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Effect of Workload and Work Stress on Employees Performance Through Job Satisfaction as Intervening Variable in Rubber Plantation, Serdang II District, PT. Perkebunan Nusantara III

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ABSTRACT

This study to examine the effect of workload on job satisfaction, workstress on job satisfaction, examine the effect of workload and work stress on job satisfaction, workload on employee performance, work stress on employee performance, job satisfaction on employee performance, workload and work stress on employee performance through job satisfaction in Rubber Plantation Serdang II District, PTPN III. The sample in this study are 82 people. The analytical method used in this research using multiple linear regression analysis. The result of the direct influence test shows that workload has a negative effect on job satisfaction, work stress has a negative effect on job satisfaction, workload and work stress have an influence on job satisfaction, workload has a negative effect on employee performance, work stress has a negative effect on employee performance, job satisfaction has a positive effect on employee performance and the effect of workload, job stress and job satisfaction has a positive effect on employee performance. The indirect effect that occurs in this study is that job satisfaction is only able to become a pseudo-mediator on employee performance.

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1. Introduction

PT. Perkebunan Nusantara III (Persero) Medan or also abbreviated as PTPN III (Persero), is one of 14 Plantation State-Owned Enterprises (BUMN) which is engaged in plantation business, processing and marketing of plantation products. The company's business activities include the cultivation of rubber plants which have plantations in various areas in North Sumatra, especially the Serdang II District, PT. Perkebunan Nusantara III focuses on the Ginting Nest Garden and Sei Putih Garden.

Table1Dry Rubber Production January-July

Garden		January-July 2018			January-July 2019		January-July 2020		January-July 2021	
			HK	Production (Thousand Kg Dry)	HK	Production (Thousand Kg Dry)	HK	Production (Thousand Kg Dry)	HK	Production (Thousand Kg Dry)
Sarang Ginting	Total	53.198	1,404,652	42,184	1,348,788	43.211	1,251,931	39,421	1,045,716	
	Average	7,600	200,665	6.026	192,684	6.173	178,847	5,632	149,388	
Sei Putih	Total	74.798	1,085,152	67,682	1,244,802	34.104	1,155,848	32,371	858,674	
	Average	10,685	155.165	9.668	177,829	4.872	165,121	4.624	122.668	

Source: Serdang II District PT. Perkebunan Nusantara III

It can be seen in the table above, dry rubber production from 2018 to 2021 continues to decline almost every year. With an average monthly decrease of 25% from 2018. The same thing can be seen in Sei Putih gardens with an average decrease of 20.8%.

The phenomenon of workload in PT. Perkebunan Nusantara III (Persero) Serdang II District, which is based on increasing dry rubber production, then in 2021 a policy is made to harvest wet rubber at 04.00 WIB with additional lighting equipment and Extra Fooding for penderes employees. Another phenomenon that occurs is where employees experience increased work stress with increasing workloads that occur.Job stress is an important aspect for the company, especially its relation to employee performance. In the short term, stress that is left alone without serious handling from the company can make employees depressed, unmotivated and frustrated causing employees to work not optimally so that their performance will be disrupted. In the long term, employees cannot withstand work stress, so they are no longer able to work for the company. In a more severe stage, stress can make employees sick or even resign (turnover) and can cause work accidents.

Employees are required to give their performance, where by increasing the individual performance of each employee, the better it is expected to have a positive impact on the company's performance. Employee performance can be traced from employee attitudes such as job satisfaction. Job satisfaction is known to affect employee performance. There are several factors that can affect employee performance such as satisfaction with supervision, promotion, pay, working conditions, organizational commitment, overall satisfaction and work experience.

2. Methods

This research is an explanatory survey research that aims to examine the effect of each variable in this study, the research data approach used in this study is a quantitative data approach. The population in this study were all employees of District II Serdang PTPN III. The sampling technique used in this study used a purposive sampling technique with the following criteria: 1) Status as a permanent employee; 2) Has worked for at least 3 years; 3) Working on a rubber plantation. The number of employees who participated in this study amounted to 459 people. The operationalization of the variables in this study is listed in Table 2 using a five-choice Likert scale. Data collection techniques in this study used a questionnaire distributed through a questionnaire. The analytical method used in this research is using the Multiple Linear Regression analysis method with the Spss statistical tool.

3. Results and Discussion

3.1 Characteristics of Research Respondents

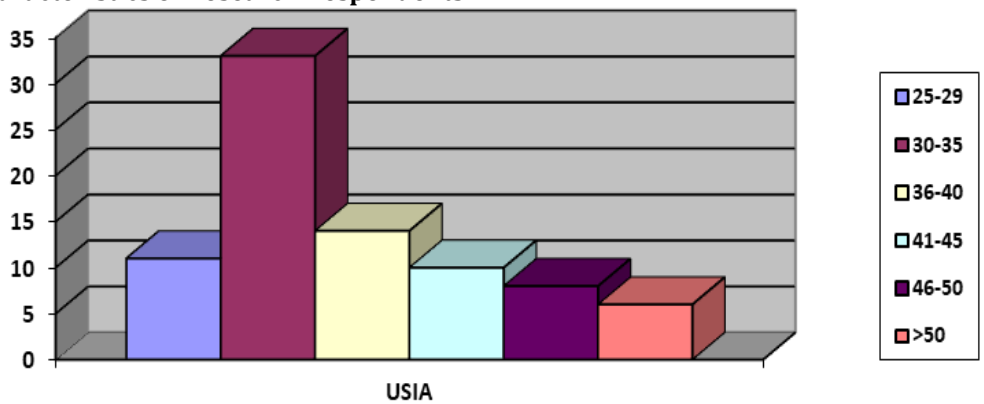

Figure 2. Characteristics of Respondents Based on Age

Based on Figure 2, it is obtained information that the respondents of implementing employees who work as cranes at Kebun Sei Putih PTPN III are aged between 25-27 years, totaling 11 people. There are

33 employees aged 30-35 years, 14 employees aged 36-40 years. Furthermore, there are 10 employees aged 41-45 years, and employees aged 46-50 years are 8 people and employees > 50 years are 6 people.

3.2 Research Instrument Test

a. Classic assumption test

1) Normality test

The purpose of the normality test is to test whether in the regression model the distribution of data follows or approaches the normal distribution, namely the distribution of data with a bell shape. One way to see normality is to look at the histogram graph and the normal pp plot graph, which compares two observations with a distribution that is close to a normal distribution. The following are the results of normality testing of pp plots and histograms.

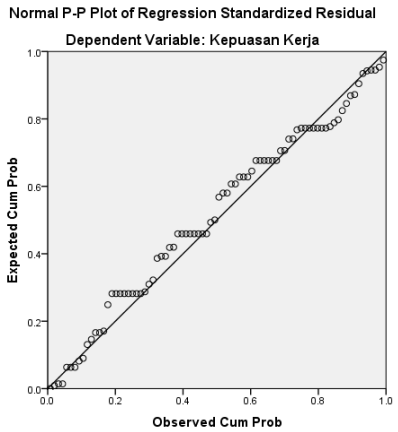

Figure 2PP Normality Test Results Plot Equations X1 and X2 Against Y
Source: Processed Data

Based on the results of the PP Plot test, it was found that the plot spreads along a diagonal line so that it can be concluded that the research equation meets the assumption of normality.

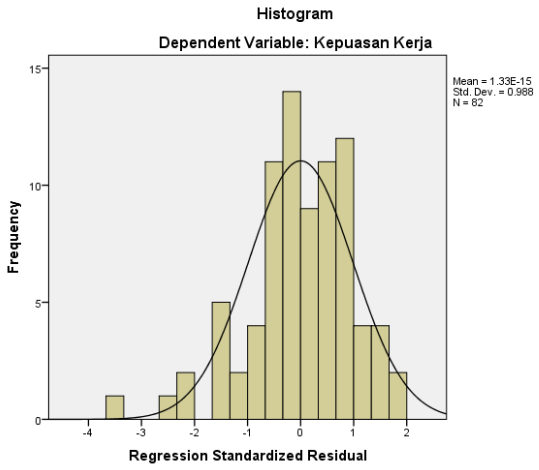

Figure 3 Histogram Normality Test Results Equation X1 and X2 Against Y
Source: Processed data

Based on the results of the Histogram test, it was found that the curve formed a perfect bell so it can be concluded that the equation of this study meets the assumption of normality

Table 2 Kolmogorv Smirnov Normality Test Equation I

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		82
Normal Parameters, b	mean	.0000000
	Std Deviation	1.16271583
Most Extreme Differences	Absolute	.096
	Positive	.066
	negative	-.096
Test Statistics		.096
asymp. Sig. (2-tailed)		.057c

a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.

Based on the results of the Kolmogrov Smirnov test, the Asym value is obtained. Sig (2-tailed) > 0.05 so it can be concluded that the research equation meets the assumption of normality.

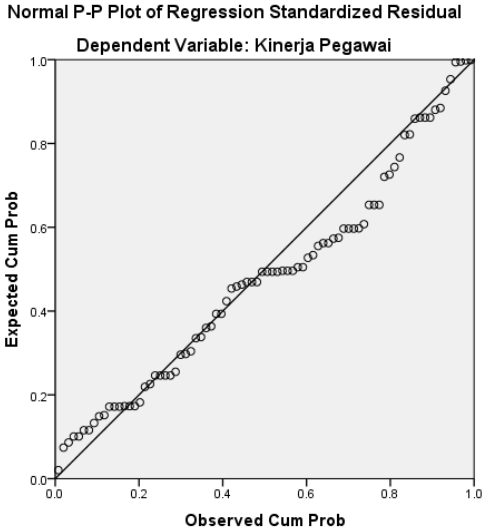

Figure 4PP Normality Test Results Plot Equations X1, X2 and Y Against Z

Based on the results of the PP Plot test, it was found that the plot spreads along a diagonal line so that it can be concluded that the research equation meets the assumption of normality.

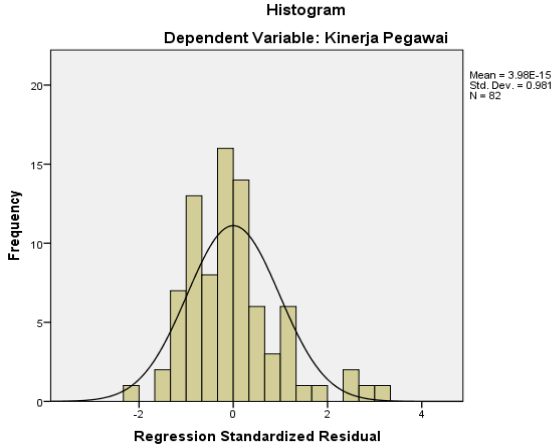

Figure 5 Histogram Normality Test Results Equation X1 and X2 and Y Against Z
Source: Processed Data

Based on the results of the Histogram test, it was found that the curve formed a perfect bell so that it could be concluded that the equation of this study met the assumption of normality.

Table 3. Kolmogorv Smirnov Normality Test Equation II
One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		82
Normal Parameters, b	mean	.0000000
	Std. Deviation	1.05346369
Most Extreme Differences	Absolute	.134
	Positive	.134
	negative	-.060
Test Statistics		.002
asymp. Sig. (2-tailed)		.501c

a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.

Based on the results of the Kolmogrov Smirnov test, the Asym value is obtained. Sig (2-tailed) > 0.05 so that it can be concluded that the research equation meets the assumption of normality.

2) Multicollarity Test Results

Table 4 Multicollarity Test of Equation I

Collinearity Statistics	
Tolerance	VIF
0.301	3.322
0.301	3.322

Based on the results of the multicollinearity test, it was found that the tolerance value > 0.10 and VIF < 10, so it can be concluded that there is no multicollinearity in this equation.

Table 5 Multicollarity Test of Equation II

Collinearity Statistics	
Tolerance	VIF
.241	4.143
.284	3,519
.372	2,689

Based on the results of the multicollinearity test, it was found that the tolerance value > 0.10 and VIF < 10, so it can be concluded that there is no multicollinearity in this equation.

3) Heteroscedasticity Test Results

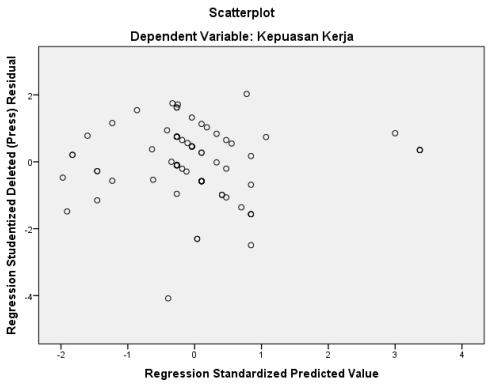

Figure 6 Heteroscedasticity Test of Equation I

Based on the results of the heteroscedasticity test, the results show that the plots are spread out and do not form a certain pattern so that it can be concluded that there is no heteroscedasticity in this equation.

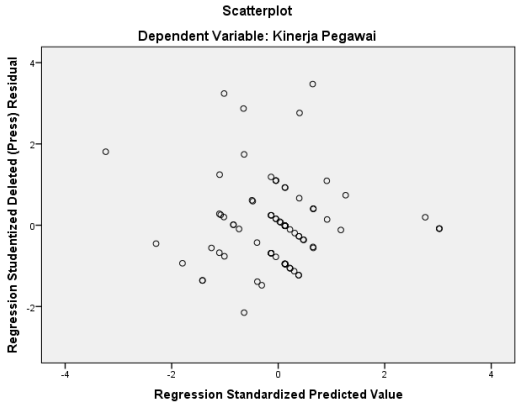

Figure 7 Heteroscedasticity Test of Equation II

Based on the results of the heteroscedasticity test, the results show that the plots are spread out and do not form a certain pattern so that it can be concluded that there is no heteroscedasticity in this equation.

b. Hypothesis test

In the first sub-structure test, the researcher will examine the effect of the variable Effect of Workload (X1) and Work Stress (X2) on employee performance (Z) through employee satisfaction at PTPN III employees. The following are the results of multiple linear regression analysis using SPSS.

Table 6 Testing of Multiple Regression Analysis Equation I; X1 and X2 Against Y

Coefficientsa

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	11.901	2,140		5.562	.000					
	Workload	-.340	.077	-.552	-4.418	.000	.779	-.445	-.303	.301	3.322
	Work stress	-.219	.101	-.270	-2.162	.034	.732	-.236	-148	.301	3.322

a. Dependent Variable: Job Satisfaction

$$Y = 11.901 - 0.552\ X1 - 0.270\ X2$$

Based on multiple linear regression analysis, the results showed that the workload and work stress variables had a negative effect on job satisfaction. And the biggest influence on job satisfaction is workload.

Table 7 Testing of Multiple Regression Analysis Equation II; X1.X2.Y and Z

Coefficientsa

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	18,947	2,302		8.232	.000					
	Workload	-179	.078	-.371	-2.281	.025	.506	-.250	-.182	.241	4.143
	Work stress	-.459	.095	-.723	-4,828	.000	.669	-.480	-.385	.284	3,519
	Job satisfaction	.274	.103	.350	2,670	.009	.591	.289	.213	.372	2,689

a. Dependent Variable: Employee Performance

$$Z = 18,947 - 0.371\ X1 - 0.723X2 + 0.350\ Y$$

Based on multiple linear regression analysis, the results show that the variables of workload and work stress have a negative effect on employee performance. While the variable job satisfaction has a positive influence on employee performance.

1) Partial Hypothesis Testing

Table 8 Partial Hypothesis Testing Equation I

Coefficientsa

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	11.901	2,140		5.562	.000					
	Workload	-.340	.077	.552	-4.418	.000	.779	-.445	-.303	.301	3.322
	Work stress	-.219	.101	.270	-2.162	.034	.732	-.236	-148	.301	3.322

a. Dependent Variable: Job Satisfaction

In this equation, the t-table value is 1.29 and based on the results of partial significance testing, it is found that t-count > t-table and sig value <0.05, so it can be concluded that workload and work stress have a negative and significant effect on job satisfaction.

Table 9 Partial Hypothesis Testing Equation II

Coefficientsa

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std.Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	18,947	2,302		8.232	.000					
	Workload	-179	.078	-.371	-2.281	.025	.506	-.250	-.182	.241	4.143
	Work stress	-.459	.095	-.723	-4,828	.000	.669	-.480	-.385	.284	3,519
	Job satisfaction	.274	.103	.350	2,670	.009	.591	.289	.213	.372	2,689

a. Dependent Variable: Employee Performance

In this equation, the t-table value is 1.29 and based on the results of the partial significance test, it is found that the two hypotheses have t-count > t-table and sig < 0.05 but there are t-count values < t-table and sig > 0.05. so it can be concluded that workload and work stress have a negative and significant effect on employee performance while job satisfaction has a positive and significant influence on employee performance.

2) Simultaneous Hypothesis Testing

Table 10 Simultaneous Hypothesis Testing Equation I

ANOVAa

Model		Sum of Squares	f	Mean Square	F	Sig.
1	Regression	184.947	2	92,473	66,713	.000b
	Residual	109,505	9	1.386		
	Total	294.451	1			

a. Dependent Variable: Job Satisfaction
b. Predictors: (Constant), Work Stress, Workload

Based on the results of testing the dimultan hypothesis, an F-table of 3.69 is obtained, then it is also produced that F-count (66,713) > F-table (3.69) and sig < 0.05 so it can be concluded that workload and work stress have a simultaneous and significant effect on job satisfaction. work.

Table 11 Simultaneous Hypothesis Testing Equation II

ANOVAa

Model		Sum of Squares	f	Mean Square	F	Sig.
1	Regression	90.888	3	30,296	26,288	.000b
	Residual	89,893	8	1.152		
	Total	180,780	1			

a. Dependent Variable: Employee Performance
b. Predictors: (Constant), Job Satisfaction, Job Stress, Workload

Based on the results of testing the dimultan hypothesis, an F-table of 3.10 is obtained, then it is also produced that F-count (26,288) > F-table (3.10) and sig < 0.05 so that it can be concluded that workload, stress and job satisfaction have a simultaneous and significant effect. on employee performance.

c. Coefficient of Determination Test

Table 12 Coefficient of Determination Test Results Equation I

Model Summaryb

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	f1	df2	Sig. F Change	
1	.793a	.628	.619	1.17734	.628	66,713	2	79	.000	1.335

a. Predictors: (Constant), Work Stress, Workload
b. Dependent Variable: Job Satisfaction

Based on the coefficient of determination, the R-square value shows that the effect of workload and stress has an effect on job satisfaction of 62.8% (0.628).

Table 13 Coefficient of Determination Test Results Equation II

Model Summaryb

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.709a	.503	.484	1.07353	.503	26,288	3	78	.000	1.909

a. Predictors: (Constant), Job Satisfaction, Job Stress, Workload
b. Dependent Variable: Employee Performance

Based on the coefficient of determination, the R-square value shows that the effect of training, workload, stress and job satisfaction has an effect on employee performance of 50.3% (0.503).

d. Indirect Effect Test

The direct effect of x1 on z is -0.371. While the indirect effect between x1 to z through y is the multiplication of the beta value of x1 to y and the value of beta y to z, the following formula is obtained: -0.371 x 0.350 = -0.129 then the total effect of x1 on z is the direct effect plus the indirect effect. directly then the result is: -0.129 + (-0.371) = 0.050. based on the calculation, the result is that the direct influence value is -0.371 and the indirect influence value is -0.5. Based on the results of these tests, it can be concluded that the value of the direct influence of variable x1 on variable z is greater than the effect of variable x1 on z through y, so it can be concluded that variable y is only able to act as a partial moderator.

The direct effect of x2 on z is -0.723. While the indirect effect between x2 to z through y is the multiplication of the beta value of x1 to y and the value of beta y to z, the following formula is obtained: 0.-723 x 0.350 = -0.25 then the total effect of x2 on z is the direct effect plus the indirect effect, the results obtained are: -0.723 + (-0.25) = -0.973. based on the calculation, the result is that the direct influence value is -0.723 and the indirect effect value is -0.973. Based on the test results, it can be concluded that the value of the direct influence of variable x2 on variable z is greater than the effect of variable x2 on z through y, so it can be concluded that variable y is able to act as a partial mediator.

1) Variable Descriptive Analysis

Descriptive analysis serves to see the description of the results of research on Workload, Job Stress, Job Satisfaction and Performance. With a total population of 459 people represented by a sample of 82

people. To see the answers and provide conclusions about the response to the questionnaire, a descriptive test was carried out with an actual score approach compared to the ideal score and percentage.

In order to make it easier to interpret the variables being studied, the respondents' responses were categorized based on the respondent's response scores. Respondents' responses to each statement item were categorized into 5 categories very good, good, quite good, not good and not good.

Overview of Employee Performance there are six dimensions, namely quantity of work, quality of work, and timeliness. Based on the results of processing data sourced from respondents, the following is the description of employee performance:

Table 14 employee performance

Dimension	Answer					Actual score	Ideal Score	Percentage
	5 (SS)	4 (S)	3 (KS)	2 (TS)	1 (STS)			
Quantity	75	91	75	52	35	1103	1640	0.67256
Quality	103	92	64	42	27	1186	1640	0.72317
Punctuality	76	92	67	51	42	1093	1640	0.66646
Total						3382	4920	69%

The table above shows that the employee's performance is classified as good, this can be seen from the average percentage of the employee performance variable of 69%. The highest score is a statement on the Quality dimension, namely the quality of the tap is getting better because the latex flow rate is getting faster, but this does not increase the quantity, it can be seen that the quantity of rubber production remains in normal conditions with a percentage score actual by 67%.

Table 15 Workload

Dimension	Answer					Actual score	Ideal Score	Percentage
	5 (SS)	4 (S)	3 (KS)	2 (TS)	1 (STS)			
Physical tasks	64	43	26	13	18	614	820	0.74878
Mental tasks	35	53	32	29	15	556	820	0.67805
Time	25	31	44	40	24	485	820	0.59146
Delegation of duties and authority	61	54	32	12	5	646	820	0.7878
Psychological factors	18	24	67	24	31	466	820	0.56829
Total						2767	4100	67%

In the table above, it can be seen that the measurement of the Workload variable has five dimensions, namely physical tasks, mental tasks (responsibility), time, delegation of tasks and authority, psychological factors. The dimension that accounts for the largest or best percentage is the dimension of delegation of duties and authority. This indicates that employees carry out their duties according to their main tasks (job description) without any additional tasks outside their responsibilities that they must do in the field. While the factors that contributed to the lowest percentage were psychological factors, namely 56% and time 59%. This is quite sufficient because it is more than >50%, but this indicates that the respondent feels burdened with the current working time.

Table 16 Work stress

Dimension	Answer					Actual score	Ideal Score	Percentage
	5 (SS)	4 (S)	3 (KS)	2 (TS)	1 (STS)			
Psychological	45	72	101	62	48	988	1640	0.60244
Physique	122	102	42	35	27	1241	1640	0.75671
Behavior	72	78	62	59	57	1033	1640	0.62988
Total						3262	4920	66%

In the table above, we can see that the average percentage representing the work stress variable is 66%. It can be seen that the Psychological dimension of taking action is rated the lowest of all dimensions but is still in the sufficient category, namely 60%, this indicates that employees have feelings of anxiety when they have to go to work and are depressed with their work conditions. This is similar to the workload variable, namely the time and psychological dimensions, where employees feel burdened with the available working time and lack more motivation to excel at the company.

Table 17 Job Satisfaction Table

Dimension	Answer					Actual score	Ideal Score	Percentage
	5(SS)	4(S)	3(KS)	2(TS)	1(STS)			
Supportive Working Conditions	46	70	120	54	38	1016	1640	0.61951
Wages	83	85	102	35	23	1154	1640	0.7 366
Supportive coworkers	121	132	69	4	2	1350	1640	0.82317
Total						3520	4920	72%

On the job satisfaction variable, it has the highest average percentage among other variables, namely 72%, in this variable the dimensions of supportive coworkers have the highest percentage, which is 82%, this indicates that employees feel comfortable working with other colleagues and feel help each other in terms of profession. The lowest dimension is supporting working conditions, which is 61%, this is considered sufficient because it is more than >50%.

4. Conclusion

Workload has a negative effect on job satisfaction, work stress has a negative effect on job satisfaction, workload and work stress has an effect on job satisfaction, workload has a negative effect on employee performance, work stress has a negative effect on employee performance, job satisfaction has a positive effect on employee performance and the effect of workload, job stress and job satisfaction have a positive effect on employee performance. The indirect effect that occurs in this study is that job satisfaction is only able to become a pseudo-mediator on employee performance.

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