



## The Relationship Between Workers' Knowledge and Attitudes Towards the Use of Personal Protective Equipment (PPE) and the Incidence of Work Accidents in Production Workers of PT Inka (Persero) Madiun

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### ABSTRACT

Occupational safety and health (OHS) is one of the company's maintenance programs. The implementation of OHS programs for employees is very important to create an OHS system that includes elements of management, employment and working conditions and an integrated work environment. The purpose of this study was to analyze the relationship between workers' knowledge and attitudes towards the use of Personal Protective Equipment (PPE) with the incidence of work accidents in PT INKA (Persero) Madiun production workers. This study used a cross-sectional design with a quantitative approach. The population in this study were all production workers of assembly PT INKA (Persero) Madiun. The sample was taken using simple random sampling technique, with a sample size of 68 respondents. Data collection was done through questionnaires. Data analysis using the Chi-square test. Analysis result show that there is a relationship between the independent variables, namely knowledge ( $p$ -value = 0,003) and attitude ( $p$ -value = 0,001) and the dependent variable of work accidents. The conclusion in this study is that there is a significant relationship between knowledge and attitudes towards the use of PPE with the incidence of work accidents. Suggestions are expected that workers have high awareness and discipline in the behavior of using PPE so as to reduce the occurrence of work accidents.

**Keywords:** Knowledge, Attitude, Personal Protective Equipment, Work Accidents

## INTRODUCTION

Occupational safety and health (K3), is one of the company's maintenance programs. Implementing occupational safety and health programs for employees is very important to create an K3 system that includes elements of management, employment as well as integrated working conditions and an integrated work environment. This effort not only aims to increase productivity, but also to minimize the occurrence of work accidents.

A work accident is an undesirable and unexpected event that disrupts the planned process of an activity and can cause loss to both people and property (Minister of Manpower of the Republic of Indonesia, 1998) . According to HW Heinrich in (Silaban, 2014) the causes of work accidents are classified into two categories, namely unsafe actions and unsafe conditions. Unsafe action is a human action that can cause work accidents to oneself or others, such as not using personal protective equipment (PPE) and working not according to procedures. Meanwhile, an unsafe condition is an environmental situation that can cause work accidents, such as a workplace that does not comply with occupational safety and health (K3) regulations.

Work accidents occur due to interactions between worker behavior including knowledge (level of education) and attitudes (work rules) (Komarudin, 2016). Knowledge is closely related to the level of education which tends to allow for broader knowledge, but low education does not mean a person has limited knowledge. Attitude can be interpreted as a person's response to a particular object (Notoatmodjo, 2018) . All human activities and activities at work have an important role in the implementation of occupational safety and health (K3) programs, if these actions are not appropriate it can result in work accidents.

According to the International Labor Organization (ILO), more than 2.78 million people die every year due to work-related diseases and work accidents. Around 37 million people experience work-related accidents and illnesses every year due to minor work accidents. Unsafe behavior from workers, such as not using personal protective equipment (PPE), is the cause of 80% of work accidents. Most workers consider the use of personal protective equipment (PPE) to be unimportant or often underestimated, so the risk of work accidents is quite large. (Suhartoyo et al, 2022)

Based on work accident figures in Indonesia in 2020, the number of work accidents in Indonesia was 221,740. Meanwhile, in 2021 there were 234,370 work accidents. In 2022, work-related accident cases increased to 265,334 cases and the latest work accident data reached 347,855 cases as of September 2023. Based on BPJS Employment data, the majority of these accidents were experienced at work sites. Work accidents most often occur in the morning from 06.00 to 12.00 in the afternoon because there are traffic accidents and work-related accidents that occur in industrial and construction companies which still dominate fatal cases (BPJS Employment, 2023) .

Based on the BP Jamsostek Annual Report from the East Java Regional Office, in 2020 the number increased to 23,000 cases, while in 2021 the number of work accidents in East Java was 40,332 cases, in 2022 there were 47,524 cases, then the latest data shows an increase in the number of work accidents in East Java In 2023 there will be 58,709 cases. BP Jamsostek East Java Regional Office also reported that the number of work accident cases that occurred in East Java consisted of accidents in the work environment as much as 56.90%, outside the work environment as much as 12.20% and traffic accidents as much as 30.90% ( BPJS Employment, 2023) .

In the city of Madiun, there is a manufacturing company known as PT INKA (Persero) Madiun. PT INKA (Persero) Madiun is a State-Owned Enterprise (BUMN) which produces trains. The head office of PT INKA (Persero) is located at Jalan Yos Sudarso Number 71 Madiun City.

Based on the results of a preliminary study in January 2024, during the assembly production process by making observations. There are many factors in worker behavior that cause work accidents, especially the implementation of occupational safety and health (K3) programs, in workers' actions, many workers find a lack of discipline in the use of personal protective equipment (PPE) is a tool used to protect the body from dangers that may occur in the workplace. . They rarely use PPE because they are less comfortable and are more accustomed to working without PPE, including earplugs, noise in the assembly area, lots of machine activity, which can cause hearing loss if they are in the work area every day, masks, lots of dust particles from the work process. so that it can interfere with breathing if you inhale the dust every day, gloves because of the large amount of plate material and heavy machinery, if not used can cause your hands to be scratched or injured, then safety glasses are a potential danger which can cause sparks which can cause injury or irritation to the eyes and helmets, there are still many workers who enter the production process who are not disciplined in the use of personal protective equipment (PPE).

Several studies state that 85-96% of the causes of work accidents are unsafe activities during work and errors originating from humans themselves. Dangerous behavior is a factor from the worker himself which is a failure of the worker to do his job. What is considered dangerous behavior at work is improper use of PPE. So, to reduce the risk of work accidents, unsafe behavior (unsafe action) must always be avoided (Suma'mur, 2009). And 20% is caused by unsafe conditions. It is important for companies to implement occupational safety and health programs and improve the quality of the workforce (Tarwaka, 2017).

To minimize the number of work accidents, the government created a policy, namely Zero Accident. The Zero Accident Program is an award in the field of occupational safety and health (K3) given by the government to companies that successfully implement the K3 program to achieve the goal of zero accidents (Zero Accident). The Zero Accident Award is given to companies that have succeeded in preventing work accidents in the workplace without reducing working hours, this is realized in the form of a charter and certificate of achievement established by the government (Nurdahlia & Siregar, 2023). Based on the description above, the researcher wants to conduct research on 'The Relationship Between Knowledge and Attitudes of Workers Regarding the Use of Personal Protective Equipment (PPE) and Occupational Accidents in Workers in the Assembly Production Section of PT INKA (Persero) Madiun'.

This study aims to analyze the relationship between workers' knowledge and attitudes towards the use of Personal Protective Equipment (PPE) and the incidence of work accidents among workers in the assembly production section of PT INKA (Persero) Madiun. The specific objectives of this research are: 1) Identifying knowledge about the use of Personal Protective Equipment (PPE) among workers in the assembly production section of PT INKA (Persero) Madiun, 2) Identifying attitudes regarding the use of Personal Protective Equipment (PPE) among workers in the assembly production section of PT INKA (Persero) Madiun. Persero) Madiun, 3) Analyzing the relationship between knowledge of the use of Personal Protective Equipment (PPE) and the incidence of work accidents among workers in the assembly production section of PT INKA (Persero) Madiun, and 4) Analyzing the relationship between

attitudes towards the use of Personal Protective Equipment (PPE) and the incidence of work accidents in workers in the assembly production process section of PT INKA (Persero) Madiun.

This research is expected to provide useful information and input for PT INKA (Persero) Madiun regarding the impact of knowledge, attitudes and actions in using personal protective equipment (PPE) on work accidents, as well as making efforts to handle Occupational Safety and Health (K3) which appropriate so that the level of work accidents can be minimized. Apart from that, it is hoped that the results of this research can be an additional reference and point of reference in conducting further research for STIKES Bhakti Husada Mulia Madiun, as well as being a reference or useful reading source for students who want to study and implement the principles of occupational safety and health (K3), especially regarding the relationship between workers' knowledge and attitudes in using personal protective equipment (PPE) and the incidence of work accidents.

Research conducted by Kurniawan in 2023 at PT PLN Bangkinang City found a significant relationship between length of service, use of personal protective equipment (PPE), and behavior and work accidents among engineering service unit employees. This research used a cross-sectional design with the dependent variable being work accidents, and the independent variables being knowledge and attitudes. The research results show the need for training and practice in using PPE for employees ( Kurniawan, 2023) . Meanwhile, Risnawati Marganda's research in 2022 in a Medan City welding workshop also found a significant relationship between factors such as age, education, years of service, knowledge, work attitudes, use of PPE, and work environment with work accidents ( Risnawati Marganda, 2022 ) . Furthermore, research conducted by Oktariyani Dasril in 2019 at PT P&P Perusahaan Karet Padang concluded that there was a significant relationship between age, length of service, and use of PPE and the incidence of work accidents among raw material workers ( Oktariyani Dasril, 2019) .

This research is different from previous research in several ways, namely: 1) The title of the research, "The Relationship Between Knowledge and Attitudes of Workers Regarding the Use of Personal Protective Equipment (PPE) and the Occurrence of Work Accidents in PT INKA (Persero) Madiun Production Section Workers"; 2) Place of research, namely in the Assembly Production Section of PT INKA (Persero) Madiun; 3) Dependent variable, namely Occupational Accidents; 4) Independent variables, namely Knowledge and Attitude; and 5) The time of the research, namely in 2024. Thus, this research has a different focus from previous research and is expected to provide new information regarding the relationship between knowledge, attitudes and the incidence of work accidents in production workers at PT INKA (Persero) Madiun.

## **RESEARCH METHODS**

### **Research design**

This research is quantitative in nature by focusing on examining numerical data that has been processed using statistical techniques. The research method applied in this study is observational analysis with a cross sectional approach. An observational research design is used to analyze the relationship between cause and effect factors through statistical correlation analysis to explain how and why an event occurs. The cross-sectional approach in this research refers to measuring and observing independent variables (knowledge and attitudes in using PPE) and dependent variables (work accident incidents). The aim of this research is to provide an overview of the relationship between these variables at the time the research was conducted.

In this study, the population consisted of 210 PT INKA (Persero) assembly workers . This research uses the Slovin formula to select the samples to be used. In this study, a standard error of 0.01 was used. So based on the calculations above, the number of respondents for this research was 68 respondents. Sampling technique, namely probability sampling used with simple random sampling type. This study uses univariate and bivariate analyses. Univariate analysis is employed to determine the frequency distribution of both independent and dependent variables. Meanwhile, bivariate analysis aims to identify the significant relationships between each variable using the Chi-Square statistical test.

## RESULTS AND DISCUSSION

### Univariate Analysis

From the research results, frequency distribution data was obtained from respondents based on Knowledge and Attitudes on the Use of Personal Protective Equipment (PPE) with the incidence of Work Accidents. The results of the univariate analysis can be seen in the following table:

- a. Knowledge of the use of PPE among workers in the assembly production section of PT INKA (Persero) Madiun

Frequency distribution of respondents based on knowledge of workers in the assembly production section of PT INKA (Persero) Madiun.

**Table 1 Frequency Distribution of Respondents Based on Usage Knowledge PPE in the assembly production section of PT INKA (Persero) Madiun**

Knowledge	Frequency	Percentage (%)
Not good	26	38,2
Good	42	61,8
Total	68	100,0

*Source : Primary Data, 2024*

In table 1, the frequency distribution based on workers' knowledge in the assembly production section of PT INKA (Persero) Madiun can be seen that the majority of workers have a poor level of knowledge, 26 people (38,2 %), while 42 people (61,8 %) have good knowledge.

- b. Attitudes towards the use of PPE in the assembly production section of PT INKA (Persero) Madiun.

Frequency distribution of respondents based on the attitudes of workers in the assembly production section of PT INKA (Persero) Madiun.

**Table 2 Frequency Distribution of Respondents Based on Usage Attitudes PPE in the assembly production process of PT INKA (Persero) Madiun**

Attitude	Frequency	Percentage (%)
Negative	35	51,5
Positive	33	48,5
<b>Total</b>	68	100,0

*Source : Primary Data, 2024*

In table 2, frequency distribution based on workers in the assembly production section of PT INKA (Persero) Madiun can be seen that the majority of workers have a negative attitude, 35 people (51,5 %), while those who have a negative attitude are 33 people (48,5%).

- c. Work accidents among workers in the assembly production section of PT INKA (Persero) Madiun.  
 Frequency distribution of respondents based on work accidents among workers in the assembly production section of PT INKA (Persero) Madiun.

**Table 3 Frequency Distribution of Respondents Based on Work Accidents in the assembly production process of PT INKA (Persero) Madiun**

Work accident	Frequency	Percentage (%)
Once	44	64,7
Never	24	35,3
<b>Total</b>	<b>68</b>	<b>100,0</b>

Source : Primary Data, 2024

In table 3, frequency distribution based on work accidents in the assembly production section of PT INKA (Persero) Madiun can be seen that the majority of workers have experienced work accidents, 44 people (64,7 %), while 24 people have never experienced work accidents (35,3 %).

**Bivariate Analysis**

- a. Cross-tabulation of knowledge of the use of PPE with the incidence of work accidents in the assembly production section of PT INKA (Persero) Madiun.  
 The results of the cross tabulation between knowledge and work accidents in the assembly production section of PT INKA (Persero) Madiun can be seen in the following table:

**Table 4 Cross-tabulation of Knowledge of PPE Use and Accidents Work in the assembly production process section of PT INKA (Persero) Madiun**

Knowledge	Work accident				Total N	Total %	RP (95% CI)	p-value
	Once		Never					
	N	%	N	%				
Not good	23	88,5	3	11,5	26	100,0	7,667) (1,994- 29,474)	0,003
Good	21	50,0	21	50,0	42	100,0		
Total	44	64,7	24	35,3	68	100,0		

Source : Primary Data, 2024

Based on table 4, it can be seen that there are 23 workers in the assembly production section of PT INKA (Persero) Madiun who have a poor level of knowledge and have experienced work accidents (88,5 %), while those who have a good level of knowledge and have experienced work accidents as many as 21 people (50,0 %). Apart from that, there were also 3 respondents who had a poor level of knowledge and had never experienced work accidents (11,5 %) and had a good level of knowledge and did not result in work accidents as many as 21 people (50,0 %), the total number of workers who 44 people (64,7 %) have knowledge and have never experienced a work accident, namely 24 people (35,3 %).

Based on the results of statistical tests using the Chi Square test, the value obtained is p value = 0,003 (< 0,05), so Ho is rejected and Ha is accepted. This means that there is a relationship between knowledge of using PPE and the incidence of work accidents among PT INKA (Persero) Madiun assembly workers.

- b. Cross tabulation of Attitudes to Use of PPE with the incidence of work accidents in the assembly production section of PT INKA (Persero) Madiun

**Table 5 Cross tabulation of attitudes towards using PPE with the incidence of work accident in the assembly production process section of PT INKA (Persero) Madiun**

Attitude	Work accident				Total		RP (95% CI)	p-value
	Once		Never		N	%		
	n	%	N	%	N	%		
Negative	30	85,7	5	14,3	35	100,0	8,143	0,001
Positive	14	42,4	19	57,6	33	100,0	(2,523-	
Total	44	64,7	24	35,3	68	100,0	26,281)	

Source : Primary Data, 2024

Based on table 5, it can be seen that there are 30 workers in the assembly production section of PT INKA (Persero) Madiun who have a negative attitude and have experienced work accidents (85,7 %), while those who have a positive attitude and have experienced work accidents are 14 people. (42,4 %). Apart from that, there were also 5 respondents who had a negative attitude and had never experienced a work accident (14,3%) and 19 people (57,6%) had a positive attitude and had not resulted in a work accident. experienced work accidents, namely 44 people (64,7%) and respondents who had the attitude of never having experienced work accidents were 24 people (35,3%).

Based on the results of statistical tests using the Chi Square test, the value obtained is p value = 0,001 (< 0,05), so Ho is accepted and Ha is rejected. This means that there is a relationship between the attitude of using PPE and the incidence of work accidents in the assembly production section of PT INKA (Persero) Madiun.

## Discussion

### Knowledge of the use of personal protective equipment (PPE) for assembly production workers at PT INKA (Persero) Madiun.

Based on the results of the research in table 1 which was carried out on workers in the assembly production section of PT INKA (Persero) Madiun, it is known that of the 68 workers, 26 people (38,2%) had a poor level of knowledge, while 42 people (61,8 %) have a good level of knowledge.

According to Notoadmojo (2012) knowledge is a result of human sensing, or the result of a person's knowledge of objects owned by humans, namely the senses of sight, hearing, smell, taste and touch. Most human knowledge is acquired through the eyes and ears. Knowledge or cognitive is dominant which is very important for the formation of a person's actions (overt behavior).

According to Budiman and Riyanto (2013), this right is very closely related to education, where it is hoped that someone with higher education will have broader knowledge. However, it needs to be emphasized that someone who has low education does not mean absolutely low knowledge. Increasing knowledge can not only be achieved through formal education, but can also be obtained through non-formal education. A person's knowledge about an object includes two aspects, namely positive and negative aspects. These two aspects will ultimately influence a person's attitude towards the object. The more positive aspects one knows about an object, the more positive the attitude will be towards the object.

This research focuses on workers' understanding of PPE knowledge. This includes all information and understanding by workers about matters related to PPE, such as the definition of PPE, the types of PPE used by workers in assembly, the benefits or uses of PPE, the requirements for good and correct use of PPE, and when to use PPE. appropriate use of PPE and so on.

Many workers have good knowledge about the use of PPE, thanks to the experience and training they received previously. Workers' awareness of the importance of PPE shows that they understand the use of this equipment. This knowledge helps them analyze and recognize workplace hazards, and allows them to differentiate, separate and categorize existing risks. Even though workers are aware of the dangers and risks, there are still those who do not comply with the use of PPE. Researchers assume that many workers still have insufficient knowledge, which may be caused by the lack of information they receive about the use of PPE (Restu Kurniatan, 2023)

Based on the results of this research, it can be concluded that the majority of respondents' level of knowledge about PPE in the workplace is good, but there are still respondents with a poor level of knowledge, this shows that companies need to provide better direction to workers by providing direction before work begins. , by holding a briefing delivered by the supervisor or foreman regarding the importance of knowledge and use of personal protective equipment in the assembly production process.

#### **Attitudes towards the use of personal protective equipment (PPE) among assembly line production workers at PT INKA (Persero) Madiun.**

Based on the results of the research in table 2 which was carried out on workers in the assembly production section of PT INKA (Persero) Madiun, it is known that of the 68 respondents, the majority had a negative attitude, 35 respondents (55,5%) and 33 had a positive attitude. respondents (48,5%). According to Notoadmodjo, (2012) attitude is an individual's tendency to take action towards an object in a way that shows feelings towards the object. Attitude is not yet an action or activity, but is a predisposition to action or behavior. Attitude is the body's response to a stimulus or stimulation of an object in the form of behavior that has not yet been realized.

This research shows that workers' attitudes towards the use of PPE reflect their level of awareness and knowledge. The more positive their attitudes and actions, the higher workers' awareness of the importance of using PPE to maintain occupational safety and health (K3). However, a positive attitude alone is not enough to reduce work accidents, real and consistent action is needed in implementing safety behavior. Negative attitudes towards PPE often arise when workers doubt its effectiveness in reducing the risk of work accidents. This could be caused by a lack of adequate information or outreach regarding the use of PPE, which could hinder the formation of positive attitudes among workers.

Based on the results of this research, it can be concluded that some workers have a negative attitude regarding the use of PPE in the workplace, however, there are also positive attitudes, this means that companies need to increase confidence and trust in workers through motivation from leaders and education about the importance of using PPE which can reduce the risk of work accidents and work-related diseases.

### **The relationship between knowledge of the use of personal protective equipment (PPE) and work accidents among assembly line production workers at PT INKA (Persero) Madiun.**

In table 4 regarding the relationship between knowledge and the incidence of work accidents among workers in the assembly production process section of PT INKA (Persero) Madiun, it is known that those who have poor knowledge and have experienced work accidents are 23 people (88,5%), while those who have low levels of 21 people (50,0 %) had good knowledge and had experienced work accidents.

Based on the results of distributing questionnaires in the assembly production process section of PT INKA (Persero) Madiun, it was found that workers with poor knowledge and who had experienced work accidents were caused by the lack of information and awareness they received regarding the use of PPE. Meanwhile, workers who have a good level of knowledge but have experienced work accidents often show a lack of discipline and awareness in the use of PPE. Even though they understand safety procedures, they feel uncomfortable using PPE and tend to ignore them. Lack of discipline in implementing these safety procedures causes a greater risk of work accidents.

Based on the results of detailed research in table 4, there are 3 workers (11,5%) who have poor knowledge but have never experienced work accidents. Even though workers' knowledge about PPE is not good, workers may have high awareness and compliance in implementing safety procedures at work. good workplace, Awareness and good behavior are often the main factors in minimizing the occurrence of work accidents. Apart from that, there were 21 people (50,0%) who had a good level of knowledge and had never experienced work accidents, due to the high awareness and discipline of workers to comply with the use of PPE while working or in the workplace.

Based on the results of statistical tests in table 4 using the Chi Square test, the value obtained is  $p$  value = 0.003 ( $< 0.05$ ), so  $H_0$  is rejected and  $H_a$  is accepted. This means that there is a relationship between knowledge and the incidence of work accidents among workers in the assembly production section of PT INKA (Persero) Madiun. From the results of statistical tests, the value of  $RP = 7.667$  is also obtained, meaning that workers who have a poor level of knowledge have a 7.667 chance of experiencing a work accident.

This research is in line with research that has been conducted by ( Ansya Bastian, 2023) . With the results of statistical tests, the  $p$  value was obtained at 0.007 ( $< 0.05$ ), meaning that there is a significant relationship between the variable knowledge of using PPE and work accidents among workers at PT Gunung Sawit Mas Rokam Hulu Year, 2020. This research is also in line ( Restu Kurniatan, 2023) . The statistical test results obtained a  $p$  value of 0.00 ( $< 0.05$ ), which means that there is a significant relationship or a significant correlation between PPE knowledge and work accidents in the welding industry in Labuapi Village.

In this study it can be concluded, in table 4, of the total 68 respondents, 23 of them had a poor level of knowledge and had experienced work accidents (88,5 %), while those who had a good level of knowledge and had experienced work accidents as many as 21 people (50,0 %), apart from that there were also respondents who had a poor level of knowledge and had never experienced a work accident as many as 3 people (11,5 %), while those who had a good level of knowledge and had never experienced a work accident were as many as 3 people (11,5 %). 21 people (35,3 %). From these results it is also known that the total number of workers who have knowledge and experience of having experienced work accidents is 44 people (64,7 %). In this case, companies can increase knowledge about the use of PPE by implementing regular PPE use training programs and delivering safety talk material

that is in line with developments in occupational safety issues in the workplace. In addition to knowledge, the emphasis should be on increasing discipline and awareness in the application of PPE, ensuring that workers comply with established safety procedures.

### **Relationship between Attitudes in Using Personal Protective Equipment (PPE) and Occupational Accidents among Assembly Production Workers at PT INKA (Persero) Madiun.**

In table 5, it can be seen that 30 workers in the assembly production process section of PT INKA (Persero) Madiun have a negative attitude and have experienced work accidents (85,7 %), while 14 people have a positive attitude and have experienced work accidents. (42,4 %).

From the findings from this questionnaire, it was still found that workers with negative attitudes and had experienced work accidents responded to the use of PPE, this was because there were workers who felt that using PPE was uncomfortable, hampered their work, and felt that sanctions for workers who did not use PPE were still inadequate. effective. This is because sanctions are still too light because they only consist of a verbal warning and a warning letter.

Meanwhile, workers who have a positive attitude but have experienced work accidents are caused by a lack of knowledge or basic safety skills. Even though workers have a positive attitude towards safety, without adequate knowledge and understanding of how to identify and avoid risks, as well as the correct use of PPE, this can cause accidents to still occur.

Based on the research results in table 5, there is a negative attitude but they have never experienced a work accident. This is due to the luck factor which can indeed play a role in preventing work accidents, but this is not a factor that can be relied on consistently. Even though the attitude towards PPE is negative, the worker may have never experienced a work accident due to luck or less risky work environment conditions. However, relying on luck is not an effective or sustainable strategy for maintaining work safety in the workplace. A better effort is to increase workers' awareness and action regarding the use of PPE and ensure a safe work environment.

Apart from that, there are 14 people (42,4%) who have a positive attitude and have never experienced work accidents. This can also be caused by workers having good skills and experience in avoiding danger and dealing with risky situations effectively, even if their attitude towards safety is not good, they know how to act in situations that have the potential to cause harm and have the ability to better identify and overcome risks.

Based on the results of statistical tests in table 5 using the Chi Square test, the value obtained is  $p$  value = 0,001 ( $< 0,05$ ), so  $H_0$  is rejected and  $H_a$  is accepted. This means that there is a relationship between attitude and the incidence of work accidents among workers in the assembly production section of PT INKA (Persero) Madiun. From the results of statistical tests, the value of  $RP = 8,143$  is also obtained, meaning that workers who have a poor level of Attitudes have an 8,143 chance of experiencing a work accident.

This research is in line with (Kurniawan, 2018). The results of statistical tests carried out using the Fisher Exact test obtained a  $p$ -value of 0.016 ( $p$ -value  $< 0,05$ ). It can be concluded that there is a significant relationship between attitudes towards using PPE and work accidents. The research results found that more work accidents were experienced by respondents who had poor attitudes towards using PPE. This research is also in line with ( Restu Kurniatan, 2023) , the results of statistical tests, obtained a  $p$ -value of 0,00 ( $p$ -value  $< 0,05$ ), meaning that there is a significant relationship or a significant correlation between

workers' attitudes towards the use of PPE and work accidents in the welding industry in Labuapi Village. In the Loss Causation Model theory, it is also stated that attitude is one of the factors causing work accidents. Attitude is a reflection of a person's actions. If the resulting attitude is good then the effect on the actions taken will also be good. If the attitude shown is not good then usually a person's actions will also be less good (Bird and Germain, 1985) .

In this research it can be concluded, from table 5 it can be seen that of the 68 respondents in the assembly production section of PT INKA (Persero) Madiun, 30 people had a negative attitude and had experienced work accidents (85,7 %), while those who had a positive attitude and 14 people (42,4 %) had experienced work accidents. Apart from that, there were also 5 respondents who had a negative attitude and had never experienced a work accident (14,3 %) and 19 people (57,6 %) had a positive attitude and had never had a work accident. experienced a work accident, namely 44 respondents (64,7%) and respondents who had the attitude of never experiencing a work accident were 24 respondents (35,3 %). In this case, the company can enhance training and socialization about the importance of using PPE, as well as how to identify and avoid risks. They should also enforce stricter and more consistent supervision and penalties for violations related to PPE use and promote good behavior among workers regarding workplace safety. This approach aims to reduce the risk of accidents.

## **CONCLUSION**

Based on the results of research on the relationship between knowledge and attitudes of workers towards the use of personal protective equipment (PPE) and the incidence of work accidents among production workers at PT INKA (Persero) Madiun, several conclusions can be drawn. First, there were 26 workers in the assembly production section of PT INKA (Persero) Madiun who had poor knowledge (38,2%), while those who had good knowledge were 42 people (61,8 %). Second, there were 35 workers in the assembly production section of PT INKA (Persero) Madiun who had a negative attitude (51.5%) and 33 people (48,5 %) who had a positive attitude. Third, workers in the assembly production section of PT INKA (Persero) Madiun who had experienced work accidents were 44 respondents (64,7 %) and who had never experienced work accidents were 24 respondents (35,3 %). Furthermore, the results of the analysis show that there is a relationship between knowledge of the use of PPE and the incidence of work accidents among workers in the assembly production section of PT INKA (Persero) Madiun with a value of  $p$  value = 0,003 ( $< 0,05$ ). Apart from that, there is also a relationship between the attitude of using PPE and the incidence of work accidents among workers in the assembly production section of PT INKA (Persero) Madiun with a value of  $p$  value = 0.001 ( $< 0,05$ ).

## **SUGGESTIONS**

Based on the results of the study, the researcher would like to provide suggestions as a consideration for further improvement to the research site. The company is expected to provide socialization and K3 training in the use of PPE to minimize the occurrence of work accidents at least 2x in 1 month, provide briefings or safety talks every day before carrying out work activities in accordance with the latest work safety issues, increase supervision and daily inspections and provide firmer and more consistent sanctions to workers who do not use PPE and evaluate worker supervision in the use of PPE. For workers, it is expected to increase workers' knowledge and attitudes about, sources of danger in the workplace and increase high awareness and discipline in the behavior of using PPE so as to reduce the occurrence of work accidents.

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