

Analysis Of The Use Of Personal Protective Equipment (Ppe) In Oil Palm Harvesting Workers At Pt. Adimulyo Palmo Lestari Batanghari District Year 2024

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ABSTRACT

This study aims to analyze the use of Personal Protective Equipment (PPE) among oil palm harvesting workers at PT. Adimulyo Palmo Lestari, Batanghari District, in the year 2024. The use of PPE is a critical component in ensuring occupational safety and health, particularly in high-risk sectors such as oil palm plantations. This research employs a descriptive method with a quantitative approach, involving direct observation and questionnaire distribution to workers engaged in harvesting activities. The findings reveal that while a portion of the workforce adheres to PPE usage protocols, a significant number still neglect full compliance due to factors such as discomfort, lack of awareness, and insufficient supervision. The study concludes that enhanced training, strict enforcement, and regular monitoring are essential to improve PPE compliance and reduce the risk of work-related injuries. Recommendations are made for management to prioritize safety culture through continuous education and the provision of adequate PPE.

INTRODUCTION

Occupational Safety and Health is an effort to protect the safety of workers/laborers in order to realize optimal work productivity. This effort is intended to provide safety assurance and improve the health of workers or laborers by preventing accidents and occupational diseases, controlling hazards in the workplace, health promotion, treatment and rehabilitation. One effort to protect workers from work accidents is by using Personal Protective Equipment (PPE). PPE is a collection of tools used by workers to protect part or all of their bodies from potential hazards or work accidents (Budiono, 2016). However, in reality there are still many workers who do not comply with using PPE while working. Workers who do not comply with the use of PPE can experience accidents at work or occupational diseases (Tarwaka, 2014). When viewed from the number of cases of work accidents, it shows that the industrial business sector that experiences the highest number of work accidents is trade and services (21.4%) followed by agriculture, fisheries, plantations and forestry (17.3%) (Ministry of Manpower of the Republic of Indonesia, 2022).

One of the causes of work accidents in the fields of agriculture, fisheries, plantations and forestry is the use of PPE. Research by Norvalinda, et al (2023) found that 60.0% of workers on oil palm plantations experienced work-related diseases and work accidents due to lack of discipline in using PPE (Norvalinda, Wardiati, & Arbi, 2023). The proportion of PPE use among workers on oil palm plantations varies. Research (Pratiwi & Fariscy, 2022) shows that 48.1% of oil palm plantation workers do not use complete PPE. Research (Muryadi & Andriani, 2022) shows that 79.5% of oil palm plantation workers do not comply with PPE. According to (Aprilianti, Ratriwardhani, Hakim, & Fassya, 2022) workers do not use PPE for several reasons, namely the perception that the work they do is not too risky or does not require additional protection from PPE, workers feel that the use of PPE will interfere with the comfort or speed in carrying out their duties, the PPE provided does not match the work they do.

The use of PPE is one form of worker safety behavior (Tarwaka, 2014). Worker safety behavior is influenced by several factors, namely *predisposing*, *enabling* and *reinforcing factors*. Predisposing factors consist of knowledge, attitudes, habits, worker involvement, communication of OHS messages and motivation. Enabling factors consist of resources, safety meetings, work safety facilities/means (OHS signs), physical environment and work environment. *Reinforcing factors* consist of social support, management commitment, supervision, training, laws, regulations and OHS procedures (Green, 2005). The results of the study (Yenni, 2020) found that the lack of worker knowledge regarding the use of PPE can affect worker behavior. Lack of understanding regarding the importance or benefits of PPE causes workers not to use PPE while working. Without adequate knowledge about how PPE can prevent serious injuries and occupational diseases, workers tend to consider the use of PPE as

troublesome and unnecessary. Research (Norvalinda et al., 2023) workers' knowledge about the discipline of using personal protective equipment and the dangers caused by occupational diseases is still lacking, this is due to the lack of education or training received by workers in the field of occupational health and safety (K3).

Research (Pratiwi & Fariscy, 2022) shows that workers who have poor knowledge are 4.8 times more likely to not use PPE when compared to workers who have good knowledge. The use of PPE by oil palm plantation workers is also related to attitudes. Research (Juria, Husaini, & Listiawaty, 2023) shows that a negative attitude towards the importance of PPE tends to result in poor behavior in its implementation. Workers who are unaware of or underestimate the benefits of PPE often ignore its use, even though they know that PPE is available and important. This negative attitude can stem from various factors, such as discomfort when using PPE, the assumption that PPE is not necessary, or a lack of examples from coworkers and superiors. Without a positive change in attitude, efforts to increase compliance with the use of PPE will face major challenges, considering that a good attitude is key to encouraging better safety behavior in the workplace. Coworkers are one of the reinforcing components in shaping worker behavior (Green, 2005). Colleagues play an important role in influencing PPE use behavior in the work environment. Support, behavioral models, and social influence from coworkers can increase awareness of the importance of occupational safety and health, and encourage compliance with PPE use policies and procedures. Workers who have poor coworker support are 2.8 times more likely to not use PPE than workers who have good family support (Bellano, Febriani, & Noviyanti, 2023).

Batanghari Regency is the second largest producer of palm oil in Jambi Province, right after Muaro Jambi Regency. The area of oil palm plantations in Batanghari Regency is 144,978 hectares. The existence of extensive and productive oil palm plantations in Batanghari has made a major contribution to the regional economy, creating jobs, and improving the welfare of the local community (Jambi Provincial Plantation Service, 2023). PT. Adimulyo Palmo Lestari is one of the largest palm oil companies in Batanghari Regency with an area of 6,500 hectares. While in 2023 there were 9 cases of work accidents among oil palm harvesters. The types of work accidents experienced include: being stung by a wasp, being hit by a shovel on the leg, being hit by a todos on the shoulder, being bitten by a snake. In 2024 there were 6 cases of work accidents among oil palm harvesters, namely injuries due to falling, being hit by fronds, being hit by harvesting equipment, falling while launching oil palm. Based on a report from the Occupational Safety and Health (K3) at PT. Adimulyo Palmo Lestari, this was due to the lack of awareness of workers to use PPE while working or while in the work environment. This is reinforced by seeing directly at the location that there are still many workers who are not wearing personal protective equipment. Based on previous research that shows a close relationship between the use of personal protective equipment (PPE) with knowledge, attitudes, and support from coworkers. Therefore, it is important to conduct further research on the relationship of these variables to the use of PPE at PT Adimulyo Palmo Lestari, Batanghari Regency in 2024.

RESEARCH METHODS

After stage management data finished, so to be continued with analysis Data. Analysis data in study This via 2 stage as following:

1. Univariate Analysis

Analysis univariate done For see appearance distribution variable . Information resultsThe univariate analysis presented is the main information and display for data categorical in form distribution frequency.

2. Bivariate Analysis

Chi-square statistical test (cross table) with a confidence level of 95% using computer analysis. With a significance limit of α 0.05, it can be obtained:

- If the *p-value* \leq 0.05 means there is a relationship between the independent variable and the dependent variable (Decision H_a is accepted and H_o is rejected).
- If the *p-value* $>$ 0.05 means there is no relationship between the independent variable and the dependent variable (Decision H_a is rejected and H_o is accepted).

RESULTS

Univariate Analysis

Univariate analysis was used to determine the frequency distribution of each research variable, namely the independent variables (knowledge, attitudes and co-worker support) and the dependent variable (behavior of using PPE) .

Table 1 Frequency Distribution of Respondents' Personal Protective Equipment Use Behavior at PT. Adimulyo Palmo Lestari Year 2024

No	Personal Protective Equipment (PPE) Usage Behavior	Frequency	Percentage
1	Not enough	26	36.1
2	Enough	36	50.0
3	Good	10	13.9
	Amount	72	100.0

Based on the table above, it is known that the majority of respondents have sufficient PPE usage behavior, namely 36 (50.0%) respondents.

Table 2 Frequency Distribution of Respondents' Knowledge at PT. Adimulyo Palmo Lestari Year 2024

No	Knowledge	Frequency	Percentage
1	Not good	41	56.9
2	Good	31	43.1
	Amount	72	100.0

Based on the table above, it is known that the majority of respondents have poor knowledge, namely 41 (56.9%) respondents.

Table 3 Frequency Distribution of Respondents' Attitudes at PT. Adimulyo Palmo Lestari Year 2024

No	Attitude	Frequency	Percentage
1	Not good	42	58.3
2	Good	30	41.7
	Amount	72	100.0

Based on the table above, it is known that the majority of respondents have a less than good attitude, namely 42 (58.3%) respondents.

Table 4 Frequency Distribution of Respondents' Co-Worker Support at PT. Adimulyo Palmo Lestari Year 2024

No	Coworker Support	Frequency	Percentage
1	Not good	52	72.2
2	Good	20	27.8
	Amount	72	100.0

Based on the table above, it is known that the majority of respondents have poor support from coworkers, namely 52 (72.2%) respondents.

Bivariate Analysis Results

Table 5 Relationship between Knowledge and Personal Protective Equipment (PPE) Use Behavior at PT. Adimulyo Palmo Lestari Year 2024

No	Knowledge	Personal Protective Equipment (PPE) Usage Behavior						Total		p-value
		Not enough		Enough		Good		n	%	
		n	%	n	%	n	%			
1	Not good	22	53.7	15	36.6	4	9.8	41	100	0.002
2	Good	4	12.9	21	67.7	6	19.4	31	100	
	Total	26	36.1	36	50.0	10	13.9	72	100	

The results of the analysis of the relationship between knowledge and PPE usage behavior showed that of the 41 respondents who had poor knowledge, 22 (53.7%) respondents had poor PPE usage behavior, 15 (36.6%) respondents had adequate PPE usage behavior and 4 (9.8%) respondents had good PPE usage behavior. Of the 29 respondents who had good knowledge, 4 (12.9%)

respondents had poor PPE usage behavior, 21 (67.7%) respondents had adequate PPE usage behavior and 6 (19.4%) respondents had good PPE usage behavior. The results of the statistical test obtained a $p\text{-value} = 0.002$ ($p < 0.05$) so that there is a relationship between knowledge and behavior of using PPE at PT. Adimulyo Palmo Lestari Year 2024 .

Table 6 Relationship Between Attitude And Behavior Of Using Personal Protective Equipment At PT. Adimulyo Palmo Lestari Year 2024

No	Attitude	Personal Protective Equipment (PPE) Usage Behavior						Total		p-value
		Not enough		Enough		Good		n	%	
		n	%	n	%	n	%			
1	Not good	19	45.2	19	45.2	4	9.5	42	100	0.125
2	Good	7	23.3	17	56.7	6	20.0	30	100	
	Total	26	36.1	36	50.0	10	13.9	72	100	

The results of the analysis of the relationship between attitudes and behavior in using PPE showed that of the 42 respondents who had poor attitudes, 19 (45.2%) respondents had poor PPE behavior, 19 (45.2%) respondents had adequate PPE behavior and 4 (9.5%) respondents had good PPE behavior. Of the 30 respondents who had good attitudes, 7 (23.3%) respondents had poor PPE behavior, 17 (56.7%) respondents had adequate PPE behavior and 6 (20.0%) respondents had good PPE behavior. The results of the statistical test obtained a $p\text{-value} = 0.125$ ($p > 0.05$) so that there is no relationship between attitudes and behavior in the use of PPE at PT. Adimulyo Palmo Lestari Year 2024

Table 7 Relationship between Coworker Support and Personal Protective Equipment (PPE) Use Behavior at PT. Adimulyo Palmo Lestari Year 2024

No	Coworker Support	Personal Protective Equipment (PPE) Usage Behavior						Total		p-value
		Not enough		Enough		Good		n	%	
		n	%	n	%	n	%			
1	Not good	21	40.4	27	51.9	4	7.7	52	100	0.044
2	Good	5	25.0	9	45.0	6	30.0	20	100	
	Total	26	36.1	36	50.0	10	13.9	72	100	

The results of the analysis of the relationship between coworker support and PPE use behavior showed that out of 52 respondents who had poor coworker support, 21 (40.4%) respondents had poor PPE use behavior, 27 (51.9%) respondents had adequate PPE use behavior and 4 (7.7%) respondents had good PPE use behavior. Out of 20 respondents with good coworker support, 5 (25.0%) respondents had poor PPE use behavior, 9 (45.0%) respondents had adequate PPE use behavior and 6 (30.0%) respondents had good PPE use behavior. The results of the statistical test obtained a $p\text{-value} = 0.044$ ($p < 0.05$) so that there is a relationship between co-worker support and the behavior of using PPE at PT. Adimulyo Palmo Lestari Year 2024 .

DISCUSSION

Overview of Personal Protective Equipment (PPE) Use Behavior

The results of the study showed that 36.1% of respondents had poor behavior in using Personal Protective Equipment (PPE), 50.0% of respondents had sufficient PPE usage behavior and 13.9% of respondents had good PPE usage behavior. Poor PPE usage behavior can increase the risk of work accidents and can have an impact on work productivity. Respondents have poor behavior in using PPE due to a lack of awareness and understanding of the importance of PPE in protecting them from various risks of work accidents. In addition, respondents feel uncomfortable or disturbed when using PPE, especially in hot and humid weather conditions on plantations. Lack of supervision and enforcement of PPE usage rules from management is also another contributing factor, where workers feel there are no real consequences if they do not comply with the rules. The results of this study are in line with research (Muryadi and Andriani, 2022) showing that 79.5% of palm oil plantation workers do not comply with the use of PPE. The results of the study are also in line with research (Yenni, 2020) which found that 68.5% of workers have poor behavior in using PPE. Research (Aprilianti *et al.*, 2022) states that workers do not use PPE because the use of PPE will interfere with comfort or speed in carrying out work, the PPE provided does not match the work they do. According to Irzal (2016), workers must use Personal

Protective Equipment (PPE) because PPE plays a crucial role in protecting them from various risks of accidents and injuries in the workplace. Proper use of PPE can reduce the negative impacts of exposure to hazardous chemicals, sharp objects, and extreme environmental conditions such as high heat and humidity.

Tarwaka (2014) also argues that the use of Personal Protective Equipment (PPE) can protect workers from various risks of accidents and hazards in the workplace. PPE, such as helmets, gloves, safety glasses, and safety shoes, are designed to provide protection against physical injuries that may occur due to work accidents. For example, helmets protect the head from impacts or falls of hard objects, gloves protect the hands from injuries and hazardous chemicals, glasses protect the eyes from dust and debris, and safety shoes protect the feet from sharp and heavy objects. Based on respondents' answers, as many as 69.4% of respondents did not use protective eyewear. This is because respondents are less comfortable using protective eyewear, especially in hot working conditions. Excessive heat can cause excessive sweating in the facial area, so that glasses often become slippery and difficult to maintain in the right position. It is expected that companies will organize education and training programs that explain the importance of using PPE to protect themselves from the risk of work accidents. A comprehensive explanation of the potential hazards and how PPE protects them will increase worker awareness and compliance. Companies need to choose protective glasses that are appropriate for the working environment conditions on oil palm plantations. Protective glasses should have an anti-fog design, lightweight material, and good ventilation to reduce discomfort due to excessive heat.

Relationship between Knowledge and Personal Protective Equipment (PPE) Use Behavior

The results of the study showed that there was a relationship between knowledge and the behavior of using PPE in oil palm harvesters at PT. Adimulyo Palmo Lestari, Batanghari Regency in 2024 with a $p\text{-value} = 0.002$. The results of this study are in line with research (Yenni, 2020) which found that lack of worker knowledge regarding the use of PPE can affect worker behavior. Lack of understanding of the importance or benefits of PPE causes workers not to use PPE while working. Research (Pratiwi and Fariscy, 2022) shows that workers who have poor knowledge are 4.8 times more likely to not use PPE compared to workers who have good knowledge. Research (Norvalinda, Wardiati and Arbi, 2023) also found a relationship between knowledge and the use of PPE. According to Tarwaka (2016), lack of or minimal knowledge can be a major factor influencing the use of Personal Protective Equipment (PPE) in the workplace.

Lack of understanding of the potential dangers and benefits of PPE can reduce workers' awareness of the importance of using PPE consistently and appropriately. Irzal (2016) also stated that the higher the knowledge about PPE, the better the use of PPE. There is a relationship between knowledge and behavior of PPE use because ignorance or minimal understanding of the risks and hazards in the work environment makes respondents unaware of the importance of using PPE correctly and consistently. When respondents do not understand how PPE can protect them from work injuries and diseases, they are more likely to consider PPE as something unnecessary, resulting in not using PPE while working. The results of the study also found that there were respondents who had good knowledge but had poor behavior in using PPE. This is due to the comfort in using PPE. PPE is considered to hinder efficiency and speed of work, for example gloves that reduce the sensitivity of the hands in holding and cutting oil palm bunches. In addition, the lack of supervision and enforcement of rules by management, which causes workers to feel that there are no real consequences if they do not use PPE. It is expected that companies will organize comprehensive periodic education and training programs on the importance of using PPE, potential hazards in the workplace, and how to use and care for PPE properly. Provide easily accessible educational materials such as posters, brochures, and videos that explain the benefits and uses visually and simply.

Relationship between Attitude and Personal Protective Equipment (PPE) Use Behavior

The results of the study showed that there was no relationship between attitudes and behavior in the use of PPE in oil palm harvesters at PT. Adimulyo Palmo Lestari, Batanghari Regency in 2024 with a $p\text{-value} = 0.000$. The results of this study are not in line with research (Juria, Husaini and Listiawaty, 2023) shows that a negative attitude towards the importance of PPE tends to result in poor behavior in its implementation. Workers who are unaware of or underestimate the benefits of PPE often ignore its use, even though they know that PPE is available and important. The results of the study are also not in line with research by Melda Yenni (2020) who also found that there was a relationship between attitudes and behavior in using PPE ($p\text{-value} = 0.001$). Thus, research (Nugraha, 2017) found that a good attitude towards the importance of PPE increased the frequency of consistent use of PPE.

Research (Putri, 2020) , Despite having good knowledge, a less supportive attitude inhibits the routine use of PPE. Research (Wijaya, 2019) negative attitudes towards PPE are caused by discomfort and disbelief in its effectiveness. One of the predisposing factors that influence a person's behavior is attitude (Green, 2005). According to Notoatmodjo (2016) a person's behavior is closely related to the attitude they have. Attitude reflects a person's evaluation or assessment of an object, person, or situation, which can be positive or negative. The attitude a person has will influence the behavioral tendencies they display in various situations. There is no relationship between attitudes and behavior of PPE use in oil palm harvesters due to indifference to the health risks caused. Although workers are aware of the importance of using Personal Protective Equipment (PPE) such as helmets, boots and gloves, their attitudes that do not prioritize personal safety often result in inappropriate behavior. This can be due to a lack of understanding of concrete risks or a lack of awareness of the long-term impacts of exposure to hazardous chemicals. As a result, although their attitudes towards PPE are positive, their behavior in using PPE often does not match expectations to reduce the health risks they may experience.

To improve attitudes about Personal Protective Equipment (PPE) among workers, companies can conduct planned and structured supervision of the use of PPE. This supervision aims to ensure that each worker complies with established safety procedures, including the use of PPE in accordance with established standards. Effective supervision involves regular monitoring by supervisors or field management, adopting an approach that not only emphasizes enforcement of rules, but also provides positive reinforcement and additional education to workers.

Relationship between Coworker Support and Personal Protective Equipment (PPE) Use Behavior

The results of the study indicate that there is a relationship between co-worker support and the behavior of using PPE in oil palm harvesters at PT. Adimulyo Palmo Lestari, Batanghari Regency in 2024 with a $p\text{-value} = 0.044$. The results of this study are in line with research (Bellano, Febriani and Noviyanti, 2023) which found that workers who have poor co-worker support are 2.8 times more likely to not use PPE compared to workers who have good family support. Research (Nugraha, 2018) High levels of social support from co-workers are positively associated with better use of PPE. Research (Putri, 2020) solid work team support increases awareness and compliance with the use of PPE. Support provided by co-workers can have a significant impact on worker behavior in the workplace, including the use of Personal Protective Equipment (PPE). Coworkers are one of the reinforcing components in shaping worker behavior.

Colleagues have an important role in influencing PPE use behavior in the work environment. Support, behavioral models, and social influence from coworkers can increase awareness of the importance of occupational safety and health, and encourage compliance with PPE use policies and procedures (Green, 2005) . The results of the study showed that there was a relationship between coworker support and PPE use behavior. Respondents who had poor coworker support tended to have poor PPE use behavior and respondents who had good coworker support tended to have good PPE use behavior. Respondents who did not have coworker support such as providing information about the importance of PPE, reminding to use PPE while working and providing examples of PPE use while working, then respondents did not use PPE while working. Without constant reminders or positive encouragement from coworkers, the response to use PPE could decrease. This is because respondents may feel less motivated or even ignore the need to use PPE. Real examples of PPE use by coworkers can affect respondents' perceptions of workplace norms. If there are no good examples or no coworkers who demonstrate compliance with safety rules, respondents feel more comfortable not using PPE. It is expected for companies to promote a culture of mutual reminders among coworkers. Having a culture where coworkers positively remind each other to use PPE can help maintain compliance and awareness of safety in the workplace. Creating incentives or rewards for coworkers who are consistent in using PPE correctly can be an additional motivation.

CONCLUSIONS AND RECOMMENDATIONS

Conclusion

Based on the research results, it can be concluded:

1. As many as 36.1% of respondents had PPE usage behavior in the poor category, 50.0% of respondents had PPE usage behavior in the sufficient category and 13.9% of respondents had PPE usage behavior in the good category.
2. There is a relationship between knowledge and behavior of using PPE at PT. Adimulyo Palmo Lestari Year 2024 with $p\text{-value} = 0.002$.

3. There is no relationship between attitude and behavior of using PPE at PT. Adimulyo Palmo Lestari Year 2024 with $p\text{-value} = 0.125$.
4. There is a relationship between co-worker support and PPE usage behavior at PT. Adimulyo Palmo Lestari Year 2024 with $p\text{-value} = 0.044$.

Suggestion

1. For Companies

- a. Conducting education and training programs on the importance of PPE, selecting protective eyewear appropriate to the work environment.
- b. Regularly conduct educational programs on PPE, providing educational materials such as posters and videos to improve understanding and use of PPE.
- c. Conduct structured monitoring of PPE use to ensure compliance with safety standards.
- d. Companies are expected to promote a culture of mutual reminders among co-workers to increase awareness and compliance with the use of PPE.

2. For Workers

Always use PPE when working, which functions to reduce the impact of accidents on workers from accidents that may occur in the workplace.

3. For Further Researchers

As initial data for other researchers so that they can conduct research on the behavior of using PPE with a qualitative approach.

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