

Work Safety and Team Work Influence Performance Employee PT. Andalan Fluid Sistem

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Abstract

This study aims to find out whether there is a relationship between work safety variables affect employee performance, to find out whether team work affects employee performance, to find out whether work safety and team work affect employee performance either partially or simultaneously. Work safety is a crucial factor in creating a safe work environment, while teamwork is an important element in increasing organizational productivity and effectiveness. The population in this study is all employees of PT. Andalan Fluid Sistem, with a sample of 77 respondents selected using the purposive sampling method. The data analysis methods used in this study include simple regression analysis, multiple regression analysis, t-test and f-test with the aim of testing hypotheses comprehensively. The results of the study partially show that the work safety variable has a significant effect on employee performance. The results show that partially the teamwork variable is proven to have a significant effect on employee performance. Simultaneously, the second, the variables of work safety and teamwork together have a significant effect on employee performance. These findings indicate that the implementation of good occupational safety procedures and improved coordination between teams at the same time can be an effective strategy for companies in improving employee performance.

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Introduction

Human resources (HR) are the key to success in increasing productivity and efficiency for a company. This is because HR indirectly impacts company performance, as companies generally operate in tandem with HR. According (Syahrums et al., 2024) states that human resources (HR) is an ongoing organizational activity. Companies must ensure their employees are motivated to manage their work to compete with other companies. Therefore, efforts to improve HR quality can be

achieved through the implementation of occupational safety regulations. Suboptimal human resource management can be seen in the company's workplace accident rate.

According (Abdurrahman Mustafa et al., 2024) A workplace accident is an incident directly related to work that results in injury and possibly death. The Occupational Safety and Health Management System aims to protect and ensure employee safety in all work activities and to utilize production resources effectively and efficiently. One cause of workplace accidents is work-related fatigue.

A variable related to employee performance is work safety. Work safety includes establishing standard operating procedures for the use of work equipment to ensure employee protection. This aims to reduce the risk of workplace accidents within the company that could disrupt operations and productivity.

According (Faradila, 2021) work safety is a procedure directly related to the use of work tools, the process of managing the work environment that functions as a production area to prevent work-related accidents. Work safety can also be defined as a condition of being safe from injury due to negligence in the workplace. Companies with good occupational safety programs can be seen from the healthy condition of employees and low levels of workplace accidents. This can occur due to routine maintenance of work equipment, an implemented occupational safety culture, strict supervision of the workshop area, and effective occupational safety training. Thus, occupational safety is a top priority because it is related to people's lives, and if a work-related accident befalls an employee, productivity will decrease.

Another variable that can influence employee performance is team work. Team work can optimize communication both within and outside the company. According (Letsoin & Ratnasari, 2020) team work is an activity carried out and managed by an organized group of people. Teamwork consists of several members with different expertise, allowing them to collaborate to achieve goals company. One aspect of teamwork is cooperation, or a willingness to work together. This cooperative attitude among employees arises because, as social beings, they need the help of others. Team work is closely related to employee performance, as good teamwork increases productivity and achieves established organizational goals.

The sustainability of a company depends on employee performance, every organization must strive to improve employee performance. According (Wahyuni et al., 2023) performance is an assessment of the work results achieved by employees in terms of both quantity and quality in carrying out their assigned tasks in accordance with their responsibilities. Performance can also be defined as the work results obtained by each individual in carrying out the job description assigned to them based on their expertise, experience, and time discipline.

Most previous studies only examined work safety separately or in combination with work environment and work discipline variables as intervening variables, such as the research conducted by (Simatupang Febriyanti, 2019) therefore, the focus on

work safety and team work as primary variables has not yet been a focus. Most research has been conducted in the healthcare, manufacturing, public services, construction, and mining sectors, so the final results do not fully reflect the conditions of companies engaged in hydraulic and pneumatic cylinder engineering. Differences in business sectors significantly influence characteristics, operational targets, and work culture, and there are differences in quality standards within each company. This condition indicates that there is still a gap in specifically examining how work safety and teamwork relate to employee performance in companies focused on the engineering sector. Therefore, this research is relevant in filling this gap in previous studies while still relying on existing empirical findings.

Another limitation lies in differences in organizational context, implementation of standard operating procedures, employee characteristics, and organizational culture, which cause varying results. Therefore, research findings from one company may not be similar when applied to other companies. Furthermore, there is limited quantitative research specifically examining occupational safety and teamwork as two key variables affecting employee performance at PT. Andalan Fluid Sistem. This limitation presents a research gap that can be addressed through empirical testing in companies with different operational characteristics than the previous research objects (Ermawati Nia, 2025). Thus, this research is expected to provide additional relevant empirical evidence in the context of engineering companies.

Research Method

The design used in this study is a quantitative method with a descriptive approach. Quantitative methods are used in collecting and analyzing data and using numerical. Quantitative methods aim to test a theory, show phenomena and describe statistical analysis of the relationship between variables. The data source in this study uses primary data such as the distribution of questionnaires with a total of 95 populations. This study uses a nonprobability sampling method with a proportionate stratified random sampling technique, namely the sample is determined based on objectives and considerations. 77 employees were selected as samples using the Slovin formula with a margin of error of 5%.

Results and Discussion

Results

1. Test Instruments

According (Anggoro et al., 2024) validity test, it is used to measure whether the questionnaire is valid or not. The instrument in this study is in the form of a questionnaire consisting of 45 questions, with details of 15 items related to work safety

(X1), 15 items related to team work (X2) and 15 items for questions related to employee performance (Y).

Table 1 Validity Test

Statement	Information	Statement	Information	Statement	Information
X1.1	Valid	X2.1	Valid	Y.1	Valid
X1.2	Valid	X2.2	Valid	Y.2	Valid
X1.3	Valid	X2.3	Valid	Y.3	Valid
X1.4	Valid	X2.4	Valid	Y.4	Valid
X1.5	Valid	X2.5	Valid	Y.5	Valid
X1.6	Valid	X2.6	Valid	Y.6	Valid
X1.7	Valid	X2.7	Valid	Y.7	Valid
X1.8	Valid	X2.8	Valid	Y.8	Valid
X1.9	Valid	X2.9	Valid	Y.9	Valid
X1.10	Valid	X2.10	Valid	Y.10	Valid
X1.11	Valid	X2.11	Valid	Y.11	Valid
X1.12	Valid	X2.12	Valid	Y.12	Valid
X1.13	Valid	X2.13	Valid	Y.13	Valid
X1.14	Valid	X2.14	Valid	Y.14	Valid
X1.15	Valid	X2.15	Valid	Y.15	Valid

Source : SPSS Version 27, 2026

Berdasarkan item dalam tabel uji validitas, dapat disimpulkan bahwa dari masing-masing variabel dengan 15 pernyataan tersebut telah dibuktikan valid dengan r table ($n=77$) = 0,227.

According to Riduwan (2010:125) in (Hurriyaturohman & Rosdiana, 2023) stating that the reliability test is used to measure indicators on a variable instrument. An instrument is categorized as reliable if the respondent's answers are consistent with the statement given. Cronbach's Alpha analysis technique is used in reliability testing, where if the reliability coefficient value shows a number of $0.6 >$ then the instrument is considered trustworthy, on the other hand, if the result of the number < 0.6 then the instrument is declared untrustworthy.

Table 2 Variable Reliability Test

Variabel	Cronbach's Alpha	Remarks
Work safety (X1)	0,857	Reliabel
Team work (X2)	0,751	Reliabel
Performance Employee (Y)	0,749	Reliabel

Source : SPSS Version 27, 2026

Based on the reliability test, Cronbach's Alpha > value was 0.60. It can be stated that the variables in this study are declared reliable.

2. Classic Assumption Test

According (Zulkifli et al., 2025) normality test, it is used to test statistical data with the aim of finding out whether the data is normally distributed or not.

Table 3 Normality Test

<i>One-Sample Kolmogorov-Smirnov Test</i>			
			Understandardized Residual
N			77
Normal Paramaters ^{a,b}	Mean		.0000000
	Std. Deviation		4.13572997
Most extreme differences	Absolute		.062
	Positive		.052
	Negative		-.062
Test Statistic			.062
Asymp. Sig (2-tailed) ^c			.200 ^d
Monte Carlo Sig (2-tailed) ^d	Say.		.646
	99%	Lower	.633
	Confidence	Bound	
	interval	Upper	.658
			Bound

Source : SPSS Version 27, 2026

Based on the table above, the Asymp.Sig value is $0.200 > 0.05$. It can be stated that the data is distributed normally.

Multicollinearity testing aims to determine the influence between the regression model and independent variables. According to Ghazali (2017:105) in (Rahmadani, 2023), the multicollinearity test is a test on the regression model whether there is a relationship with independent variables.

Table 4 Multicollinearity Test

		<i>Coefficients</i>						
		<i>Unstandardized</i>	<i>Stabddardized</i>					<i>Collinearity</i>
		<i>Coefficents</i>	<i>Coefficients</i>					<i>Statistics</i>
<i>Model</i>		<i>Std</i>						
		<i>B</i>	<i>Error</i>	<i>Beta</i>	<i>t</i>	<i>Sig.</i>	<i>Tolerance</i>	<i>VIF</i>
1	<i>(Constant)</i>	9.749	6.301		1.547	.126		
	<i>Work</i>	.431	.114	.424	3.768	<.001	.533	1,877
	<i>Safety</i>							
	<i>Team</i>	.408	.132	.347	3.080	.003	.533	1,877
	<i>Work</i>							

Source : SPSS Version 27, 2026

Based on the table above, it shows that the work safety and team work variables have a tolerance value of $0.533 > 0.10$ and a VIF value of $1.877 < 10$. It can be concluded that there is no multicollinearity between independent variables.

Heteroscedasticity is one of the tests that can cause regression models to be inefficient or accurate. According (Zahriyah et al., 2022), heteroscedasticity testing is used to find out whether there is variance from residual variance in observations in regression models.

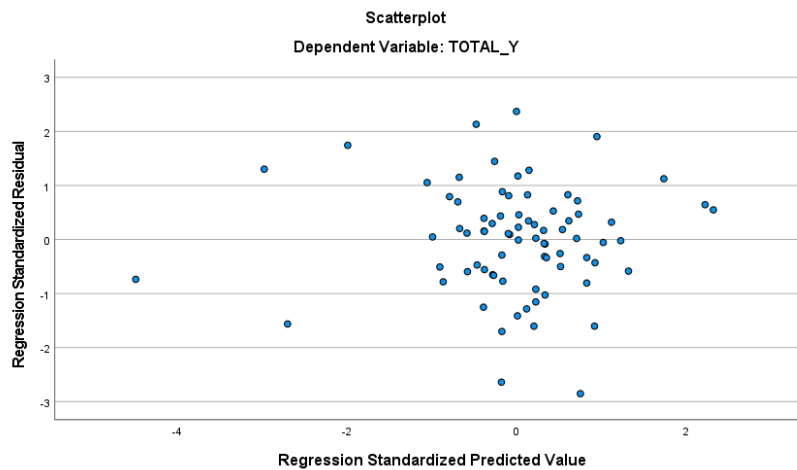


Figure 1 Heteroscedasticity Test

Based on the image above, it shows that the pattern spreads randomly and does not form a specific pattern. So it can be stated to estimate the independent variable with the bound variable.

3. Multiple Linear Analysis

Table 5 Partial Regression of work safety variable (X1)

Coefficients ^a					
		Unstandardized	Coefficients	Standardized	
Model		B	Std. Error	Beta	t Sig
1	(Constant)	19.865	5.673		3.502 <,001
	Work Safety	.672	.088	.661	7.625 <,001

a. Dependent variable: Performance Employee

Source : SPSS Version 27, 2026

The study revealed that the constant value was 19.845, accompanied by an environmental regression coefficient of 0.672, indicating that every 0.672 increase in employee performance. Work safety variable significantly influences employee performance.

Table 6 Partial Regression of team work variable (X2)

Coefficients ^a					
		Unstandardized	Coefficients	Standardized	
Model		B	Std. Error	Beta	t Sig
1	(Constant)	16.022	6.590		2.431 .017
	Team Work	.749	.105	.636	7.143 <,001

a. Dependent variable: Performance Employee

Source : SPSS Version 27, 2026

The analytical findings indicate a consistent value of 16.022. The regression coefficient for team work is 0.749, indicating that each increase in employee performance corresponds to an increase of 0.749. Team work variable significantly influences employee performance.

Table 7 Multiple Regression

Coefficients ^a					
		Unstandardized	Coefficients	Standardized	
Model		B	Std. Error	Beta	t Sig

1	(Constant)	9.749	6.301		1.547	.126
	Work Safety	.431	.114	.424	3.768	<,001
	Team Work	.408	.132	.347	3.080	.003

a. Dependent variable: Performance Employee

Source : SPSS Version 27, 2026

The results indicate that the value is 9.749. A positive and statistically significant influence of work safety on employee performance is indicated by a coefficient of 0,431 and a sig of 0.001. At a significance level of 0.003, the coefficient for team work is 0.408, which indicates that team work has a positive and substantial influence on employee performance.

4. Uji Hypothesis

Table 8 Hypothesis Test T

Coefficients ^a					
		Unstandardized Coefficients	Standardized Coefficients		
Model		B	Std. Error	Beta	t Sig
1	(Constant)	9.749	6.301		1.547 .126
	Work Safety	.431	.114	.424	3.768 <,001
	Team Work	.408	.132	.347	3.080 .003

a. Dependent variable: Performance Employee

Source : SPSS Version 27, 2026

With a coefficient of 0.431, a t-value of 3.768, and a significance level of 0.001, the t-test shows the work safety variable significantly and positively influences employee performance. Similarly, the team work variable has a positive and statistically significant influence on employee performance with a coefficient of 0.408, a t-value of 3.080, and a significance level of 0.003. Also, the figure that was found to be consistent is 9.749.

Table 9 Hypothesis Test F

ANOVA ^a					
		Sum of Squares	Df	Mean Square	F Sig.
1	Regression	1335.740	2	667.870	37.102 <,001 ^B
	Residual	1332.052	74	18.001	

Total	2667.792	76
a. Dependent variable: Performance Employee		
b. Predictors: (Constant), work safety, team work		

Source : SPSS Version 27, 2026

The f-test results show a calculated f-value of 37.102 with a significance level of 0.001, which is less than 0.05. This evidence suggests that workplace performance is significantly influenced by both intrinsic and extrinsic factors.

Table 10 Determination Coefficients

Model Summary ^b									
						Change Statistics			
		Adjusted		Std		R			
Model	R	R Square	R Square	Error of the Estimate	Square Change	F Change	df1	df2	Sig. F Change
1	,708 ^a	,501	,487	4.24272	,501	37.102	2	74	<,001
a. Predictors: (Constant), work safety, team work									
b. Dependent variable: Performance Employee									

Source : SPSS Version 27, 2026

The analysis of the determination coefficient revealed a r value of 0.708 and a r² value of 0.501, indicating that work safety variables and team work collectively account for 50.1% of performance employee, while the remaining 49,9% is attributable to external factors not examined in this study.

Discussion

1. The results of simple linear regression analysis reveal that the constant value is 19.845 with a regression coefficient of 0.672 for the work safety variable. This indicates that every one-unit increase in work safety implementation is associated with a 0.672-unit increase in employee performance. Furthermore, the t-test results confirm that occupational safety has a positive and statistically significant effect on employee performance, as evidenced by a coefficient of 0.431, a t-value of 3.768, and a significance level of 0.001, which is well below the 0.05 threshold. Accordingly, the first hypothesis (H₁), which posits that work safety significantly influences employee performance, is accepted.

These findings are also consistent with the research gap identified by Faradila (2021), who noted the limited availability of quantitative research specifically examining occupational safety as a key variable affecting employee performance in companies with oriented kitchen restaurant. The present study directly addresses this gap by providing empirical evidence that occupational safety significantly and

positively influences employee performance at PT. Andalan Fluid Sistem, a company engaged in hydraulic and pneumatic cylinder engineering a context that has not been thoroughly investigated in prior literature. This constitutes the novelty contribution of this finding to the existing body of knowledge

2. The simple linear regression analysis for the team work variable yields a constant value of 16.022 and a regression coefficient of 0.749, signifying that each one-unit improvement in team work quality corresponds to a 0.749-unit increase in employee performance. The t-test results further substantiate this relationship, showing a coefficient of 0.408, a t-value of 3.080, and a significance level of 0.003, all confirming that teamwork positively and significantly affects employee performance. As a result, the second hypothesis (H_2), which proposes that team work has a significant influence on employee performance, is accepted.

From a research novelty perspective, Letsoin & Ratnasari (2020) noted that most previous studies examined teamwork separately or in combination with other variables such as employee engagement and job loyalty, with teamwork as the primary variable receiving relatively limited attention in the telecommunications sector. This study addresses this gap by empirically demonstrating that teamwork is a significant and substantial driver of employee performance at PT. Andalan Fluid Sistem, providing sector-specific evidence that extends the generalizability of teamwork research beyond healthcare, manufacturing, public services, construction, and mining to the domain of hydraulic cylinder and pneumatic engineering.

3. The F-test results indicate a calculated F-value of 37.102 with a significance level of 0.001, which is substantially lower than the 0.05 threshold. This finding confirms that work safety and team work, when considered simultaneously, exert a significant and combined influence on employee performance. The coefficient of determination analysis reveals an R value of 0.708 and an R^2 value of 0.501, indicating that the two independent variables work safety and team work collectively explain 50.1% of the variance in employee performance at PT. Andalan Fluid Sistem. The remaining 49.9% is attributable to other factors not examined within the scope of this study, such as work motivation, leadership style, organizational culture, compensation, or individual competence. Therefore, the third hypothesis (H_3), which posits that occupational safety and teamwork simultaneously and significantly influence employee performance, is accepted.

The theoretical basis for this simultaneous effect is grounded in the human resource management perspective advanced by Syahrums et al. (2024) who assert that HR management is an ongoing organizational activity in which companies must ensure employees remain motivated and protected in order to compete effectively. Work safety addresses the physical and environmental preconditions necessary for employees to perform without fear of harm, while team work

provides the relational and structural mechanisms through which collaborative effort produces superior outcomes. The interaction of these two variables generates a synergistic effect, wherein a safe workplace environment enables teams to operate cohesively and efficiently, amplifying overall employee performance levels.

Conclusions and Suggestions

Conclusion

This study's analysis leads to the conclusion that :

1. Work safety has been proven to have a positive and significant impact on employee performance. The findings of this study indicate that the better the implementation of safety procedures in the production area, such as the use of personal protective equipment, checking tools before use, awareness of potential hazards, and ensuring employee protection, the better employee performance and increased employee productivity.
2. Team work has a positive and significant impact on employee performance at PT. Andalan Fluid Sistem. This implies that the higher the level of teamwork in the workplace, the better the resulting performance. This is evidenced by the positive communication between employees, mutual support, and shared responsibilities, creating a collaborative environment.
3. Work safety and team work have been proven to jointly have a positive and significant impact on employee performance at PT. Andalan Fluid Sistem. The findings of this study indicate that the collaboration between workplace safety, which emphasizes compliance with applicable safety procedures, and is supported by a culture of teamwork among employees, directly drives improved employee performance. Therefore, these two important aspects are factors that management needs to consider to achieve the Company's stated goals.

Suggestion

For further research, it is recommended to add other variables that can affect employee performance, such as organizational commitment, servant leadership and work motivation, etc. In addition, the use of qualitative methods is another good option, with the aim of deepening the understanding of how work safety and team work affect employee performance at PT. Andalan Fluid Sistem.

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