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Influence of Occupational Health and Safety Risk On Human Resources on Project Continuity (Case Study: Muhammadiyah University Education Hospital Semarang)

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ABSTRACT

This type of research uses a quantitative descriptive approach, namely describing and analyzing the problems found. Quantitative research is based on primary data and secondary data. This research aims to determine the positive influences between: (1). Employee performance influences work safety. (2). Worker awareness influences work safety. (3). Workers' health influences work safety. On the Semarang Muhammadiyah University Teaching Hospital Construction Project. The results of this research show that work safety has a positive and significant effect of 89.9% on employee performance, and worker health on project sustainability. With the help of SmartPLS3.0 software

Keywords: *Quantitave; Work Safety; Analysis; SmartPLS.*

INTRODUCTION

Based on initial preliminary studies that researchers have conducted and direct observations at the Semarang Muhammadiah University Teaching Hospital Project. The project that has been running for almost 35%, the researcher found that the implementation of OHS in the sustainability of the project has been very much implemented, but from workers who are recalcitrant in applying it, such as wearing helmets while in the project environment, wearing gloves when installing iron or reinforcement, and wearing shoes when entering the project site, the absence of glasses when welding iron that meets Standard Operational Procedures (SOP). Optimized human resources (HR) and qualified employees are critical to project success.

Increasingly fierce competition in the industrial field, companies must optimize all their natural resources in producing high-quality products. Good product results cannot be separated from the contribution of employees who work in the company. Human resources can help business production factors such as capital, machinery, and materials. Human resources (HR) cannot be separated from occupational safety and health.

The issue of K3 (Occupational Safety and Health) is still very neglected in Indonesia. This causes many accidents, especially in the construction industry, where construction workers account for around 7-8% of all workers in various fields in Indonesia. Since work accidents can have a direct or indirect impact on employees or companies, occupational health and

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safety (OHS) is very important for companies. So an occupational safety and health (OHS) management system is needed.
One of the reasons companies do not grow is because the company and top leadership did not understand the need to change the company and create new ways to manage employees early in the company's history.

It is very important to apply Occupational Safety and Health (OHS) to all areas of work because the application of OHS can reduce and even prevent work-related accidents. A study by Smith and Sonesh (2011) found that the implementation of occupational health and safety (OHS) can reduce the risk of occupational accidents. [4]. The more knowledge workers have about occupational safety and health (OHS), the lower the likelihood of occupational accidents, but the less understanding of OHS, the greater the likelihood of accidents [3]. Work accidents can occur if the implementation of OHS management is disrupted or hampered. This gap is the cause of work accidents. The management of OHS implementation is very necessary in the sustainability of a project that will be started, so that in carrying out the project the risk of work accidents is greatly reduced.

Project work is also strongly supported by workers who have a conscious attitude towards danger, or about the OHS procedure itself. Workers must understand the implementation of OHS in the construction project itself, one of which is in the University of Muhammadiyah Semarang Educational Hospital construction project. With the awareness of workers, the risk of accidents will be reduced and it will be minimal for the company to be responsible for the risks of the workers themselves.

Employee behavior with regard to safety (Behavior), namely the behavior of employees or workers in running the project and carrying out Occupational Safety and Health (K3) regulations during the project, because with a behavior that shows a proactive attitude in carrying out K3 can smooth the continuity of the project, with a very small risk of worker accidents [1]. The study of "The Influence of Occupational Safety and Health (OHS) Risks on Human Resources on Project Sustainability at the University Hospital Muhammadiyah Semarang" is intended to be carried out based on the background described by the outher.

MATERIALS AND METHODS

Research Implementation Method

This study uses a type of research with a quantitative approach method with the help of SmartPLS3.0 software. Data collection techniques use primary data collection methods and secondary data.

1) Primary Data
   a. Data obtained directly by the author from the field. Primary data in this study are as follows:
   b. Interviews were conducted directly at the project site. Interviews were conducted with 7 people who played a direct role with K3, namely 2 K3 teams, 4 workers and one foreman.
   c. Observation is direct monitoring by researchers at the project site. Some indicators in the observation that are observed are related to the variables that the researcher has determined, these variables include, 1). Employee performance, 2). Worker Awareness, 3) Worker Health, 4). Work Safety.
   d. Questionnaire is a way of collecting data using questions submitted to respondents. The questionnaire will be filled in by 31 workers as a sample using a Likert scale to

estimate the level of agreement of the respondents, for each question 5 answers are given with different answer scores.

e. Document study is a method of collecting data that is not shown directly to the research subject. Document study is a technique for collecting data that is very useful as an analysis material. [6]

2) Secondary data

Is a data collection technique that is not given directly to the researcher, or by intermediary. Secondary data is obtained from books or references from the internet.

Data Analysis

Data processing uses quantitative methods, which represent data in the form of numbers. Data analysis includes:

1) Validity Test

The validity test is a test that is a measure of an assessment that can assess the extent to which variables can be measured. According to Ghozali (2021), the validity test is used to check the validity of the questionnaire that has been given [2].

An analysis is said to be valid if the respondent's question can explain the estimated questionnaire. A test can be indicated as having high validity if the loading factor value exceeds 0.70 and the AVE value on Discriminat Validity exceeds 0.50. Tests whose information results are not significant to the measurement intent are said to have low validity.

2) Reliability Test

Reliability test is a test carried out to assess the accuracy, consistency and accuracy of the instrument in measuring the construct [2]. Research is considered good if the results are consistent in the same measurement, and it is considered bad if repeated measurements get different results.

The height of a reliability can be measured empirically by the reliability coefficient value. The high reliability value is indicated by the rxx value reaching 1. In general, the value agreement taken is if the reliability value is> 0.700 it is considered satisfactory. [7]

3) Outer Loading Test

The outer test uses smart pls support. analysis on the outer model is estimated using validity testing as well as reliability. The Outer Loading value must be> 0.7 because when the Outer Loading value is> 0.7, more than 50% of the information from the indicator has been successfully absorbed by the left variable. [7]

4) Hypothesis Test

Hypothesis is a response, temporary in nature to the formulation of the problem, where the formulation of the problem is shown in the form of a statement. [5] Hypothesis testing must use two or more variables to measure the relationship between variables. This hypothesis test can say whether the variables X1, X2 and X3 have a positive or negative effect on Y, with a significance level <0.05.

Research Flow

This research begins by analyzing the problems that exist in the construction project of the UNIMUS Semarang Educative Hospital, after the problem is analyzed, then distributing questionnaires to obtain the necessary data from respondents. Data collection is taken from primary data or the most important data, by taking directly from respondents. The next stage is data processing, namely as data analysis to get the results of the study and the last is processing and discussing the data obtained from the research results.

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RESULTS AND DISCUSSION

Outer Model Testing

This research model uses the help of SmartPLS3.0 software and adopts the Patrial least square (PLS) method. this method is one of the methods that can solve the problem of the relationship between very complex variables and data not related to a particular distribution [8] The following are the results of the outer loading test using SmartPLS 3.0 software:

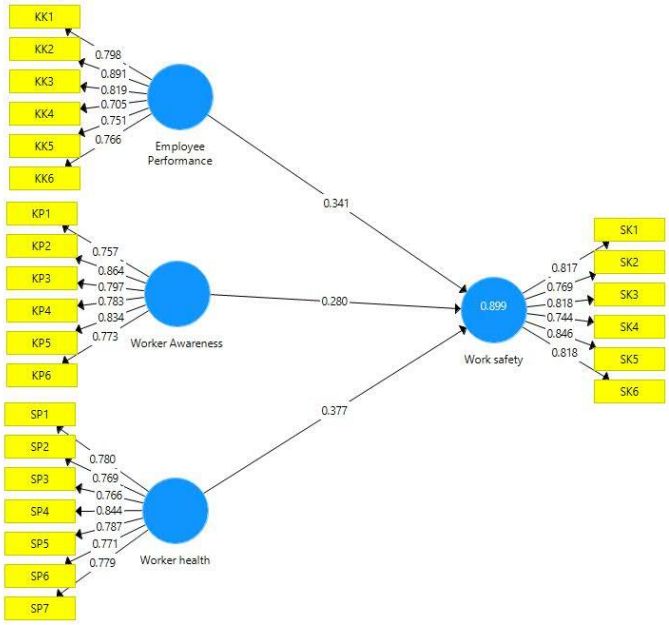

Figure 1. Outer Loading Test Results

In Figure 4.1 it can be explained that the outer loading test is said to be significant because the loading factor value on each variable is greater than 0.7, and testing can be carried out to the next stage.

Validity Test

After data processing is carried out with the help of SmartPLS 3.0 software, the loading factor results will be shown in Table 1 below:

Table 1. Loading Factor Results

	Worker Awareness	Worker Health	Work Safety	Employee Performance
KK1				0.798
KK2				0.891
KK3				0.819
KK4				0.705
KK5				0.751
KK6				0.766
KP1	0.757			

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	Worker Awareness	Worker Health	Work Safety	Employee Performance
KP2	0.864			
KP3	0.797			
KP4	0.783			
KP5	0.834			
KP6	0.773			
SK1			0.817	
SK2			0.769	
SK3			0.818	
SK4			0.744	
SK5			0.846	
SK6			0.818	
SP1		0.780		
SP2		0.769		
SP3		0.766		
SP4		0.844		
SP5		0.787		
SP6		0.771		
SP7		0.779		

All indicators on each indicator can be considered valid because they have a value of more than 0.70, which allows further testing, as shown in Table 4.1 of the factor loading results processed using SmartPLS3.0 software. In further examination, the AVE value is compared with the correlation value between constructs. The root AVE value must be greater than the correlation value between constructs [8]. Table 4.2 below displays the AVE value and the square root of the AVE for each construct:

Table 2. Results of AVE Value and AVE Square Root

	Average Variance Extracted (AVE)	Akar Kuadrat AVE
Worker Awareness	0.643	0,802
Worker Health	0.617	0,782
Work Safety	0.644	0,802
Employee Performance	0.625	0,791

Based on Table 2, it shows that all indicators from the results of the AVE value are greater than 0.50 so that they can be said to be valid for validity testing. The validity test of outer loading has a requirement that the AVE value is greater than 0.50 so that the test can be said to be valid.

Reliability Test

This measurement is carried out with one measurement, the SmartPLS 3.0 software provides

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facilities for checking reliability with the Cornbanh's Alpha and Composite reliability statistical tests with different significant levels. Cornbach's Alpha testing has a significant nerve of 0.6 so that the variable can be said to be reliable, while Composite Reliability has a significant nerve of 0.7 so that the variable can be accepted [8].

a) Cornbach's Alpha

Table 3. Cornbach's Alpha Test Results

	Average Variance Extracted (AVE)	Akar Kuadrat AVE
Worker Awareness	0.643	0,802
Worker Health	0.617	0,782
Work Safety	0.644	0,802
Employee Performance	0.625	0,791

Based on Table 3, it shows that the cornbach's alpha test can be said to be reliable because the value of cornbach's alpha is above the critical value of 0.6 and can be said to be reliable for further testing.

b) Composite Reliability

Table 4. Composite Reliability Test Results

	Composite Reliability
Worker Awareness	0.915
Worker Health	0.918
Work Safety	0.916
Employee Performance	0.909

Based on Table 4 shows that the composite reliability test is said to be reliable because the value of the composite reliability is above the critical value of 0.7 and can be said to be reliable for further testing.

Inner Model Testing

After conducting an adjusted outer model analysis, the inner model (structural model) of the dependent construct is then tested with the t-statistic for the path coefficient test. A higher R-square value means better conjecture variables from the proposed research variables.

1. **R-Square Test**

Table 4.5 shows the coefficient of determination of the R-Square test used to determine how much influence the independent variable has on the dependent variable. The following:

Table 5 R-Square Test Results

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	R Square
Employee Performance	0.899

Based on the R-square value in Table 4.5, it shows that the R-square value is more than 0.7, which means it can be said to be significant. The work safety variable has a significant value of 89.9%, and other variables not examined in this study have a significant value of 10.1%.

2. **F-Square Test**

F-square testing is a test to calculate the magnitude of the influence between variables with effect size, with a value of 0.02 it can be said to be a small influence, a value of 0.15 can be said to be a medium influence, and 0.35 can be said to be a large influence at the structural level, the value of r-square can be shown in table 6:

Table 6. F-Square Test Results

	Worker Awareness	Worker Health	Work Safety	Employee Performance
Worker Awareness			0.172	
Worker Health			0.271	
Work Safety				
Employee Performance			0.267	

Based on Table 4.6, the results of the f-square value are at the point of moderate test values because the results of the f-square value are above 0.15 and below 0.35, with the calculation results in Table 4.9 it can be seen that the f-square value can be said to be reliable and can be continued to the next testing stage.

Hypothesis Testing

The results of the analysis in the model, or structural model, consisting of R-square, parameter coefficients, and T-statistics, are used to test the hypothesis. to evaluate the significance between contracts, T-statistics, and P-value to determine the validity of the hypothesis. The SmartPLS 3.0 program was used to test the hypotheses, and the bootstraping results show the value of the test results. If the T-statistic is <1.96, the P-value is >0.05 (5%), and the coefbeta is positive, then the general rule of research is used. The hypothesis value of this study can be seen in table 4.5 and for the results of the research model can be seen in Figure 2.

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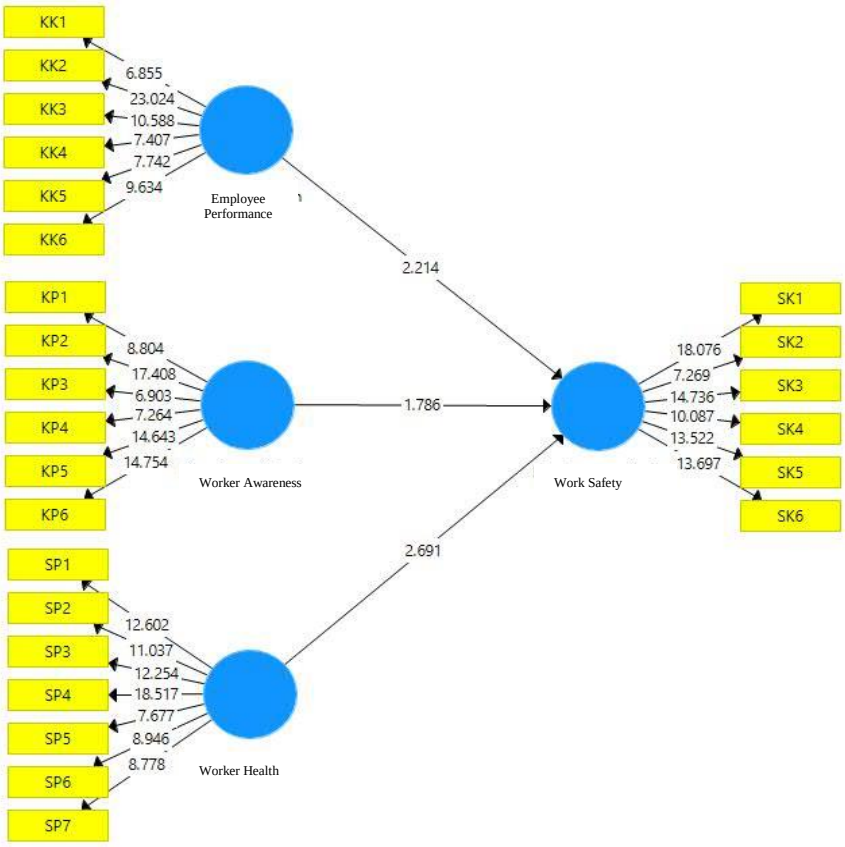

Figure 2. Bootstraping Results

Table 7. Path Coefficience Results

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Employee Performance=>Work Safety	0.341	0.379	0.154	2.214	0.034
Worker Awareness=>Work Safety	0.280	0.261	0.157	1.786	0.084
Worker Health =>Work Safety	0.377	0.362	0.140	2.691	0.011

Based on Table 4.7 shows that the first hypothesis tests whether employee performance has a positive effect on work safety.

H_0: $y_i=0$ = There is no influence between employee performance on work safety

H_1: $y_i\neq0$ = There is an influence between employee performance and work safety.

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The test results show a beta coefficient of 0.341 for Employee Performance on Work Safety, with a T-Statistic of 2.214, and a P-Value of 0.034. From the results of this study, H_0 is rejected and H_1 is accepted, because the t-statistic> 1.96 and p-value <0.05, so the results of this study are significant. According to the above analysis, Work Safety has an influence of 89.9% on employee performance.

The second hypothesis analyzes whether Worker Awareness has a positive effect on Work Safety.

H_0: $y_i=0$ = There is no influence between worker awareness and work safety.

H_1: $y_i\neq0$ = There is an influence between worker awareness and work safety.

The test results show a beta coefficient of 0.280 for Worker Awareness on Work Safety, with a T-Statistic of 1.786 and a P-Value of 0.084. From the results of this study H_0 is accepted and H_1 is rejected, because the t-statistic < 1.96 with a p-value> 0.05 so that the results of this study are not significant. According to the above analysis, Employee Performance does not have a positive influence on Occupational Safety.

The third hypothesis analyzes whether Worker Health has a positive effect on Work Safety.

H_0: $y_i=0$ = There is no influence between worker awareness and work safety.

H_1: $y_i\neq0$ = There is an influence between worker awareness and work safety.

The test results show a beta coefficient of 0.277 for Worker Health on Work Safety, with a T-Statistic of 2.691 and a P-Value of 0.011. From the results of this study H_0 is rejected and H_1 is accepted, because the t-statistic> 1.96 with a p-value <0.05 so that the results of this study are significant. According to the analysis above, Work Safety has a positive influence of 89.9% on Worker Health.

Table 8. Summary of Hypothesis Testing Results

Hypothesis		Result	Ket
H1	Employee Performance has a positive effect on Work Safety	Koef Beta : 0,341 T Statistik : 2,214 p-Value : 0,034	Accepted
H2	Worker Awareness has a positive effect on Work Safety	Koef Beta : 0,280 T Statistik : 1,786 p-Value : 0,084	Rejected
H3	Worker Health has a positive affects Work Safety	Koef Beta : 0,377 T Statistik : 2,691 p-Value : 0,011	Accepted

CONCLUSION

Based on the results of the previous analysis and discussion, the following conclusions can be made:

a. Employee Performance (KK) has a significant positive effect on Work Safety (SK), which means that Employee Performance (KK) proves a positive influence of 89.9% on

Work Safety (SK) in the sustainability of the University of Muhammadiyah Semarang Project.

b. Worker Awareness (KP) has no significant positive effect on Work Safety (SK), which means that Worker Awareness (KP) proves that there is no positive influence on Work Safety (SK) in the sustainability of the University of Muhammadiyah Semarang Project.
c. Worker Health (SP) has a significant positive effect on Work Safety (SK), which means that Worker Health (SP) proves a positive influence of 89.9% on Work Safety (SK) in the sustainability of the University of Muhammadiyah Semarang Project.

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