagement Terhadap Karyawan Gen-Z di Coffee Shop Kota Pontianak Abstrak Pendahuluan Metode Analisis*. *8* (4), 874–882. https://doi.org/https://doi.org/10.57178/paradoks.v8i4.1899

Harmen, H., & Sunjaya, W. (2022). Stres Kerja Dan Ability of Employees Pengaruhnya Terhadap Employee Engagement. *Niagawan*, *11* (2), 189. https://doi.org/10.24114/niaga.v11i2.35378

Hisbih, T. A., Fitriani, L. K., & Supriatna, O. (2023). Pengaruh Beban Kerja, Stres Kerja Terhadap Turnover Intention Karyawan Dengan Workplace Wellbeing Sebagai Variabel Mediasi. *Entrepreneur : Jurnal Bisnis Manajemen Dan Kewirausahaan*, *4* (3). https://doi.org/https://doi.org/10.31949/entrepreneur.v4i03.5701

Irawan, I., & Komara, E. (2022). The Influence of Financial Compensation and Career

Development Mediated Through Employee Engagement Toward Turnover Intention of Millennial Employees of XYZ Grup. *Jurnal Ekonomi, Manajemen Dan Perbankan (Journal of Economics, Management and Banking)*, *6*, 75. https://doi.org/10.35384/jemp.v6i2.251

Karyadi, H., & Tahalele, O. (2025). Pengaruh Work-Life Balance , Beban Kerja , Dan Stres Kerja Terhadap Employee Engagement. *Jurnal Lentera Bisnis*, *14*(2). https://doi.org/10.34127/jrlab.v14i2.1667

Kosim, A., Wicaksono, B., Alimi, S., & Gunawan, A. (2023). Pengaruh Employee Engagement , Beban Kerja dan Kepuasan Kerja terhadap Kinerja Karyawan. *Remik: Riset Dan E-Jurnal Manajemen Informatika Komputer*, *7*, 281–290. https://doi.org/10.33395/remik.v7i1.12079

Misbah, R. C. (2021). *Pengaruh Work Life Balance Dan Stres Kerja Terhadap Employee Engagment (Studi Kasus pada Skyrocket Supply)*. 64–76. https://doi.org/https://doi.org/10.21009/JRMSI.015.2.10

Mulyono, A., & Sunyoto, D. (2025). Dampak Green Marketing, Kesadaran Lingkungan, dan Brand Image Terhadap Loyalitas Konsumen Produk Ramah Lingkungan di Yogyakarta. *Jurnal Cendekia Ilmiah*, *4* (3), 2629–2643. https://doi.org/https://doi.org/10.56799/jceki.v4i3.8883

Nugraha, B. W., & Rukhviyanti, N. (2024). The Effect Of Work Engagement, Work-Life Balance, And Work Overload On Employee Productivity: The Role Of Job Satisfaction As A Mediating Variable At Bri Employees In Bandung City. *The Effect of Work Engagement*, *7*(2), 167–186. https://doi.org/https://doi.org/10.31538/iijse.v7i2.5235

Nyoman Sawitri, N. (2024). Effect of Work-Life Balance, Employee Engagement and Training on Job Satisfaction and Employee Performance. *Greenation International Journal of Tourism and Management*, *2*(1), 53–68. https://doi.org/10.38035/gijtm.v2i1.168

S Lubis, I. E., & Damarwulan, L. M. (2025). The Influence of LMX and EVB on Employee Performance with Job Satisfaction as a Mediator at PLN IP Suralaya. *Advances In Social Humanities Research*, *3*(8), 634–642. https://doi.org/10.46799/adv.v3i8.468

Salliyuana, C., Hidayat, M. R., & Kunci, K. (2024). *Employee Engagement , Beban Kerja , dan Kepuasan Kerja terhadap Kinerja Karyawan (Studi di Kantor BPJS Kesehatan Cabang Tapaktuan) A Employee Engagement dalam Positive Organizational Behavior*. *10* (1), 159–172. https://doi.org/10.37567/alwatzikhoebillah.v10i1.2487

Saputra, D., & Bantam, D. J. (2023). Hubungan kepuasan kerja dengan work engagement pada karyawan PT. KI Daerah Istimewa Yogyakarta. *Indonesian Journal of Economic and Social Science*, *1*(1), 36–44. https://doi.org/10.30989/ijess.v1i1.901

Sovia, N. N., & Khoirunisa, N. (2025). Pengaruh Work Engagement dan Stres Kerja terhadap Turnover Intention pada Pegawai Milenial. *Arus Jurnal Psikologi Dan Pendidikan*, *4*(3), 518–525. https://doi.org/https://doi.org/10.57250/ajpp.v4i3.1772

Stefani Febriani, & Khairudin. (2023). Pengaruh Diversifikasi Usaha Dan Pengendalian Internal Terhadap Penghindaran Pajak (Studi Empiris Pada Perusahaan Tambang Yang Terdaftar Di Bursa Efek Indonesia Tahun 2019-2021. *JEMSI (Jurnal Ekonomi, Manajemen, Dan Akuntansi)*, *9*(3), 671–676. https://doi.org/10.35870/jemsi.v9i3.1089

Sunyoto, D., & Mulyono, A. (2025). *Pengaruh Employee Engagement , Work-Life Balance , Dukungan Sosial , dan Stres Kerja terhadap Kesejahteraan Psikologis Karyawan Perusahaan Garmen di Yogyakarta*. *3* (6), 3017–3028. https://doi.org/https://melatijournal.com/index.php/Metta

Teting, N., & Karhab, R. S. (2025). *Pengaruh Employee Engagement dan Beban Kerja Terhadap Kinerja Pegawai Pada Dinas PUPR-PERA Provinsi Kalimantan Timur Abstrak Pendahuluan*. *8*(4), 121–130. https://doi.org/https://doi.org/10.57178/paradoks.v8i4.1564