



An Effect Of Occupational Safety And Health On Employee Performance At PT. PLN (Persero) ULP Binjai Barat

Risman Setiawan¹, Yohny Anwar², Henry Aspan³

^{1,2,3} Faculty of Social Science, Universitas Pembangunan Panca Budi, Indonesia

Email: risman.setiawan.pln@gmail.com

Abstract: This study aims to test and analyze the effect of occupational safety (X1) and health (X2) on the performance (Y) of employees at PT. PLN (Persero) Customer Service Unit of West Binjai. The data analysis technique used in this study is descriptive quantitative, with the number of samples are 50 respondents. The analysis used is statistical data analysis using namely multiple linear regression analysis and hypothesis testing. The result of this study shows that world safety (X1) partially has a positive and significant effect on the performance of employees at PT. PLN (Persero) Customer Service Unit of West Binjai. Likewise, the health (X2) partially has positive and significant effect on the performance of employees at PT. PLN (Persero) Customer Service Unit of West Binjai. then, the simultaneous testing of the variables in this study consisting of occupational safety and health have a positive and significant effect on the dependent variable which is the performance of employees at PT. PLN (Persero) Customer Service Unit of West Binjai.

Keywords: occupational safety; health; performance

I. Introduction

Based on Law number 14 of 1969 article 9 that "Every worker has the right to protection for safety, health, maintenance of work morals, as well as treatment in accordance with human dignity and religious morals, to ensure the creation of safe working conditions, avoiding physical disturbances. and mentally by directing and training, directing and controlling the implementation of employee responsibilities, and providing assistance in accordance with applicable regulations, all from government agencies and companies where they work.

K3 Award by company to employees is a guarantee of comfort and safety at work so that employees can work optimally and have optimal performance. In accordance with the research of Firmansyah, et al (2017), it is proven that occupational safety and health (K3) has a positive effect on the performance of employees of PT. PLN (Persero) Kediri Area Distribution of East Java and research conducted by Jalla, et al (2019) which proves that occupational safety and health have a positive effect on employee performance. Below is a list of employee illnesses and accidents for the last 5 years at PT. PLN (Persero) ULP Binjai Barat:

Table 1. PT. PLN (Persero) ULP North Binjai Number of Employees who are Sick and Have Work Accidents 2016 to 2020

No	Year	Amount		Number of employees
		Sick	Accident	
1	2016	4	3	49
2	2017	5	4	52
3	2018	4	2	50
4	2019	4	3	48
5	2020	3	2	50

Source: PT. PLN (Persero) ULP West Binjai (2022)

Based on the table data above, for the last 5 years it can be seen that the largest number of accidents occurred in 2017 from year to year. Sickness and accidents and other incidents, mostly caused by employees who neglect to take care of their health, still show an attitude that they are not ready to do what the job requires, so there are still many accidents that lead to unwanted events. Injuries, work interruptions, lost time from work and decreased employee performance can occur. From this explanation, it still shows the lack of optimization of occupational safety and health so that it can cause illness and accidents that still occur frequently and still interfere with employee performance activities.

From the problems above, the writer feels interested in raised these problems into a study entitled "The Effect of Occupational Safety and Health on Employee Performance at PT. PLN (Persero) ULP Binjai Barat".

To determine the authenticity of the researcher's research and based on the knowledge of the researcher as the author of the study with the title "The Effect of Occupational Safety and Health on Employee Performance at PT. PLN (Persero) ULP Binjai Barat", the researcher believes that there is no research with the same title, but there may be research similar to the research written by the researcher, such as the research conducted by Firmansyah, et al (2017) entitled "The Effect of Safety and Health Work Against Employee Performance (Study on Employees of PT. PLN (Persero) Kediri Area Distribution, East Java)". The difference lies in:

1) Object of research :

In previous research, the object of the research is the employees of PT. PLN (Persero) Kediri Area Distribution East Java. Meanwhile, in the current research, the object of this research is PT. PLN (Persero) ULP Binjai Barat.

2) Research Year :

The previous research was conducted in 2017 while the current research was conducted in 2022.

3) Research Sample:

In previous studies, the number of samples used was 61 respondents, while in the current study the number of samples used was 50 respondents.

Based on the background of the problem above, the form of the problem formulation of this research is as follows:

- 1) Does work safety partially have a positive effect on employee performance at PT. PLN (Persero) ULP Binjai Barat?
- 2) Does occupational health partially have a positive effect on employee performance at PT. PLN (Persero) ULP Binjai Barat?
- 3) Does occupational safety and health simultaneously have a positive effect on employee performance at PT. PLN (Persero) ULP Binjai Barat?

The objectives of this research are as follows:

- 1) To partially describe the effect of work safety on employee performance at PT. PLN (Persero) ULP Binjai Barat.
- 2) To partially describe the effect of occupational health on employee performance at PT. PLN (Persero) ULP Binjai Barat.
- 3) To describe simultaneously the effect of occupational safety and health on employee performance at PT. PLN (Persero) ULP Binjai Barat.

II. Review of Literature

2.1. Definition of Work Safety

Taryaman (2016), work safety is safety related to human work activities. Kasmir (2016), said that work safety is a comprehensive employee protection activity, meaning that the company tries to keep employees from getting an accident while carrying out their activities. Suwardi and Daryanto (2018), say that work safety is safety related to machines, work tools, materials and their management processes, the basis of the workplace and its environment and ways of doing work.

2.2. Work Safety Indicator

According to Kasmir (2016) explaining that there are several factors that affect work safety, which in this case will be used as indicators by researchers of work safety variables: (1) Completeness of work equipment, (2) Quality of work equipment, (3) Employee discipline, (4) Leadership firmness, (5) Work spirit, (6) Supervision, (7) Age of work tools.

2.3. Definition of Occupational Health

Kasmir (2016) says that occupational health is an effort to keep employees healthy at work. According to Suparyadi in Zainal (2015), occupational health is a physical, mental, and social condition, and not just the absence of disease or weakness when carrying out a job. According to Megginson in Taryaman (2016) Occupational health is a condition that is free from physical and psychological disturbances caused by the work environment.

Based on several understandings of occupational health from the experts above, the authors can conclude that occupational health is a condition in which every worker must have a healthy condition, both in terms of physical, mental and social work and must also maintain and protect this health so that can work optimally and produce satisfactory work results.

2.4. Occupational Health Indicators

According to Kasmir (2016) explaining that there are several factors that affect occupational health, which in this case will be used as indicators by researchers of occupational health variables: (1) Air, (2) Light, (3) Noise, (4) Smells, (5) Room Layout.

Kasmir (2016), states that performance is the result of work and work behavior that has been successfully achieved by an employee in completing all tasks and responsibilities given to him in a certain period. Mangkunegara (2017), performance is the result of work in quality and quantity achieved by an employee in carrying out his duties in accordance with the responsibilities given to him. Meanwhile, according to Fahmi (2017), performance is the result of a process that refers and is measured over a certain period of time based on pre-determined provisions or agreements.

So, it can be concluded from the opinions of the experts above that the performance of an employee is a result of work carried out by someone in carrying out tasks, both skills, efforts, and opportunities in a company so that the desired goals can be achieved.

Kasmir (2016), explains the indicators used in measuring performance: (1) Quality (Quality), (2) Quantity (Amount), (3) Time (Term), (4) Cooperation between Employees, (5) Emphasis Cost, (6) Supervision.

III. Research Method

This research uses quantitative research method with associative type. namely research that aims to find out/or find out the relationship/influence between two or more variables (Sugiyono, 2017). The population in this study were all employees of PT. PLN (Persero) West Binjai Customer Service Unit as many as 50 employees. By using a saturated sampling technique, the number of samples obtained is 50 respondents. The data collection method used is a questionnaire with analytical techniques in the form of classical assumption test, multiple linear regression test, partial test, simultaneous test and coefficient of determination test.

IV. Discussion

4.1. Instrument Test Results

a. Validity

This test is carried out to determine whether each statement item is valid or not included in the questionnaire for each research indicator, and a statement is said to be valid if r count $>$ r table and significance level $<$ 0.05 (5%) then the statement item is declared valid (Ghozali, 2016). The results of the validity test obtained are as follows:

Table 2. Validity Test Results

Safety Variable (X1)			
	r_{hitung}	r_{tabel}	Information
Statement 1	0.589	0.2816	Valid
Statement 2	0.497	0.2816	Valid
Statement 3	0.362	0.2816	Valid
Statement 4	0.486	0.2816	Valid
Statement 5	0.383	0.2816	Valid
Statement 6	0.416	0.2816	Valid
Statement 7	0.660	0.2816	Valid
Statement 8	0.636	0.2816	Valid
Statement 9	0.679	0.2816	Valid
Statement 10	0.400	0.2816	Valid
Statement 11	0.743	0.2816	Valid
Statement 12	0.818	0.2816	Valid
Statement 13	0.510	0.2816	Valid
Statement 14	0.767	0.2816	Valid
Health Variable (X2)			
Statement 1	0.581	0.2816	Valid
Statement 2	0.366	0.2816	Valid
Statement 3	0.466	0.2816	Valid
Statement 4	0.620	0.2816	Valid
Statement 5	0.467	0.2816	Valid
Statement 6	0.584	0.2816	Valid
Statement 7	0.594	0.2816	Valid
Statement 8	0.591	0.2816	Valid
Statement 9	0.557	0.2816	Valid
Statement 10	0.562	0.2816	Valid
Performance Variable (Y)			
	r_{hitung}	r_{tabel}	Information

Statement 1	0.741	0.2816	Valid
Statement 2	0.362	0.2816	Valid
Statement 3	0.350	0.2816	Valid
Statement 4	0.493	0.2816	Valid
Statement 5	0.524	0.2816	Valid
Statement 6	0.455	0.2816	Valid
Statement 7	0.535	0.2816	Valid
Statement 8	0.483	0.2816	Valid
Statement 9	0.347	0.2816	Valid
Statement 10	0.726	0.2816	Valid
Statement 11	0.480	0.2816	Valid
Statement 12	0.565	0.2816	Valid

Source: Data processed using SPSS (2022)

Based on the results of the validity test contained in the table above, it shows that all the calculated r values are greater than the r table (0.2816), which means that each statement in the questionnaire is declared valid and ready to be analyzed.

b. Reliability

The reliability coefficient is used to measure the level of agreement of respondents' responses to the stated items, provided that the research tool is not reliable if Cronbach's alpha (α) < 0.6 and if Cronbach's alpha (α) > 0.6 then the study is declared reliable (Trihendradi, 2013). The results of the reliability test in this study:

Table 3. Reliability Test Results

Information	Cronbach's Alpha	r critical	Criteria
Safety (X1)	0.835	0.6	Reliable
Health (X2)	0.724	0.6	Reliable
Performance	0.738	0.6	Reliable

Source: Data processed using SPSS (2022)

Based on the table above, it can be seen that all variables have Cronbach's alpha value > 0.6, which means that the three research instruments can be declared reliable.

4.2. Classic Assumption Test Results

a. Normality test

Normality test is a procedure used to determine whether the data comes from a normally distributed population (Nuryadi, et al, 2017).Dwith the provisions: if the value of sig > 0.05 (5%) then the data can be said to be normally distributed. But if the value of sig < 0.05 (5%) then the data can be said to be not normally distributed (Ghozali, 2016).

Table 4. Normality Test
One-Sample Kolmogorov-Smirnov Test

		Unstandardized Predicted Value
N		50
Normal Parameters, b	mean	43.8200000
	Std. Deviation	4.02325914

Most Extreme Differences	Absolute	.080
	Positive	.061
	negative	-.080
Test Statistics		.080
asymp. Sig. (2-tailed)		.200c,d

- a. Test distribution is Normal.
- b. Calculated from data.
- c. Lilliefors Significance Correction.
- d. This is a lower bound of the true significance.

Source: Data processed using SPSS (2022)

The table above explains that Asymp. Sig. (2-tailed) is 0.2, so it can be concluded that the value of sig (0.2) > 0.05, which means that the data is normally distributed. In addition, testing the normality of a data can also be done by analyzing the Histogram graph and PP-Plot. According to Ghozali (2016), said that on the histogram, the data is said to have a normal distribution if the data is shaped like a bell. While on the probability plot, the data is said to behave a normal distribution if the spread of the points is around the diagonal line and the spread follows the direction of the diagonal line. From the test results of SPSS Version 24.0 obtained the following graphic results:

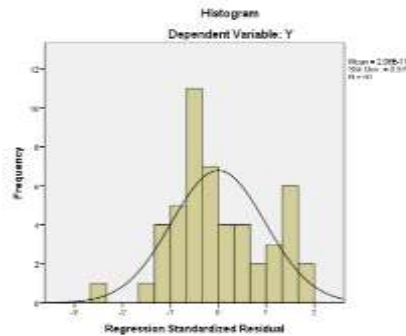


Figure 1. Histogram

Source: Data processed using SPSS (2022)

Based on Ghozali's opinion above, it can be seen that: that from the histogram image above it forms an image similar to a bell, thus it can be concluded that the data presented can be said to be normal.

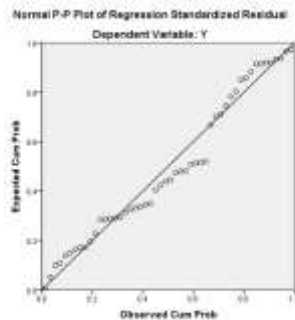


Figure 2. Probability Plot

Source: Data processed using SPSS (2022)

From the picture above, it can be seen that the normality test based on the PP Plot graph analysis shows that the data or plot points are around the diagonal line and follow the direction of the diagonal line, which means that the data used in this study is normally distributed.

b. Multicollinearity Test

Multicollinearity is a correlation that very high that occurs in the relationship between the independent variables. The criteria used are if the VIF (Variance Inflation Factor) value is < 10 or the tolerance value is > 0.10, then there are no symptoms (Riyanto and Hatmawan, 2020). Based on the results of data processing SPSS version 24.0, with the results that can be:

Table 5. Multicollinearity Test Results

Model	Coefficients ^a					Correlations			Collinearity Statistics	
	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Zero-order	Partial	Part	Tolerance	VIF
	B	Std. Error	Beta							
1 (Constant)	8,957	3,604		2,485	.017					
X1	.357	.111	.474	3,222	.002	.793	.425	.268	.318	3.142
X2	.454	.173	.386	2,621	.012	.777	.357	.218	.318	3.142

a. Dependent Variable: Y

Source: Data processed using SPSS (2022)

From the data above, it can be explained that there is no independent variable that has a tolerance value (T) of less than 0.10 and a variance inflation factor (VIF) value of more than 10. So it can be concluded that the data used is free from multicollinearity.

c. Heteroscedasticity Test

According to Ghozali (2013) the heteroscedasticity test has a purpose to test whether in a regression model there is an inequality of variance from the residuals of one observation to another observation and the following results are obtained:

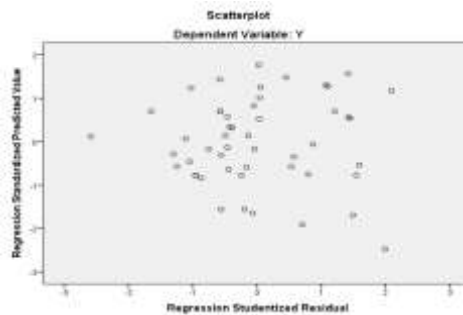


Figure 3. Scatter Plot

Source: Data processed using SPSS (2022)

In Figure 3 it can be seen that the points spread above and below the number 0 on the Y axis and do not show a certain regular pattern, and the points in the graph do not form a clear pattern, so it can be concluded that there is no heteroscedasticity problem in the model regression in this study.

4.3 Multiple Linear Regression Test Results

In this study, more than one independent variable was used, so the research model used was a multiple linear regression analysis model. It is used to analyze whether the independent variable has an effect on the dependent variable. The results of multiple linear regression analysis in this study:

Table 6. Multiple Linear Regression Test Results
Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	8,957	3,604		2.485	.017					
	X1	.357	.111	.474	3.222	.002	.793	.425	.268	.318	3.142
	X2	.454	.173	.386	2,621	.012	.777	.357	.218	.318	3.142

a. Dependent Variable: Y

Source: Data processed using SPSS (2022)

Based on table 6 above, the following regression equation can be made:

$$Y = a + b_1X_1 + b_2X_2 + e$$

$$Y = 8.957 + 0.357X_1 + 0.454X_2$$

With the interpretation of each variable coefficient as follows:

- 1) The constant value of 8.957 explains that if the occupational safety and health variable is constant, the employee's performance will still be worth 8.957.
- 2) The work safety variable has a regression coefficient in the direction of +0.357 which means that the better the work safety applied by the company, the better the employee's performance.
- 3) The occupational health variable has a regression coefficient in the direction of +0.454 which means that the better the employee's occupational health, the better the performance produced by the employee.

4.4 Partial Test (t-test)

Partial test is a test carried out to determine the partial effect between variables independent of the dependent variable (Riyanto and Hatmawan, 2020). By criteria: If $t_{count} > t_{table}$ with sig value < 0.05 , then it can be said there is a partial effect. However, if $t_{count} < t_{table}$ with sig value > 0.05 , it can be said that there is no influence between the independent variables on the dependent variable partially. The following are the results of data that have been processed by researchers:

Table 7. Partial Test Results (t-test)
Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	8,957	3,604		2.485	.017					
	X1	.357	.111	.474	3.222	.002	.793	.425	.268	.318	3.142
	X2	.454	.173	.386	2,621	.012	.777	.357	.218	.318	3.142

a. Dependent Variable: Y

Source: Data processed using SPSS (2022)

From the table above, it can be seen that the t value for work safety is 3.222 with a sig of 0.002. Meanwhile, for the t-count occupational health value of 2.621 with a sig of 0.012, and the t-table value of 1.67793, it can be concluded that partially occupational safety and health has a positive and significant effect on the performance of employees of PT. PLN (Persero) ULP Binjai Barat.

4.5 Simultaneous Test (F-Test)

This hypothesis testing is intended to find out an interpretation parameters together, which means how much influence the independent variables have on the dependent variable together (Riyanto and Hatmawan, 2020). With the criteria: If $F_{count} > F_{table}$ with sig value < 0.05 , it can be said that there is a jointly significant influence between the independent variables on the dependent variable, or vice versa. Following the results of the F test of this study can be seen in the table below:

Table 8. Simultaneous Test Results (F-Test)
ANOVAa

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	793.144	2	396.572	49,019	.000b
	Residual	380,236	47	8090		
	Total	1173380	49			

a. Dependent Variable: Y

b. Predictors: (Constant), X2, X1

Source: Data processed using SPSS (2022)

From the results of the SPSS output above, it shows that the calculated F value is 49,019 with a significance level of 0.000 and these results explain that the calculated F value ($49.019 > F_{table} (3.20)$) with a sig level ($0.000 < 0.05$) which means that simultaneously occupational safety and health have a positive and significant effect on the performance of employees of PT. PLN (Persero) ULP Binjai.

4.6 Coefficient of Determination Test (R2)

Analysis of the coefficient of determination (R2) is used to determine how much the independent variable can affect the dependent variable in this study (Riyanto and Hatmawan, 2020). The results of the coefficient of determination test from this study:

Table 9. Results of the Coefficient of Determination
Model Summaryb

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			
						F Change	df1	df2	Sig. F Change
1	.822a	.676	.662	2.84431	.676	49,019	2	47	.000

a. Predictors: (Constant), X2, X1

b. Dependent Variable: Y

Source: Data processed using SPSS (2022)

Based on table 9 above, it can be seen that the coefficient of determination (Adj R2) is 0.662, which means that 66.2% of the influence of occupational safety and health variables on the performance of employees of PT. PLN (Persero) ULP Binjai Barat, while the remaining 33.8% of the dependent variable can be explained by other variables not discussed in this study.

V. Conclusion

From the results of research on the effect of occupational safety and health on employee performance at PT. PLN (Persero) ULP Binjai Barat, the researchers concluded:

- 1) Work safety has a positive and significant influence on the performance of employees of PT. PLN (Persero) ULP Binjai Barat
- 2) Occupational health has a positive and significant influence on the performance of employees of PT. PLN (Persero) ULP Binjai Barat
- 3) Occupational safety and health simultaneously have a positive and significant effect on the performance of employees of PT. PLN (Persero) ULP Binjai Barat

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