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The Relationship of Attitudes to Compliance with the Use of Personal Protective Equipment in the Construction Project of Hermina Hospital, Madiun City

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ABSTRACT
The construction industry is a dynamic field with potential hazards that can affect project quality and performance. Proper implementation of Occupational Safety and Health (OHS) management is essential in construction projects. The use of personal protective equipment (PPE) is an important aspect of OHS, but compliance among construction workers is still lacking. This study aims to determine the relationship between attitude and compliance with the use of PPE on the Hermina Hospital construction project in Madiun City. This study was a cross-sectional study, and data were collected using a questionnaire. This study involved 93 construction workers. The results showed that 62% of construction workers in Ethiopia did not use PPE while working, mainly due to lack of availability (41.1%), lack of orientation on the use of PPE (21.3%), discomfort (16.3%), and lack of perceived importance (1.3%). In Indonesia, approximately 60% of workers have experienced head injuries due to not wearing a safety helmet, 90% have experienced facial injuries due to not wearing a face shield, 77% have experienced foot injuries due to not wearing safety shoes, and 66% have experienced eye injuries due to not using eye protection. The low compliance with PPE use among construction workers is a significant concern, as this increases the risk of occupational injuries and accidents. Factors such as availability, training, comfort, and perceived importance of PPE should be addressed to improve compliance. Employers and policy makers need to prioritize the implementation of effective OHS management in construction projects to protect workers' health and safety.

Keywords: Attitude, Compliance, Personal Protective Equipment (PPE), Construction project, Occupational Safety and Health (OSH)

INTRODUCTION

Currently, industrial developments have had a major impact on the implementation of Occupational Safety and Health (K3) management in projects. Construction projects are a dynamic field with potential hazards that can impact project quality and performance. Even though this is seen as a natural trait for the construction industry, it is actually more due to a lack of good planning, a lack of budget, poor *safety training* and accident investigations that do not meet existing standards. With this, it can be seen that all construction projects have huge potential for danger. All jobs have the potential and risk of danger in the form of work accidents. Whether the potential generated is large or small depends on the technology, type of production, building and spatial layout and materials used, and the quality of the implementing staff or management.

Safety is increasingly important to implement because it is part of efforts to protect workers in accordance with the implementation of occupational safety and health in all workplaces, including effectiveness and efficiency in the workplace. Companies need to create a safe workplace. In construction projects, companies require the use of PPE based on existing standards or SNI based on the hazard capabilities contained in the construction project. Personal protective equipment is equipment used to protect workers' bodies from the risk of work accidents that can result in injury or illness at work. PPE includes equipment such as helmets, gloves, glasses, ear protection and protective clothing. In general, PPE functions as the last line of defense in the risk control hierarchy, after other actions such as elimination, substitution, engineering and administrative control have been implemented (Handayani et al., 2022) .

In Ethiopia the prevalence of PPE use among construction workers still relatively low, as many as (62%) construction workers still do not use PPE when working for reasons (41.1%) reported due to unavailability of PPE, (21.3%) due to lack of orientation regarding the use of PPE, (16.3%) uncomfortable, (1.3%) not important and (10%) no reason at all. According to Employment data for 2022, this can explain the trend of increasing cases every year. In 2021 there were 234,370 cases which resulted in the death of 6,552 workers/employees, an increase of 5.7% compared to 2020. Therefore, this figure is an indication that the implementation of K3 in compliance with the application of PPE needs to be made a top priority for the world of work in Indonesia. This can be influenced by the protection of workers and the level of worker compliance with PPE in the manufacturing industry sector is not yet optimal, indicated by many work accidents and not meeting work safety standards (Indonesian Ministry of Manpower, 2022) .

Data on work accidents in Indonesia often occur, around 60% of workers suffer head injuries because they do not use safety helmets, 90% of workers suffer injuries because they do not use protection on their faces, 77% of workers suffer injuries to their feet because they do not use safety shoes and there are 66% of workers experienced eye injuries because they did not use eye protection, work accidents were caused by workers not being compliant in using PPE when working (Latifah, 2023) .

Madiun City Hermina Hospital construction project uses services contractor from PT. Gelora Intan Reksa (GIR) is a private company engaged in construction services, interior design and general trading which was founded on December 1 1992. During its development over the years, P T. Gelora Intan Reksa is trusted with many projects in the fields of Construction Services, interior design and general trade throughout Indonesia. Due to the complexity in the construction services industry, quality human resources are needed to be able to produce buildings that comply with occupational safety and health standards and standards as well.

Based on a preliminary study on March 23 2024, workers who do not use PPE will be recorded in the PEKA (work safety observation) report. The PEKA program is a program implemented in the Madiun City Hermina Hospital construction project which began to be implemented at the start of construction. This program aims to increase knowledge of identifying hazards, communicating and intervening with each individual so that ultimately they can have higher work standards in the hope of reducing the number of work accidents. However, in the Hermina Hospital construction project in Madiun City, it was found that 10 workers at the start of construction in November were recorded as not using PPE. Based on the latest data recap from November 2023 to May 2024, 30% or around 77 of the 257 number of workers recorded in the PEKA report were recorded. According to brief interviews with workers, the company has provided the PPE supplies needed by workers, namely in the form of boots, vests, project helmets and *body harnesses* , based on the PEKA report data recap (Work Report Observation) so that it can be seen that there are still many workers who lack compliance in the use of PPE in projects . Meanwhile, the Hermina Hospital construction project in Madiun City is inseparable from the large piles of materials, such as piles of wood, piles of iron, steaks that have not been cut, nails from demolition and other materials (Primary data, 2024).

The impact if compliance problems are not addressed or lack of awareness regarding the use of PPE will have an impact on workers, namely work accidents. This can result in injury, including disability, minor injury or even death. With this, injuries can cause workers to be unable to perform their duties optimally, which can disrupt work productivity and this can have a negative impact on workers.

Non-compliance with the application of PPE is an unsafe *act.* Geller's opinion (2001) is that behavior change is influenced by external and internal factors. Internal factors include work experience, education, knowledge and attitudes (Morgan et al., 2021). The latest education carried out can influence the response to something external. Therefore, work experience is related to experience where workers who have experience are considered to be able to understand and carry out their work more optimally. Workers' knowledge can be used as a basic guideline so that they require an effective role in self-determination of problems in the workplace. Not only knowledge, attitudes also include attitudes, namely a person's still closed reaction or response to a stimulus or objects, poor attitudes towards using Personal Protective Equipment (PPE). Possibly caused by several other factors, such as level of knowledge if workers don't know about personal protective equipment, they can influence a person's attitude change. And these external factors include supervision, training, availability of PPE and regulations. The availability of PPE from the company can support workers to do their work more safely and with work supervision it can focus on workers through safe actions, training also includes *correct use of personal protective equipment* , ultimately maintaining the health and safety of health workers and regulations on the use of PPE must be implemented because workers who do not comply will tend to make mistakes in every process Work Because No obey standard And regulation Which There is (Heryawan and Heryana, 2018) .

Knowledge is a very important factor in shaping a person's behavior in using PPE. Good knowledge means that the worker is likely to be at the cognitive evaluation domain level, namely being able to judge whether something is good or bad with his own eyes. So that when workers are given information or instructions about the importance of using PPE at work, workers can assess that PPE is very important and can protect the safety and health of workers from various potential dangers that could harm them. (Adji & Semuel, 2014) .

Poor worker attitudes can also be caused by low levels of worker knowledge about the importance of using PPE when working. If a worker has good knowledge, then the behavior of complying with the use of PPE will also be good, but on the other hand, if the knowledge is lacking, it will cause the worker's attitude to be less in supporting compliance with the use of PPE. Meanwhile, attitudes will be related to a person's knowledge and behavior (Aidelwees and Candra, 2021) .

Apart from that, supervision is needed to ensure the implementation of K3 in the company. The existence of supervision and the regulations that follow are one of the factors that will influence a person's behavior. Furthermore, Gibson (1997) stated that supervision is an environmental factor in the workplace, specifically an organizational factor that can influence the emergence of unsafe behavior in workers while working if supervision from supervisors is low (Curcuruto & Griffin, 2023). The supervision in question is the activities of checking, checking, matching, inspecting, controlling and various similar actions towards workers.

This is proven based on the results of research (Ghassani, Rindu and Supriyatna, 2023) The Relationship Between Knowledge, Attitudes and Supervision of the Behavior of Using PPE in Plastic, Pressing and Casting Factory Workers at PT. Wijaya Karya Industri & Construction in 2022 explains that there is a relationship between knowledge (p=0.029) through the action of using PPE, there is a relationship between attitudes (p=0.008) on behavior of using PPE, there is a relationship between supervision (p=0.007) and behavior of using PPE. The conclusion is that this research has the best supervision and is related to good behavior in using PPE, this is because workers are afraid of receiving warnings and punishment from the company if workers are seen not using PPE according to their function.

One of the efforts to improve work safety is that project supervisors pay more attention and increase supervision of workers to improve the safety and health of workers in controlling compliance with the application of PPE. With the problem of the level of knowledge of workers, the importance of using PPE must be emphasized by conducting regular outreach and *safety talks with the aim of increasing worker awareness and compliance in using PPE* (Wong et al., 2020). With this, the incidence of occupational diseases and work accidents can be reduced by workers complying with the use of PPE. Therefore, it is hoped that the company's regulations will be approved so that workers will always comply with them in order to reduce the risk of work accidents, for example organizational chaos, negligence, damage, inconvenience, complaints, death and work defects.

So from the explanation presented, it is necessary to carry out research related to "The Relationship between Knowledge, Attitude and K3 Supervision on Compliance with the Application of Personal Protective Equipment in the Madiun City Hermina Hospital Construction Project". With this research, it is hoped that attitudes, K3 policies and supervision in the construction of the Hermina hospital building along with the social characteristics of the workforce itself so that strategies can then be carried out to increase compliance with the use of PPE .

There are several studies related to factors that influence the behavior of using personal protective equipment (PPE) among workers. The first research was conducted by Alib Anisafitri in 2021 at the UD bakery factory. Fajar Jaya Magetan shows that there is a significant influence between independent variables such as viewing distance to the monitor, duration of computer use, lighting, working period, and eye rest on PPE usage behavior. Meanwhile, second research conducted by Setiawati and Ardyanto in 2023 at PT

Subsequent research by Yulianti in 2021 in Medan City showed that there was a significant relationship between the availability of PPE, supervision and punishment and behavior in using PPE, while knowledge and attitudes were not significantly related (Yulianti, 2021). Meanwhile, the latest research conducted in 2024 at the Hermina Hospital construction project in Madiun City shows that attitude, availability of PPE, and supervision have an influence on compliance with PPE use, while knowledge has no effect. The most influential variable is supervision, where poor supervision tends to have a 25-fold influence on compliance with PPE use.

Overall, these studies identify various factors that can influence workers' behavior or compliance with PPE use, such as knowledge, attitudes, availability of PPE, supervision, and punishment. These mixed research results demonstrate the complexity and importance of understanding the factors that contribute to adequate use of PPE in the work environment.

The difference between this research and previous research is that the variables studied are different. In this research, the independent variables used are knowledge, attitudes and K3 supervision, while the dependent variable is compliance with the use of personal protective equipment. In addition, this study uses univariate and bivariate test analysis, whereas previous research may use different analysis methods. The location of this research is in the Hermina hospital construction project in the city of Madiun, while the previous research location may be different. Finally, the year of this research is 2024, while previous research may have been conducted in a different year.

The aim of this research is to analyze the relationship between attitudes and compliance with the use of personal protective equipment (PPE) in the Hermina Hospital construction project in Madiun City. Specifically, this research aims to: 1) identify worker knowledge, 2) identify worker attitudes, 3) identify K3 supervision, 4) identify compliance with PPE use, 5) analyze the relationship between knowledge and compliance with PPE use, 6) analyze the relationship between attitude and compliance with the use of PPE, and 7) analyzing the relationship between K3 supervision and compliance with the use of PPE in the Hermina Hospital construction project in Madiun City.

This research is expected to provide benefits for PT. Glora Intan Reksa as information regarding the relationship between attitudes and compliance with the use of PPE and can be used as input in controlling it. Apart from that, this research is also useful for STIKES Bhakti Husada Mulia Madiun as a reference for further research and for students to increase practical experience and understanding regarding knowledge, attitudes, K3 supervision, and compliance with the use of PPE in hospital construction projects.

RESEARCH METHODS

Research design

The research method used in this research is quantitative using the research design used is *cross-sectional.* Application of *cross sectional* design in this research because the researcher applied the data source project workers, then the variables is observed at one time and the same time from the selected population. Then, in this research we want to measure the relationship or interrelationship of knowledge of attitudes and K3 supervision of compliance with the use of PPE at the same time, and then this design is suitable for researchers to implement.

Population and Sample

The population that will be used for research is taking the entire population of workers for the Hermina Hospital construction project in Madiun City with a total of 257 workers. In this study, researchers narrowed the population, namely the number of workers to 257 populations through large sample

calculations using the Slovin method. The reason for using the Slovin formula in this research is that when taking samples, the numbers must be representative so that research results can be calculated and generalized without requiring a table of sample numbers and can be applied using simple calculations and formulas. As a result of the calculations, the sample obtained to become respondents was a total of 72 respondents from all workers on the Hermina Hospital construction project in Madiun City, so this was implemented to make it easier to process data and get the best test results. In this research, the focus is on the relationship between knowledge, attitudes and K3 supervision towards compliance with the use of personal protective equipment in the Madiun City Hermina Hospital construction project.

Sampling Techniques

Based on samples selected through *probability sampling techniques, simple random sampling* . A simple random sample is a sample taken in such a way that each research unit from a population has an equal chance of being selected as a sample. In practice, a simple random sample can be carried out by (a) lottery, or (b) random numbers. In this research, the method used in simple random sampling is to use random numbers where all workers with a population total of 257 are entered into a random application and then the number that appears is the one used in the sample.

Research variable

In this research the independent variables are knowledge, attitudes and K3 supervision. The dependent variable is compliance with the use of personal protective equipment.

Research instrument

In collecting this data, reliable and valid instruments are used, which we hope will be more reliable and valid. In order to see its reliability and validity, researchers want to test the existing questionnaire first. The aim is to be able to see that there are questions that have answers that are less objective, not confusing and less clear before this questionnaire was used in research.

Validity test

In this study, the validity of the questionnaire was tested with a total of 15 respondent's people at the ibis Madiun hotel construction project on Jl. Nori, Manguharjo, Madiun City. With the r table value = 0.5140, it is determined using the *Pearson product moment table.* The criteria or decision requirements for an instrument are said to be valid or not according to Sugiyono (2017), namely by comparing the calculated r with the r table with the following conditions:

1) If the value of $r_{Count} > r_{Table}$, then the questionnaire item is valid.
2) If the value of $r_{Count} < r_{Table}$, then the questionnaire item is invalid.

Reliability Test

In this research, a reliability test was carried out using *Cornbach's Alpha formula.* The reliability value expressed by *the Cronbach's Alpha coefficient* based on the lowest limit of reliability criteria is 0.6. If *the Cronbach Alpha value* is <0.6, the questionnaire is said to be reliable or consistent. However, if the *Cronbach Alpha value* is > 0.6 then the questionnaire or questionnaire is declared not reliable or consistent.

Location and Time of Research

This research was conducted on the Hermina Hospital construction project in Madiun City.

Table 1. Research time

No	Activity	Implementation date
1.	Submission and consul	March 26, 2024
2.	Acc title	April 03, 2024
3.	Preparation and guidance of proposals	04 April-28 May 2024
4.	ACC thesis proposal	May 29, 2024
5.	Proposal seminar	June 03, 2024
6.	Revise the thesis proposal	04 June – 10 June 2024
7.	Study	24 June – 06 July 2024
8.	Data entry and preparation of thesis reports	07- July- 26 July 2024
9.	Thesis report guidance	July 27, 2024
10.	Implementation of seminars on thesis results	
11.	Revision of thesis report	
12.	Acc thesis	
13.	Journal submission	

Source: Primary Data Processing Using SPSS, 2024

Data Collection Procedures

Data was collected through data collection techniques such as interviews, observations and questionnaires. In this research, the data collection stage begins with an appointment with the office and then making observations and requesting data on the Hermina Hospital construction project in Madiun City.

How to Collect Data

Data collection methods in this research used interviews (questionnaires) and observation. Interviews were conducted by asking respondents questions related to knowledge, attitudes, supervision and compliance with the use of personal protective equipment. Meanwhile, observations were carried out directly in the field to determine compliance with the use of personal protective equipment.

The types of data used in this research are primary data and secondary data. Primary data was obtained directly from respondents through questionnaires and observations at the Hermina Hospital construction project site in Madiun City. Meanwhile, secondary data was obtained from previous research, journals, articles, books, the internet, and other information related to research, as well as from project K3 supervisors regarding the number of workers, type of work, and construction absenteeism.

Data analysis technique

Data processing is part of a series of activities carried out after collecting data. In order to make data processing easier, it is implemented using SPSS. There are several efforts to process data, namely editing, coding, scoring, entry, cleaning and tabulating.

Univariate analysis

Univariate analysis was used to describe the characteristics of respondents presented in frequency and percentage distribution tables. The independent variables include knowledge, attitudes and K3 supervision. And the dependent variable is compliance with the use of personal protective equipment. The aim of univariate analysis is to explain or describe the characteristics of each research variable. This analysis will produce a frequency and percentage distribution of each variable.

Bivariate Analysis

Bivariate analysis was carried out to determine whether there was a relationship between the independent variables and the dependent variable, because this research variable is related to the nominal/ordinal data measurement scale, the Chi-Square test was used. The Chi-Square test is a statistical technique used to test hypotheses when the population/sample consists of two or more classes, the data is nominal and the sample is large.

The statistical test used is the Chi-square test using a confidence level of 95%. If $p \leq \alpha$ 0.05 then Ho is rejected, meaning there is a relationship between the independent variable and the dependent variable. If $p > \alpha$ 0.05 then Ho is accepted, meaning there is no relationship between the independent variable and the dependent variable.

RESULTS AND DISCUSSION

Univariate Analysis

1. Attitudes of Workers on the Hermina Hospital Construction Project, Madiun City

Table 2 Frequency Distribution of Project Attitude Variables Construction of Hermina Hospital, Madiun City

No	Attitude	Frequency	Percentage
1.	Positive	32	44.4
2.	Negative	40	55.6
	Total	72	100

Source: Primary Data Processing Using SPSS, 2024

Based on table 2, the frequency distribution based on the attitude variable, the majority of workers have a positive attitude, and 32 with a percentage (44.4%), some workers have a negative attitude, 40 with a percentage (55.6%) of workers on the Hermina Hospital construction project in Madiun City.

2. Compliance with the Use of PPE for Workers in the Madiun City Hermina Hospital Construction Project

Table 3 Frequency Distribution of Project Compliance Variables Construction of Hermina Hospital, Madiun City

No	Obedience	Frequency	Percentage
1.	Obedient	35	48.6
2.	Not obey	37	51.4
	Total	72	100

Source: Primary Data Processing Using SPSS, 2024

Based on table 3, the frequency distribution based on the compliance variable, the majority of workers have a good level of compliance, 35 with a percentage (48.6%), and some workers are not compliant, 37 with a percentage (51.4%) of workers on the Hermina Hospital construction project in Madiun City.

Bivariate Analysis

Bivariate analysis is to determine the relationship and magnitude of the prevalence ratio (RP) and test the relationship between the independent variable and the dependent variable (Mekonnen & Ekubagewargies, 2019). In the research, the tests used were *chi square* and determining the prevalence

ratio (RP) with a confidence level (CI 95%) and a significance level of 0.05. The following are the results of the bivariate test in this study:

1) Cross Tabulation of Attitude Variables with Compliance Variables in the Madiun City Hermina Hospital Construction Project

Table 4 Cross Tabulation of Attitude Variables with Compliance Variables Madiun City Hermina Hospital Construction Project

No	Attitude	Obedience				Total		P value	RP 95%CI
		NOT OBEY		OBEY					
		N	%	N	%	N	%		
1.	Negative	30	75.0%	10	25.0%	40	100%		10,714
2.	Positive	7	21.9%	25	78.1%	32	100%	0,000	(3,559-
	Total	37	51.4%	35	48.6%	72	100%		32,255)

Source: Primary Data Processing Using SPSS, 2024

Based on 4 results of the analysis of the relationship between attitudes and compliance with the use of PPE among workers at the Hermina Hospital construction project in Madiun City, the results showed that there were 40 respondents with negative attitudes and there were 30 non-compliance levels with a percentage of 75.0%. Meanwhile, there were 32 respondents with a positive attitude and there was a compliance level of 7 respondents with a percentage of 21.9%.

The results of the Chi Square test obtained a calculated value of P = 0.000 from α = 0.050, meaning that there is a relationship between the attitude variable and the compliance variable in the Madiun City Hermina Hospital Construction Project. The calculation results obtained RP = 10.714 (95% CI 3.559-32.255). It can be concluded that respondents with negative attitudes have a risk of 10.714 times to comply with the use of PPE.

Discussion

Relationship between Attitude Variables and Compliance Variables

Based on the results of the univariate analysis of the attitude variable, the majority of workers had a positive attitude, 32 with a percentage (44.4%), some workers had a negative attitude, 40 with a percentage (55.6%) of the Hermina Hospital construction project workers in Madiun City.

Based on research on the results of bivariate analysis using the chi square test to determine the results of the Chi Square test, the calculated value P = 0.000 from α = 0.050, meaning that there is a relationship between the attitude variable and the compliance variable in the Madiun City Hermina Hospital Construction Project. The calculation results obtained RP = 10.714 (95% CI 3.559-32.255). It can be concluded that respondents with negative attitudes have a risk of 10.714 times to comply with the use of PPE.

Based on the results of questionnaires obtained in the field during research on attitude variables, it was found that workers' attitudes towards compliance with the use of PPE were considered very poor, because workers did not comply with the use of PPE.

This research is in line with Lulus Suci's research (2020), the results of which are p value = 0.004 or P value < 0.05, so that Ho is rejected and Ha is accepted, which means there is a relationship between attitude and compliance with the use of PPE. The PR value is known to be 3.478 with a 95% Confidence

Interval (CI) of 1.202 – 10.067, so it can be stated that workers who have a poor attitude have a 3.4 times greater risk of having poor compliance with the use of PPE compared to workers who have a good attitude.

According to researchers, an expert in the field of social psychology defines attitude as a readiness to react to an object in certain ways (Myers et al., 2020). The readiness referred to here is the tendency to react when individuals are faced with a stimulus that requires a response. From the above limitations, it can be concluded that the manifestation is a response.

The reaseacher explains that work attitude contains positive or negative evaluations that employees have about aspects of their work environment (Judge et al., 2017). Employees who have a positive evaluation of everything in the work environment tend to have high job satisfaction and conversely employees who have a negative evaluation of everything in the work environment tend to feel less satisfied after work and feel a little boring.

According to reaseacher, an attitude is a cognitive, affective and conative component that interacts with each other in understanding, feeling and behaving towards an object (Mubaraq et al., 2015). This reflects how a person feels about something. Work attitudes have a mental side that influences individuals in reacting to stimuli.

Based on the opinion of this research, it is likely that there is no motivation that arises from within them, the worker is most likely not wearing complete PPE because changes in behavior are greatly influenced from within the individual. The attitude of workers in using PPE is that only when there are supervisors on patrol, many of them still take it off and they wear it when a supervisor comes, meaning that there are still many workers who have a negative attitude in complying with the use of PPE on the Hermina Hospital construction project in Madiun City. The poor attitude of respondents is also due to the low level of knowledge of respondents regarding the importance of using personal protective equipment when working.

CONCLUSION

Based on the results of research on the Hermina Hospital construction project in Madiun City which has been discussed regarding the relationship between knowledge, attitudes and K3 supervision towards compliance with the use of personal protective equipment in the Hermina Hospital construction project in Madiun City, the following conclusions can be drawn: First, the attitude of workers on the construction project Hermina Hospital, Madiun City, has more negative attitudes than workers who have positive attitudes towards compliance with the use of PPE. Second, the level of compliance of workers on the Hermina Hospital construction project in Madiun City is more disobedient than workers who have a good level of compliance. Third, there is a relationship between attitudes and compliance with workers' use of PPE on the Hermina Hospital construction project in Madiun City.

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