

# Model for Implementation of Occupational Health and Safety Management Policy for Enhanced Performance of Construction Workers

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**Abstract** Construction projects still experience a high rate of work accidents despite prior research on occupational safety and health's impact on worker performance. This study aims to analyze the variables that influence Occupational Health and Safety (OHS) policies for enhanced performance of construction workers in Palangka Raya City and build a regression model of the influence of OHS policies on worker performance. Data were collected through literature studies and questionnaires, then analyzed with various statistical methods. The benefits of this research are to reduce the number of work accidents and improve the application of OHS. The literature study identified four variables: Occupational Safety, Occupational Health, OHS Regulations and Procedures, and Implementation of Health Protocols - which were broken down into 39 factors that affect worker performance. The regression model indicates that occupational safety and health policies have a positive impact on worker performance, showing that Occupational Safety, Occupational Health, OHS Regulations and Procedures, and Implementation of Health Protocols are crucial factors. Moreover, the better implementation of these policies leads to improved performance. The most influential variables on worker performance based on the Standardized Coefficient Beta value are Implementation of Health Protocols (94.8%), OHS Regulations and Procedures (18.2%), Occupational

Safety (10.9%), and Occupational Health (5.9%).

**Keywords** Construction Projects, Construction Workers, Occupational Safety and Health, Worker Performance

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## 1. Introduction

The rapid growth of facilities and infrastructure in Indonesia is evident through the numerous advancements observed across various sectors [1], [2], [3], [4], [5]. In addition to the aspects of cost efficiency and time effectiveness, one of the aspects that measure the success of a construction development is the zero work accidents that occur during the implementation of its construction [6]. The zero number of work accidents cannot be separated from the application of OHS in the field [7]. Occupational Health and Safety is an area of public health and medicine that focuses on the safety, health, and welfare of employees at work. It is aimed at improving workplace health and safety standards, preventing workplace injuries and illnesses, and promoting the well-being of workers in all occupations [8]. The prevalence of occupational accidents in Indonesia remains a cause for concern, as reported by [9].

The Social Security Organizing Agency for Employment (SSOA/BPJS) notes a persistent upward trend in the incidence of work-related accidents in Indonesia.

Occupational safety denotes a state free from harm, injury, or loss within the workplace, encompassing the utilization of machinery, equipment, materials, management processes, workspaces, and methodologies. Risks associated with occupational safety include potential hazards in the work environment such as fire, electric shock, lacerations, contusions, sprains, fractures, and harm to extremities, vision, and hearing. On the other hand, occupational health pertains to a condition devoid of physical and psychological ailments induced by the work environment. Health-related risks may arise from factors in the work environment, such as extended working hours and conditions inducing stress or physical disturbances. The objective of occupational health is to ensure that workers attain the utmost levels of physical, mental, and social well-being, with a focus on societal prevention against diseases or health issues originating from work-related aspects and the work environment, as well as general health concerns [10].

Project performance can be measured by cost, quality, time, and safety performance indicators. For optimal results, project performance standards throughout the process must be set as detailed and accurate as possible to minimize deviations [11]. Cost, quality, time, and safety are as shown in Figure 1. The relationship between Occupational Health and Safety and Performance is crucial for companies because the impact is not only negative on workers, but also on the company. Occupational safety involves planning and controlling potential accident situations through standard operating procedures. Occupational health refers to a condition free of physical, mental, and emotional disorders in the work environment [12]. Performance, as the result of individual or group work

within an organization, should support the organization's goals in an ethical and lawful manner. Implementation of occupational safety and health programs is the responsibility of the company and has a direct impact on workers in the work environment [11].

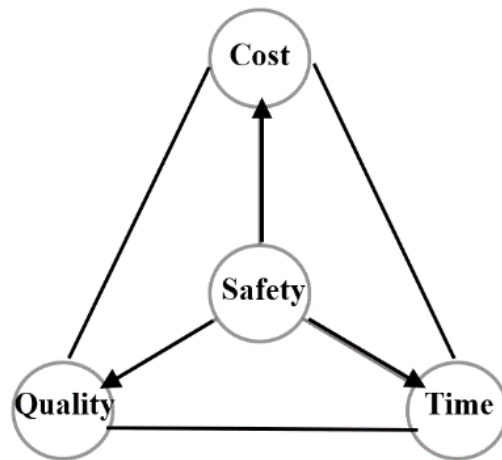


Figure 1. Project Performance Indicators

Figure 2 illustrates the escalating figures of work accidents in Indonesia from 2017 to 2022, demonstrating a continuous rise compared to the preceding year. Every year, the construction sector contributes 32% of the total cases of work accidents in Indonesia [9]. The high number of work accidents and occupational diseases causes a lot of losses, especially for workers. In recent years, the construction sector has been one of those affected by the COVID-19 pandemic, such as delays or having to stop the implementation of construction work due to the implementation of the Large-Scale Social Restrictions (LSSR/PSBB) policy [13].

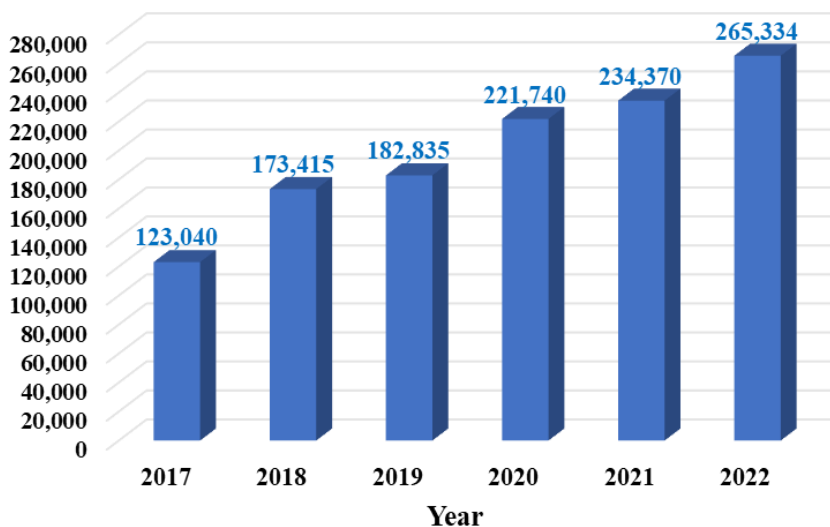
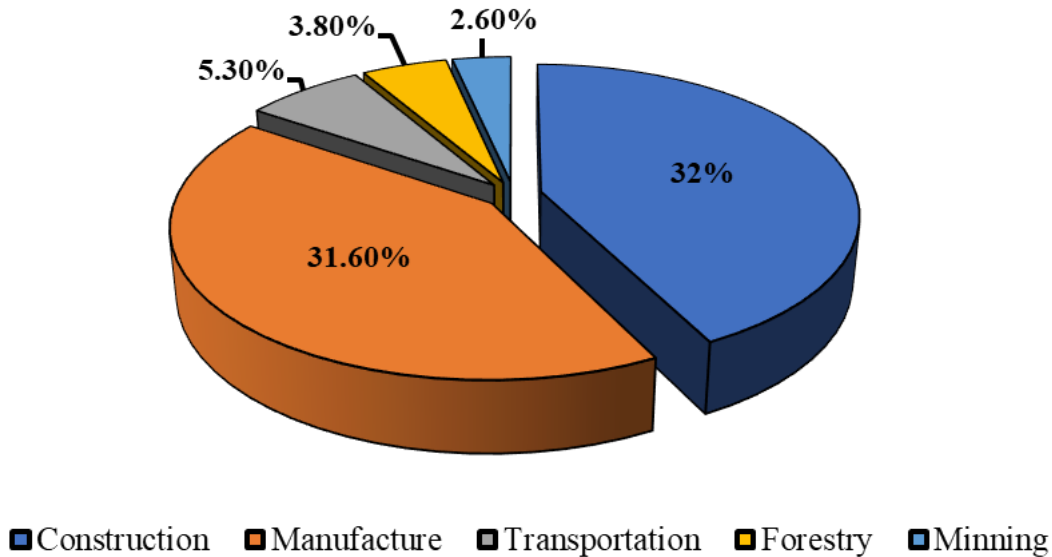


Figure 2. Number of occupational accidents in Indonesia (2017-2022) [14]



**Figure 3.** Sectors Most at Risk of Occupational Accidents Each Year [14]

Figure 3 is a diagram illustrating the sectors most susceptible to workplace accidents annually, as depicted in the figure. According to the data presented, the construction industry remains the primary source of work-related accidents in Indonesia.

Based on statistics provided by the Employment Social Security Organizing Agency (BPJS), there were 82,000 incidents of occupational accidents and 179 cases of work-related diseases recorded from January to September 2021. Notably, 65% of these incidents were attributed to COVID-19. Moreover, project management is required to allocate additional funds for the enforcement of health protocols in compliance with the guidelines outlined in the Minister of Public Works and Public Housing Instruction Number 02 of 2020, addressing the prevention of the spread of the Corona Virus Disease 2019 (COVID-19) during the execution of construction services [15].

The outbreak of the COVID-19 pandemic has prompted the Indonesian government to implement specific measures, as delineated in the Minister of Public Works and Public Housing Instruction Number 02/IN/M/2020 and Minister of Public Works and Public Housing Circular Letter No. 18/SE/M/2020 [16]. All these policies regulate how to manage the running of the company during the COVID-19 pandemic and as an effort to protect workers as well as an effort to prevent the spread of the COVID-19 disease. Where this policy is made so that construction activities can continue to run to drive the country's economy. The instruction refers to Law No. 19 of 1970 concerning Occupational Safety, which aims to protect workers, protect other people around the workplace, and ensure that the production process is safe, efficient, smooth, and productive related to Occupational Safety Management System. The introduction of additional regulations pertaining to the COVID-19 protocol will enhance the safety of construction workers. The Construction Safety

Management System, as defined by Government Regulation No. 50 of 2012, encompasses all endeavors directed at ensuring and safeguarding the well-being of workers by proactively preventing occupational accidents and diseases.

Previous research suggests that adherence to OHS standards facilitates optimal employee performance. Ensuring the safety and well-being of workers is imperative for enhancing their productivity. This necessitates providing protection, development, and fostering a safe and healthy environment for workers [17]. Worker's performance is influenced by several variables such as the environment to the existing occupational safety and health system [11]. So, if the company does not implement OHS properly, the performance of workers will decrease. The correlation between OHS and organizational performance holds significant importance for companies. The repercussions of occupational accidents and diseases extend beyond individual harm to workers, adversely affecting companies both in direct and indirect capacities. The regulations of the Government of the Republic of Indonesia, outlined in Article 87 of Manpower Law No. 13 of 2003, mandate that every company must establish an integrated OHS management system aligned with the overall company management system.

Previous studies examining the impact of Occupational Health and Safety Policies on Employee Performance posit that the formulation of such policies varies across companies, contingent upon the extent of top management's commitment to safeguarding workers from workplace hazards [18]. Another previous study assesses the influence of occupational health and safety policies on employee performance within a specific company, employing a Likert scale for variable measurement. Data were collected through questionnaires and analyzed using the Partial Least Squares method. The results demonstrate

a significant correlation between these policies and employee performance, notably in aspects such as the work environment, employee competence, top management commitment, and worker communication [19].

A study was conducted to analyze the impact of OHS on the performance of construction workers, focusing on the case study of the Manhattan Mall and Condominium project. To mitigate work accidents, construction companies are mandated to adhere to government regulations and implement an Occupational Safety and Health System to enhance the protection of labor within a project. The findings revealed that independent variables related to occupational safety and occupational health exhibited a positive and unidirectional influence on worker performance variables. Moreover, the study identified that variables associated with work safety exerted a more dominant effect compared to those related to occupational health [20].

A study investigating the impact of implementing OHS on worker performance in building construction projects within Ternate City underscores the imperative need to accord serious attention to the application of occupational health and safety measures to sustain developmental momentum. The effective execution of OHS assumes critical significance, serving as a pivotal element that demands careful consideration and optimal implementation to minimize the risks of work accidents inherent in construction endeavors. Given the inherently intricate nature of activities involved in building construction projects in Ternate City, the associated high risk of work accidents necessitates the diligent adoption of OHS practices. The research employs the multiple linear regression analysis method and hypothesis testing to scrutinize the effect of OHS application on worker performance, drawing insights from the construction project of the Yayasan Alkhairat building and the Nurul Al-Fatah Bastiong Mosque in Ternate City. Based on the Standardized Coefficient Beta value, it shows that the most dominant effect on related variables is the independent variable, namely Occupational Safety by 47.3% while the occupational health variable is 26.4%. From the results of the analysis, it can be concluded that the magnitude of the influence of each variable, namely occupational safety ( $X_1$ ) and occupational health ( $X_2$ ) shows positive results [21].

A good company is one that maintains OHS, by implementing established policies. Due to the protection of labor from the dangers of occupational accidents or diseases and the needed work environment, workers feel safe and calm in working productively to produce high worker performance to support the success of current construction projects [22]. Based on these descriptions and regulations that the OHS program is the responsibility of the company, where it can have an impact or influence

directly on the workers who work [18]. So, it can be concluded that the OHS policy can affect the performance of construction project workers [17]. This is the reason for researchers to find out the variables that affect OHS policies on the performance of construction workers both simultaneously and partially, and to find out the most dominant variable affecting the performance of construction project workers during the pandemic in Palangka Raya City. With the hope of finding out whether the policies that have been made can be carried out or not. Because the new normal OHS is a very new policy and is urgently needed to prevent a pandemic, it is necessary to review several policies that are difficult to implement in projects. Derived from the context, the problem formulation in this study is articulated as follows:

- What variables exert an influence on the performance of construction project workers in the realm of OHS policies?
- How does the implementation of OHS policies impact the performance of construction project workers?
- Which variables emerge as the most dominant factors influencing the performance of construction project workers?

## 2. Materials and Methods

The research methodology, comprised of two stages, commences with a literature review aimed at identifying research variables from various pertinent prior studies. The outcome of this literature study entails the identification of variables, which are subsequently utilized to construct the questionnaire disseminated in the second stage. This research involved searching for literature through the Publish or Perish unpaid application and selecting literature based on predefined keywords: "Policy", "Occupational Safety and Health", "Worker Performance", "Pandemic", "Construction Project". The research framework is in Figure 4. The literatures search for the continuity of this research is based on the research protocol as below:

- Based on Crosreff and Google Scholar databases.
- The keywords used for the search are: worker performance AND (policy OR OHS pandemic OR construction project).
- Reference literature from the year of publication 2018 to 2022.
- Reviewing literature based on the title and suitability of the content with the research objectives.
- Collecting and compiling factors.

After identifying the effect of policies based on the OHS category on worker performance, a literature review of the effect of policies on the performance of construction project workers was carried out.

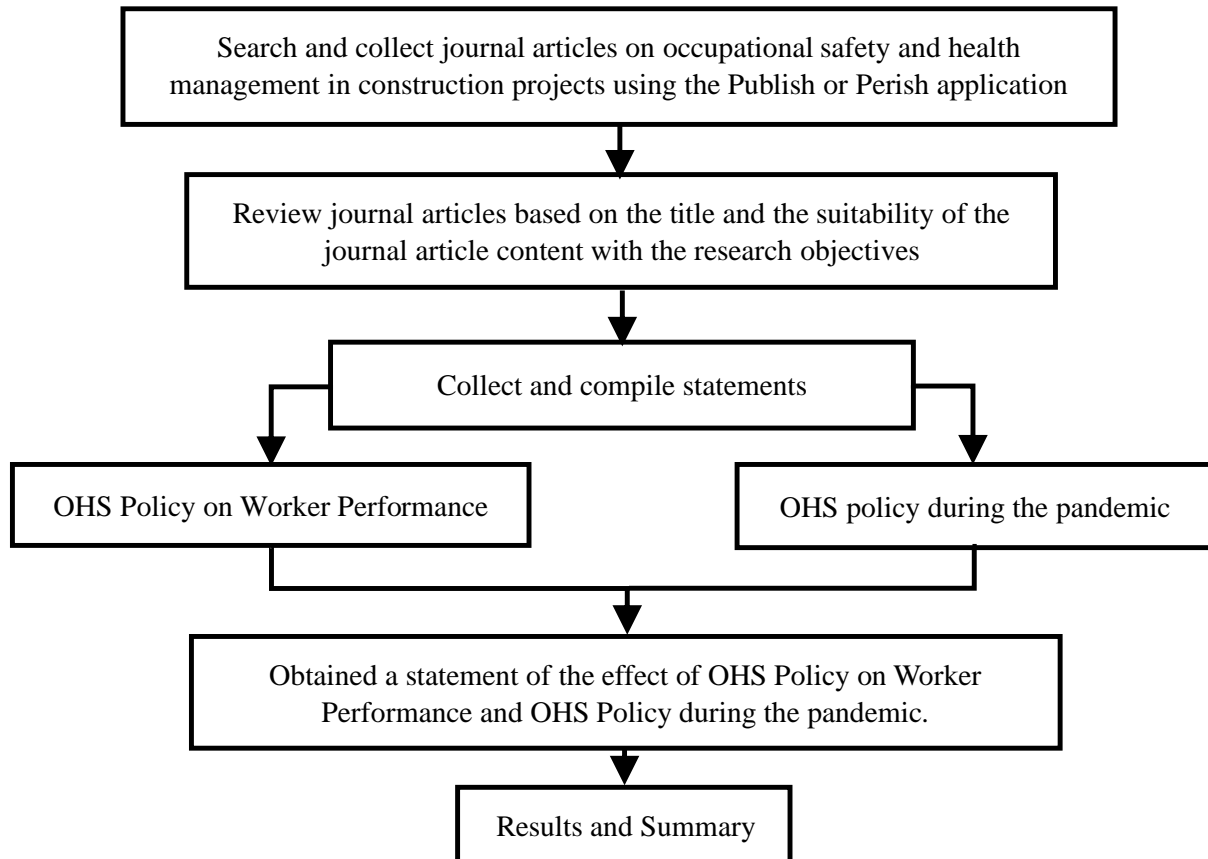


Figure 4. Research Framework for Literature's Search

The second stage involves conducting a questionnaire survey composed of 39 statement factors derived from the literature study, categorized into 4 variable groups, as shown in Table 2. The research is conducted in Palangka Raya City from April to September 2023, and the population is derived from construction companies listed in the Electronic Procurement Service (LPSE) of Palangka Raya City from 2020 to February 2023, totaling 356 construction work packages. After delineating the companies as the population for the study, 102 winning companies were identified. Utilizing the Slovin formula [16] and with a 10% margin of error, the sample size was determined to be 51 respondents. Each company will receive a questionnaire to be completed by one permanent employee, such as a Director, Project Manager, Quality Control Officer, OHS Manager, Supervisor, or Surveyor. The data obtained are then processed by first conducting validity and reliability tests, followed by Multiple Linear Regression Analysis, t-test (Partial Test), F-test (Simultaneous Test), and Coefficient of Determination ( $R^2$ ) Test.

The first hypothesis formulated in this study, grounded in the research problem and objectives, is presented as follows;

- H0: It is hypothesized that there is an absence of a significant impact of OHS on the performance of construction project workers in Palangka Raya City.

- H1: It is hypothesized that there exists a significant influence of OHS on the performance of construction project workers in Palangka Raya City.

The second hypothesis is as follows;

- H0: It is hypothesized that there is no significant simultaneous effect of the independent variables Occupational Safety, Occupational Health, OHS Regulations and Procedures, and Implementation of Health Protocols on the dependent variable Worker Performance.
- H1: It is hypothesized that there is a significant simultaneous effect of the independent variables Occupational Safety, Occupational Health, OHS Regulations and Procedures, and Implementation of Health Protocols on the dependent variable Worker Performance.

### 3. Results and Discussion

#### 3.1. Results of the Literature Study

To date, there are few studies that discuss OHS policies on the performance of construction project workers and no studies that examine the factors of OHS policies on worker performance and the Covid-19 pandemic simultaneously. Therefore, in this research, a literature study of previous

research will be carried out with the aim of identifying OHS policy factors on worker performance that can affect the implementation of construction projects during a pandemic, the methods used, and the results of the research.

Literature research is conducted to obtain a clear picture of the effect of OHS policies on worker performance that can occur on construction projects during a pandemic and as a reference for determining OHS policy factors on the performance of construction project workers. Literature

research has benefits as a means of developing research ideas, consolidating knowledge about a particular subject, and identification of knowledge gaps as well as research contributions for further understanding [23]. After further reviewing through the suitability of the content of the literature with the research objectives, there are 9 relevant literatures and summarized in Table 1.

The results of the literatures review based on the above literature can be seen in Table 2.

**Table 1.** Previous Researches

Scope/Research Results	Reference
The independent variable of OSH has a positive influence and is in line with the performance variable of the workers. Concurrently it exerts a substantial and favorable influence on variables related to the performance of construction workers, while individually demonstrating a notable and positive effect on said performance variables. The OHS variable has a prominent impact compared to the Occupational Health variable.	[20]
Evaluation of the outer type shows that there are indicators used to obtain measures of independent variables and variables including validity and reliability tests. Evaluation of the inner model can be explained by the significant impact on worker performance in the company. OHS provisions and procedures involve workers who have little impact on their performance and this high impact is shown to be insignificant.	[19]
It found 5 high risk variables, 41 medium risk variables, and 19 low risk variables. The high risks are in "variables X <sub>10</sub> (Fuel fire), X <sub>19</sub> (Hit by underlying utilities such as gas/water pipes), X <sub>50</sub> (Girder being lifted falls), X <sub>51</sub> (Worker hit by tremie/concrete pump), and X <sub>54</sub> (Worker falls from height)". The dominant risk is "the first risk factor, Variable X <sub>10</sub> (Fuel Fires)".	[24]
Statistically F test that the hypothesis can be accepted. Variable X <sub>1</sub> (Covid-19 Protocol), X <sub>2</sub> (Age), X <sub>3</sub> (Labor Condition), X <sub>4</sub> (Experience) affect variable Y (Productivity). Aspects of the Covid-19 protocol do not have a significant impact on job productivity. Aspects of the psychological situation of employees have a significant influence on work productivity.	[25]
The OHS program has a positive impact through productivity togetherness. There is a positive contribution to the pressure and prevention of incidents but not significantly or with a low coefficient value.	[26]
The influence of occupational safety (X <sub>1</sub> ) and occupational health (X <sub>2</sub> ) variables that show positive results. The effect of OHS implementation on employee performance in the construction project of Building Construction "Yayasan alkhairat ternate city and Masjid nurul al-fatah bastiong ternate city is positive". Worker performance is affected by OHS aspects. The dominant factor affecting worker performance is work safety.	[21]
The application of OHS / health protocols and the enforcement of supervision and control of the application of OHS / health protocols have a relationship between variables as interpreted. Simultaneously, it has an influence of 16.90% on project implementation.	[7]
The implementation of OHS Management System in the Sukabumi City Dago construction project has been running well and in accordance with the regulations made. The shortcomings found during the dago pedestrian project in the city of Sukabumi include, "Lack of awareness of project implementers of the importance of facilities to prevent Covid-19, project locations that are not completely closed and lack of OHS budget and other aspects".	[27]
Factors have different influences on time, cost, quality, and safety indicators. The factor of temporary suspension of projects due to COVID-19 positive workers ranks first in its influence on large-scale construction work that impacts implementation time.	[28]

**Table 2.** Factors of OSH Management Policy's Impact on the Performance of Construction Workers

No.	Factors	References
<b>X<sub>1</sub></b>	<b>Occupational Safety</b>	
X <sub>1.1</sub>	The company provides training and information for each worker to act safely in completing the work	[29], [30], [20], [19], [27]
X <sub>1.2</sub>	The company conducts intensive supervision for each worker	[31], [32], [19], [24], [26], [7]
X <sub>1.3</sub>	OHS posters and OHS signs in the work environment help remind workers to work safely	[33], [34], [20], [24] [27]
X <sub>1.4</sub>	The company provides work methods or directs so that it makes work easier and safer	[35], [22], [27]
X <sub>1.5</sub>	The company provides work safety equipment or personal protective equipment in accordance with work safety standards	[20], [19], [24], [7], [27]
X <sub>1.6</sub>	Workers always wear personal protective equipment to avoid accidents while working	[22], [36], [37], [20], [19], [24], [7], [27]
X <sub>1.7</sub>	The company creates good communication with all workers	[38], [39], [19], [24], [26], [27]
X <sub>1.8</sub>	Workers understand the safety rules and evacuations at work	[22], [39], [19]
<b>X<sub>2</sub></b>	<b>Occupational Health</b>	
X <sub>2.1</sub>	The company provides education on the importance of health in completing work	[22], [24], [26]
X <sub>2.2</sub>	Implementation of the OHS system guarantees workers' health conditions	[40], [22], [41], [19], [26], [21], [7], [27]
X <sub>2.3</sub>	The company always pays attention to workers' health conditions	[22], [42], [20], [19], [28]
X <sub>2.4</sub>	The company provides a clean environment so that it has a good influence on the continuity of workers' work.	[43], [44], [19], [24], [25], [26], [21]
X <sub>2.5</sub>	The company controls sources of risk in the work environment	[22], [42], [41], [24], [26] [21], [27]
X <sub>2.6</sub>	The company provides medicines for first aid in the event of an accident	[22], [45], [24], [7], [27]
X <sub>2.7</sub>	The company is alert when a work accident occurs	[22], [45], [24]
X <sub>2.8</sub>	The company provides occupational health insurance to every worker	[22], [19], [26], [21] [7], [27]
<b>X<sub>3</sub></b>	<b>OHS Rules and Procedures</b>	
X <sub>3.1</sub>	OHS procedures are easy to implement with consistency can influence workers	[22], [19], [26], [27]
X <sub>3.2</sub>	Penalties for violating OHS procedures can influence workers	[22], [42], [40], [41], [20], [7]
X <sub>3.3</sub>	The availability of work safety signs can affect workers	[22], [42], [40], [41], [20], [24]
X <sub>3.4</sub>	OHS regulations and procedures are regularly revised which can affect workers	[22], [42], [19]
X <sub>3.5</sub>	Easy to understand OHS rules and procedures can influence workers	[22], [46], [42], [19]
X <sub>3.6</sub>	Socialization to workers on the new normal OHS policy	[22], [42], [7]
<b>X<sub>4</sub></b>	<b>Implementation of Health Protocols</b>	
X <sub>4.1</sub>	Limitation on the number of workers	[47], [13], [48], [49], [25], [7], [28]
X <sub>4.2</sub>	Keeping distance between workers	[47], [50], [51], [13], [49], [52], [53], [25]
X <sub>4.3</sub>	Temporary suspension of projects due to COVID-19 positive workers may affect workers	[43], [54], [47], [55], [56], [53], [28]
X <sub>4.4</sub>	Availability of facilities to maintain cleanliness (hand washing stations, hand sanitizers, etc.)	[47], [7], [27]
X <sub>4.5</sub>	Knowledge of COVID-19 may influence workers	[25], [7], [53], [27], [28]
X <sub>4.6</sub>	Self health check (rapid test, body temperature, symptoms)	[47], [13], [57], [51], [50], [54], [7], [27]
X <sub>4.7</sub>	Providing vitamins and/or nutrients to maintain worker immunity	[58], [59], [60], [7]
X <sub>4.8</sub>	There are reminder posters of the new normal OHS policy	[50], [47], [13], [7]
X <sub>4.9</sub>	Educating workers on the use of PPE and masks	[53], [49], [55], [13], [50], [43], [25], [27]

Table 2 continued

Y	Worker Performance	
Y <sub>1</sub>	Workers can complete and take responsibility for each job assigned according to company standards and rules	[61], [47], [55], [62], [25], [27]
Y <sub>2</sub>	The implementation of the program provided by the company can improve the spirit and quality of the company's workers.	[13], [47], [55], [20], [19], [26], [21], [7], [28]
Y <sub>3</sub>	Workers can complete work in accordance with the amount of work assigned	[54], [47], [49], [63], [55], [13], [43], [25], [27]
Y <sub>4</sub>	Workers can complete work in accordance with the time set by the company	[55], [64], [53], [63], [25], [27]
Y <sub>5</sub>	Workers can manage time effectively in terms of completing work	[65], [66], [20], [55], [19], [25], [26], [7], [28]
Y <sub>6</sub>	Independent workers are able to solve problems at work	[55], [53], [43], [47], [25], [27]
Y <sub>7</sub>	Workers have a high commitment to working in this company	[13], [47], [67], [68], [19]
Y <sub>8</sub>	Workers comply with the rules that apply in the provisions set by the company	[69], [70], [43], [54], [26], [27]

### 3.2. Descriptive Analysis of Variables

The descriptive statistics in this research include the total number of data, minimum value, maximum value, mean, and standard deviation of the independent and dependent variables. The results of descriptive statistics are presented in the following Table 3.

Table 3. Descriptive Statistics

Factors	N	Min	Max	Mean	Std. Dev.
Occupational Safety (X1)	51	32	40	35.04	2.676
Occupational Health (X2)	51	32	39	35.22	2.203
OHS Rules and Procedures (X3)	51	20	28	24.10	1.500
Implementation of Health Protocols (X4)	51	30	42	35.63	3.949
Worker Performance (Y)	51	31	38	34.49	2.221

### 3.3. Multiple Linear Regression Analysis

Multiple linear regression analysis was used to determine the magnitude of the influence of the variables of Occupational Safety, Occupational Health, OHS Regulations and Procedures and Implementation of Health Protocols partially or each and simultaneously or together on Worker Performance. Statistical calculations in multiple linear regression analysis are fully explained in Table 4.

Table 4. Multiple Linear Regression Analysis Results

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.734	1.113		3.355	0.002
	Occupational Safety	0.090	0.019	0.109	4.660	0.000
	Occupational Health	0.060	0.028	0.059	2.119	0.039
	OHS Rules and Procedures	0.269	0.034	0.182	7.813	0.000
	Implementation of Health Protocols	0.533	0.014	0.948	37.814	0.000

a. Dependent Variable: Worker Performance



Based on the tests in the table above, the regression model can be formulated as follows:

$$Y = 3.734 + 0.090X_1 + 0.060X_2 + 0.269X_3 + 0.533X_4 + e$$

The above equation can be interpreted as follows:

a) Constant Value

The constant value of 3.734 indicates that the independent variables ( $X_1$ ,  $X_2$ ,  $X_3$  and  $X_4$ ) in the form of Occupational Safety, Occupational Health, OHS Rules and Procedures, and Implementation of Health Protocols can make a major contribution in influencing worker performance (dependent variable) of 3.734.

b)  $X_1$  Variable Value (Occupational Safety)

The value of Variable  $X_1$  (Work Safety) of 0.090 means that the Occupational Safety variable makes a positive contribution in influencing Worker Performance, which is 0.090. The regression coefficient is positive (unidirectional) meaning that, if Occupational Safety ( $X_1$ ) increases, the performance of construction project workers in Palangka Raya will increase and vice versa, assuming other variables are constant.

c) Variable Value  $X_2$  (Occupational Health)

The value of Variable  $X_2$  (Occupational Health) of 0.060 means that the Occupational Health variable makes a positive contribution in influencing Worker Performance, which is 0.060. The regression coefficient is positive (unidirectional) meaning that, if Occupational Health ( $X_2$ ) increases, the performance of construction project workers in Palangka Raya City will increase and vice versa, assuming other variables are constant.

d)  $X_3$  Variable Value (OHS Rules and Procedures)

The value of Variable  $X_3$  (OHS Regulations and Procedures) of 0.269 means that the OHS Regulations and Procedures variable makes a positive contribution in influencing Worker Performance, which is 0.269. The regression coefficient is positive (unidirectional) meaning that, if the OHS Regulations and Procedures ( $X_3$ ) increase, the performance of construction project workers in Palangka Raya City will increase and vice versa, assuming other variables are constant.

e) Variable Value  $X_4$  (Implementation of Health Protocols)

The value of Variable  $X_4$  (Application of Health Protocols) of 0.533 means that the variable Application of Health Protocols makes a positive contribution in influencing Worker Performance, namely 0.533. The regression coefficient is positive (unidirectional) meaning that, if the Implementation of Health Protocols ( $X_4$ ) increases, the performance of construction project workers in Palangka Raya will increase and vice versa, assuming other variables are constant.

### 3.4. Effect of Work Safety on Worker Performance

Based on the results of the first hypothesis test, this study states that Work Safety has a significant positive effect on Worker Performance on Construction Projects in Palangka Raya. Based on the test results of the Regression Coefficient, the  $t_{\text{count}}$  is 4.660 and a significant value of 0.000. Furthermore, the  $t_{\text{count}}$  is compared with the  $t_{\text{table}}$ , namely  $4.660 > 2.013$  and the significance value is compared with alpha ( $\alpha$ ), namely  $0.000 < 0.05$ . The comparison results show that the  $t_{\text{count}}$  is greater than the  $t_{\text{table}}$  and the significance value is smaller than  $\alpha$ .

Overall, these findings indicate that the tested statistical model possesses a significant capability in elucidating the correlation between the implementation of health protocols, occupational safety, procedures, and regulations related to occupational health and safety (OHS), and worker performance variables. This is reflected in the R Square value of 0.980, suggesting that approximately 98% of the variability in the target variable can be accounted for by the predictor variables included in the model, as evident from Table 5.

**Table 5.** The results of the Determinant Coefficient Test

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.990 <sup>a</sup>	0.980	0.979	0.325
a. Predictors: (Constant), Implementation of Health Protocols, Occupational Safety, OHS Rules and Procedures, Occupational Health				

### 3.5. Effect of Occupational Health on Worker Performance

Based on the results of the first hypothesis test, this study states that Occupational Health has a significant positive effect on Worker Performance on Construction Projects in Palangka Raya. Based on the test results of the Regression Coefficient, the  $t_{\text{count}}$  is 2.119 and a significant value of 0.039. Furthermore, the  $t_{\text{count}}$  is compared with the  $t_{\text{table}}$ , namely  $2.119 > 2.013$  and the significance value is compared with alpha ( $\alpha$ ), namely  $0.039 < 0.05$ . The comparison results show that the  $t_{\text{count}}$  is greater than the  $t_{\text{table}}$  and the significance value is smaller than  $\alpha$ .

### 3.6. Effect of OHS Rules and Procedures on Worker Performance

Based on the results of the first hypothesis test, this study states that OHS Regulations and Procedures have a significant positive effect on Worker Performance on Construction Projects in Palangka Raya. Based on the test results of the Regression Coefficient, the  $t$  count is 7.813 and a significant value of 0.000. Furthermore,  $t_{\text{count}}$  is compared with  $t_{\text{table}}$ , namely  $7.813 > 2.013$  and the

significance value is compared with alpha ( $\alpha$ ), namely  $0.000 < 0.05$ . The comparison results show that the  $t_{count}$  is greater than the  $t_{table}$  and the significance value is smaller than  $\alpha$ .

### 3.7. Effect of Health Protocol Implementation on Worker Performance

Based on the results of the first hypothesis test, this study states that the Application of Health Protocols has a significant positive effect on Worker Performance on Construction Projects in Palangka Raya. Based on the test results of the Regression Coefficient, it was obtained  $t_{count}$  37.814 and a significant value of 0.000. Furthermore,  $t_{count}$  is compared with  $t_{table}$ , namely  $37.814 > 2.013$  and the significance value is compared with alpha ( $\alpha$ ), namely  $0.000 < 0.05$ . The comparison results show that the  $t_{count}$  is greater than the  $t_{table}$  and the significance value is smaller than  $\alpha$ .

### 3.8. Effect of Occupational Safety and Health (OHS) Policy on the Performance of Construction Project Workers

Based on the results of the second hypothesis test, this study states that the Occupational Safety and Health Policy simultaneously has a significant positive effect on Worker Performance on Construction Projects in Palangka Raya. Based on the test results of the Regression Coefficient, the  $F_{count}$  is 573.009 and a significant value of 0.000. Furthermore,  $F_{count}$  is compared with  $F_{table}$  which is  $573.009 > 2.57$  and the significance value is compared with alpha ( $\alpha$ ) which is  $0.000 < 0.05$ . The comparison results show that the  $F_{count}$  is greater than the  $F_{table}$  and the significance value is smaller than  $\alpha$ , as seen in Table 6.

**Table 6.** Simultaneous Test Results (F Test)

ANOVA <sup>a</sup>						
Model	Sum of Squares	df	Mean Square	F	Sig.	
1	Regression	241.890	4	60.473	<b>573.009</b>	0.000 <sup>b</sup>
	Residual	4.855	46	0.106		
	Total	246.745	50			
a. Dependent Variable: Worker Performance						
b. Predictors: (Constant), Implementation of Health Protocols, Occupational Safety, OHS Rules and Procedures, Occupational Health						

### 3.9. Dominance Test

To ascertain the primary influence of each independent variable on the dependent variable, the analysis employs the Standardized Coefficient Beta Test [71], as detailed in Table 4. In order of significance, the examination of Standardized Coefficient Beta values reveals a substantial

impact on the dependent variable attributed to the independent variable denoted as the Implementation of Health Protocols, with a substantial coefficient of 0.948, signifying 94.8%. Subsequently, in order of descending importance, the second-highest independent variable is recognized as OHS Rules and Procedures, contributing 18.2%. Following this sequence, the third-ranked variable, Occupational Safety, demonstrates a contribution of 10.9%, while the fourth-ranked variable, Occupational Health, indicates a contribution of 5.9%.

While the study delineates four variables pertaining to occupational safety and health, it may inadvertently neglect other salient factors that could exert an influence on worker performance, including but not limited to job satisfaction, workplace environment, and individual attributes of the workforce. Moreover, the generalizability of the study's findings is circumscribed to construction project personnel in Palangka Raya, warranting caution in extrapolating its conclusions to disparate industries or geographical settings. Variations in cultural norms, industry-specific regulatory frameworks, and economic exigencies across contexts may introduce nuanced dynamics that modulates the association between occupational safety and health policies and worker performance.

## 4. Conclusions

Based on the results of observations and data analysis in the discussion of the previous chapter, the conclusions of this study are as follows:

1. From the conducted literature review, four variables were identified: occupational safety, occupational health, OHS regulations and procedures, and the implementation of health protocols. These variables were further delineated into 39 factors, which were utilized to assess their potential impact on worker performance and subsequently compiled into a research questionnaire.
2. The regression model indicates that occupational safety and health policies have a positive impact on worker performance. The better implementation of these policies leads to improved performance. Partial testing reveals significant positive effects of each policy variable on worker performance, while simultaneous testing confirms their combined influence. Overall, the study concludes that occupational safety and health policies affect the performance of construction project workers positively in Palangka Raya. The strong correlation between dependent and independent variables suggests a robust relationship, with the policies collectively influencing worker performance by 98%. Thus, the application of these policies by companies in Palangka Raya is deemed highly effective in enhancing the performance of construction project workers.

3. Based on the Standardized Coefficient Beta value, the primary determinant impacting worker performance is delineated as follows: ranking first is the Application of Health Protocols ( $X_4$ ) with a coefficient of 94.8%, followed by OHS Rules and Procedures ( $X_3$ ) at 18.2%, Occupational Safety ( $X_1$ ) at 10.9%, and Occupational Health ( $X_2$ ) at 5.9%.

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