



Examining the Root Causes of PPE Non-Compliance in PT Giken Precision Indonesia's Molding Department

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Abstract. The manufacturing industry is crucial to Indonesia's economy but is also associated with high workplace accident rates. PT Giken Precision Indonesia has implemented an Occupational Health and Safety Management System (SMK3), yet compliance and awareness of Personal Protective Equipment (PPE) usage in the molding division remain low. This non-compliance poses a risk of workplace accidents, potentially endangering workers and impacting productivity. This study seeks to identify the factors contributing to non-compliance with PPE usage in the molding department of PT Giken Precision Indonesia. Using a descriptive qualitative approach, the research involves interviews and direct observations of 78 workers who were non-compliant with PPE usage. The findings reveal three key factors: Predisposing Factors, where workers have adequate knowledge but low awareness of PPE importance, especially among those with over two years of service and a high school education; Enabling Factors, including limited PPE availability and ineffective training; and Reinforcing Factors, such as insufficient supervision and weak enforcement of sanctions.

Keywords: Non-Compliance Factor, Workplace Safety, PPE.

1 Introduction

The manufacturing industry plays a central role in the Indonesian economy due to its significant contribution to national economic growth. However, the industry is also known for its high rate of occupational accidents. According to a report by the Social Security Organization, an average of 12 workers are permanently disabled and seven workers die every day due to workplace accidents, with the manufacturing sector contributing 63.6% of these incidents.[1] Efficiency in industrial processes is essential for companies that rely on human resources, which requires the comprehensive use of Personal Protective Equipment (PPE) during work activities.

PT Giken Precision Indonesia, with manufacturing operations divided into three departments-moulding, assembly, and PCBA-is an appropriate research location. Based on the company's occupational health and safety data, 24 incidents were recorded during the last year, with the moulding department contributing the highest at

54.17% (13 accidents), followed by PCBA at 37.5% (9 accidents), and finally assembly at 8.33% (2 accidents).

A survey conducted from August to October 2023 in the moulding department showed non-compliance in the use of PPE by workers, especially in the use of masks, gloves, hairnets, and safety glasses. Reasons cited in interviews for this non-compliance included discomfort and the perception that the use of PPE slows down the work process.

Based on the research of Indrayani & Sukumawati (2018) that obtained a description of the use of PPE on Outsourcing distribution workers at PT PLN (Persero) Rayon Wonomulyo Polewali Mandar Regency had sufficient knowledge of 93.8% and who had a positive attitude of 84.4% and who took good action amounting to 90.6%. However, this study only includes knowledge variables, attitude variables and action variables which are still limited so that it is necessary to expand the variables to get more comprehensive and accurate results about the phenomenon studied.[2]

Although the company's Occupational Health and Safety Management System (SMK3) has been implemented, which includes standard operating procedures (SOPs) for workers in carrying out their work, including regulations governing the use of PPE at work, the low compliance and awareness of workers in using PPE makes this not optimal, potentially increasing the risk of work accidents that can endanger workers and affect company productivity.

2 Literature Review

2.1 Occupational Health and Safety (OHS)

According to government regulation no 50 of 2012 concerning Occupational Health and Safety (K3) refers to all actions taken to protect the safety and health of workers as an initiative to avoid work accidents.[3] Winoto (2018) explains that K3 is a method taken in preventing work accidents and diseases caused at work in order to create a state of mental, physical and social health. [4]

2.2 Occupational Accidents

According to Wibisono (2013), work accidents are events that no one expects. This unexpected event is clearly not a form of deviation and was not planned in advance. Work accidents will always exist in relation to the work process in the workplace.[5]

2.3 Behaviour

Behaviour is the action or activity of humans themselves which has a very broad range of meanings including: walking, talking, crying, laughing, working, lecturing, writing, reading, and so on.[6] Human behaviour consists of human activities that can be observed directly or indirectly.[7] Factors that influence behaviour in accordance with the ideas of Lawrence Green consist of predeposition factors, supporting factors

and driving factors. Predisposing factors are factors that facilitate behaviour and are the motivation and reason behind a behaviour.[8] including:

- a. Education level is a significant factor in this context, considering that a person's level of education is directly related to the knowledge they have. Workers with higher education tend to have better knowledge about the importance of PPE and how to use it.
- b. Knowledge, as a result of understanding based on awareness and scientific information, plays a crucial role in shaping a person's attitude and behaviour towards PPE.[9]
- c. Period of work is a person's time at work, the longer a person works, the more experience he has.
- d. Attitude is a person's reaction or response to something.[2] Although attitudes are not direct actions or activities, they are predispositions to action or behaviour.

Supporting factors are factors that facilitate behaviour.[8] Include the availability of PPE and effective training in the work environment including:

- a. The availability of adequate PPE in the workplace provides real support for workers' compliance in using it to protect themselves from potential accidents and work risks.
- b. PPE training is an important tool in changing work behaviour towards safer habits and compliance with safety procedures.

Push factors are factors that encourage behaviour. These include: Supervision is a factor that influences worker behaviour towards the use of PPE. Strict supervision from the company can motivate workers to comply with established safety rules and procedures. However, less strict supervision tends to reduce the effectiveness of enforcing compliance, thus affecting the level of compliance in the use of PPE in the work environment.

Overall, an in-depth understanding of these predisposing, enabling and motivating factors is important in designing effective strategies to improve compliance with PPE use in the workplace, thereby reducing the risk of accidents and improving company safety and productivity.

3 Research Methodology

This study uses a descriptive qualitative approach with observational methods to identify factors that influence workers' non-compliance behaviour in the use of Personal Protective Equipment (PPE) at PT Giken Precision Indonesia. This qualitative descriptive method allows researchers to deeply understand the context and dynamics of workers' behaviour towards the use of PPE.

The participants in this study were 78 workers who showed a level of non-compliance in the use of PPE. Factors studied included predisposing factors such as

knowledge, education, length of service, and attitude; supporting factors such as PPE availability and training activities; and enabling factors such as supervision from company management. Data were collected through questionnaires and direct observation in the workplace, focusing on each division in the moulding department of PT Giken Precision Indonesia. Data collection was carried out at one specific point in time for each research subject, ensuring uniformity in the observation of current conditions related to PPE use.

The results of the data were then analysed and presented in tabular form to provide a clear picture of the factors that influence the level of worker non-compliance in using PPE. This qualitative descriptive approach provides a comprehensive understanding of the actual conditions in the field, so that it can be the basis for formulating effective intervention strategies to improve workers' compliance with PPE use and reduce the risk of occupational accidents.

4 Result

4.1 Predisposing Factors

4.1.1 Education

Table 1. Recapitulation of Educational Factors on Noncompliance with the Use of PPE in the Moulding Department of PT Giken Precision Indonesia

Education Level	F	%
Senior High School	69	88,46%
Bachelor's Degree	9	11,54%
Total	78	100%

Source: Author's Processed Data, 2023

Based on the results of the study that the majority of workers who were not compliant in using PPE had a low education level of 88.46%, the high number of workers with low education who were less compliant in using Personal Protective Equipment (PPE) highlights that the level of education has the potential to affect awareness and understanding of work safety.

Workers with low educational backgrounds are less likely to understand safety instructions or be aware of the risks associated with not using PPE. In contrast, workers with 11.54% higher education are more likely to understand the importance of PPE and be more compliant with safety procedures at work.

To improve compliance in PPE use, it is important for companies to organise special training tailored to the needs of low-educated workers. This training should be structured in a simple yet effective method of conveying safety information.

Management needs to ensure that all workers, regardless of their educational background, are adequately educated on the importance and correct way of using PPE. This step is expected to increase understanding and awareness of safety in the workplace, and reduce the risk of accidents that can occur due to non-compliance in the use of PPE.

4.1.2 Knowledge

Table 2. Recapitulation of knowledge factors on non-compliance with the use of PPE in the moulding department of PT Giken Precision Indonesia

No	Questions	Knowledge	
		F	%
1	Employee understands the meaning of PPE		
	Yes	60	77%
	No	18	23%
2.	Employee understands the function of PPE		
	Yes	63	80,77%
	No	15	19,23%
3.	Employees know the types of PPE		
	Yes	65	83%
	No	13	17%
4.	Employees understand the impact of not using PPE		
	Yes	50	64%
	No	28	36%
5.	Employees understand the risks and hazards associated with operating machinery at work		
	Yes	50	64%
	No	28	36%
6.	Employees understand when to use PPE		
	Yes	55	62%
	No	23	38%
Total	Answered Yes	60	76,92%
	Answered No	18	23,08
	Overview	78	100%

Source: Author's Processed Data, 2023

Based on the results of the study, the majority of workers who are less compliant in the use of Personal Protective Equipment (PPE) 76.92% have good knowledge about PPE. They are aware of the definition, function, and risks of not using PPE, which they obtained through seminars and training conducted by PT Giken Precision Indonesia. However, the other 23.08% still had insufficient knowledge because

they were workers with a new working period and had never attended training. The majority of workers who did not comply with the use of PPE already had good knowledge about PPE where 77% of non-compliant workers understood the meaning of PPE, and 80.77% knew its function. In addition, 83% already knew the types of PPE required in their work. Even 87% of non-compliant workers realised the negative impact of not using PPE, and 64% understood the risks and hazards associated with operating machinery in the workplace.

Meanwhile, 62% of non-compliant workers already knew the right time to use PPE. This shows that although workers who are not compliant in the use of PPE, most of them have good knowledge about PPE, but this good knowledge has not been implemented in the form of concrete actions at work. This may be due to workers' lack of motivation to work safely. Good knowledge about PPE not only affects individual behaviour, but can also have a positive impact on company management in managing the risk of work accidents.

Therefore, improving knowledge of PPE among workers is a crucial step in improving work safety and company performance. By ensuring all workers have a deep understanding of the importance of PPE and building awareness and motivation to work safely, companies can reduce the risk of accidents and increase efficiency and productivity in the workplace.

4.1.3 Period of Service

Table 3. Recapitulation of the length of service factor on non-compliance with the use of PPE in the moulding department of PT Giken Precision Indonesia

Period of service	F	%
>2 year	62	79,49%
≤ 2 year	16	20,51%
Total	78	100

Source: Author's Processed Data, 2023

The high percentage of 79.49% of workers with more than 2 years of service who were non-compliant in the use of Personal Protective Equipment (PPE) indicates that longer work experience does not necessarily guarantee a higher level of compliance with PPE use. Interview results suggest that factors such as ingrained habits, overconfidence due to experience, as well as decreased supervision and enforcement of safety rules from management towards long-serving workers, contribute to this non-compliance. In contrast, workers with less than or equal to 2 years of service showed lower levels of non-compliance. This is because new workers tend to be more compliant with safety rules, as a result of recent training and a desire to adhere to procedures set by the company to safeguard their jobs. To improve compli-

ance in the use of PPE, companies need to conduct regular safety training and ensure that supervision of PPE use remains consistent, especially for workers who have been working for a long time. Management needs to develop effective motivational strategies to ensure that all workers, regardless of their length of service, understand the importance and obligation of using PPE for personal and collective safety.

4.1.4 Attitude

Procedures, or the work environment well but have not been implemented as they should. In this attitude, it was found that the majority of non-compliant workers 83.33% had realised the importance of regular health checks, indicating a high level of awareness of health, but the implementation was still less than optimal.

Most non-compliant workers, 90%, stated that they were willing to use PPE correctly if they received proper guidance and support. This indicates a willingness to comply, but there are still obstacles such as lack of supervision, adequate PPE availability, or bad habits. The high awareness of the importance of PPE use among 92.31% of non-compliant workers indicates that education on the benefits of PPE has been successful, but has not been fully implemented in daily work practices.

Table 4. Recapitulation of attitude factors towards non-compliance with the use of PPE in the moulding department of PT Giken Precision Indonesia

NO	Question	Attitude	
		F	%
1	Employees are willing to undertake initial and scaled health checks		
	Yes	65	83,33%
	No	13	16,67%
2.	Employees are willing to use PPE correctly and according to procedures		
	Yes	70	90%
	No	8	10%
3.	Employees are aware of the use of PPE for the benefit of worker health and safety		
	Yes	72	92,31%
	No	6	7,69%
Total	Answer Yes	69	88,46%
	Answer No	9	11,54%
	Overall	78	100%

Source: Author's Processed Data, 2023

Based on the results of the study, it shows that most non-compliant workers in the use of PPE have a good attitude of 88.46%, while 11.54% of non-compliant workers in the use of PPE have a poor attitude. This indicates that most of the non-compliant workers have understood, accepted, or supported policies.

To address this, companies need to focus on practical actions such as ensuring adequate PPE availability, continuing training on an ongoing basis, and consistently enforcing rules for PPE use in the work environment.

4.2 Enabling Factors

4.2.1 Availability of PPE

Table 5. Recapitulation of the factor of apd availability on non-compliance with the use of PPE in the moulding department of PT Giken Precision Indonesia

No	Division	Types of PPE	Amount should be	Amount of PPE available	%
1	Production	Mask	51	10	20%
		Ear Plug	51	10	20%
		Finger Coat	51	8	17%
		Hair Net	51	10	20%
2	Tooling	Mask	7	2	20%
		Helm Safety	7	1	28%
		Hand Glove	7	2	14%
		Safety Shoes	7	7	28%
3.	Maintenance	Mask	3	0	0%
		Ear Plug	3	0	0%
		Safety Shoes	3	3	100%
		Pressed Leather Gloves	3	1	33%
		Safety Glasses	3	1	33%
4.	Quality Control	Mask	8	3	37,5%
		Ear Plug	8	2	37,55%
		Finger Coat	8	3	37,5%
		Hair Net	8	3	37,5%
5.	Store & Driver	Mask	9	0	0
		Safety Helmet	9	2	22%
		Hand Glove	9	0	0%
		Safety Shoes	9	9	100%
Total Overall			315	77	24,44%

Source: Author's Processed Data, 2023

The availability of PPE only reached 24.44% of the requirement, indicating that most workers do not have sufficient access to the necessary PPE. This condition hinders workers' ability to comply with PPE use rules, even though they may have the

intention to do so. PPE shortages have a direct impact on worker safety and health, increasing the risk of accidents, injuries and exposure to hazardous materials. The unavailability of adequate PPE can also affect workers' motivation and perception of the company's safety policy. Workers may feel that the company is less serious about implementing safety policies if not enough PPE is provided. It is important for companies to ensure that all workers have adequate access to PPE that suits their needs. By providing sufficient PPE, companies can improve workplace safety and ensure that workers are equipped with the necessary tools to protect themselves from possible occupational risks.

4.2.2 Training

Table 6. Recapitulation of apd training factors on non-compliance with the use of PPE in the moulding department of PT Giken Precision Indonesia

NO	Question	Training	
		F	%
1	Employees have attended training on PPE / OHS training in the workplace		
	Yes	48	61,54%
	No	30	38,46%
2.	Employees feel the training helped you understand the importance of using PPE in the workplace		
	Yes	45	57,69%
	No	33	42,31%
3.	Employees feel the training is sufficient to understand the correct way to use PPE		
	Yes	43	55,13%
	No	35	44,87%
Total	Answer	45	57,69%
	Yes		
	Answer No	33	42,31%
	Kese-	78	100%
	luruhan		

Source: Author's Processed Data, 2023

The results showed that the majority of workers who were not compliant in use of PPE have good training about PPE by 57.69%, while 42.31% of workers who were not compliant had poor training. This shows that most workers already have good training aspects but ironically has not been implemented as should be. In this training, workers who were not compliant in the use of PPE claimed to have participated in PPE training organised by company management 61.54%. Although this training covered the majority of workers, there are still challenges in ensuring consistent compliance.

Although 57.69 per cent of non-compliant workers admitted that the training had improved their understanding and awareness of the importance of PPE, this knowledge has not been fully implemented in daily practice. While 55.13% of workers who non-compliant workers understood how to use PPE after attending the training,

But there is still a gap between theoretical understanding and practical application in the the workplace. These barriers can be caused by factors such as comfort, habit, or lack of consistent supervision. Consistent supervision. Re-evaluation of training methods and content needs to be to ensure that safety safety messages are delivered more effectively and can be applied in daily work situations at PT Giken, especially in the moulding division at PT Giken, especially in the moulding division.

4.3 Enabling Factors

4.3.1 Supervision

Table 7. Recapitulation of supervision factors for non-compliance with the use of apd in the moulding department of PT Giken Precision Indonesia

N O	Question	Supervision	
		F	%
1	Employees who when working do not use personal protective equipment must be sanctioned.	Yes	40 51,28%
		No	38 48,72%
2.	The company's OHS officer should conduct routine inspections every day to minimise violations.	Yes	68 87,18%
		No	10 12,82%
3.	Employees must maintain any PPE that has been provided by the company	Yes	70 89,74%
		No	8 10,36%
4.	Employees must work according to established work SOPs	Yes	69 88,46%
		No	9 11,54%
To- tal	Answer Yes	62	79,49%
	Answer No	16	20,51%
	Overall	78	100%

Source: Author's Processed Data, 2023

The results showed that workers who are not compliant in the use of PPE have good supervision, namely 79.49%, while 20.51% of workers who are not compliant

have good supervision, namely workers who are not compliant have supervision that is still lacking. This indicates that most of them may have complied with procedures or rules related with workplace supervision, although there is inconsistency in compliance with PPE use.

The majority of workers who were not compliant in using PPE already have an awareness of the importance of applying sanctions 51.28%, this indicates that most of them understand the need for consequences in enforcing discipline. Consistent implementation of sanctions can be an important factor in improving compliance with use of PPE at PT Giken Precision Indonesia.

A high percentage, 87.18%, of workers who want regular inspections every day shows that stricter supervision can help reduce violations in the use of PPE. Inspections not only remind workers of the the importance of PPE, but also improve their compliance with safety rules. Safety rules. A total of 89.74% of workers who who were not compliant in using PPE showed awareness and initiative in maintaining the facilities. Although not always compliant, this awareness this awareness can be utilised by giving more responsibility in the safety programme. Safety programme. 88.46% of workers who were not non-compliant workers claimed to be compliant with the applicable rules, indicating that non-compliance rules, indicating that non-compliance with to the use of PPE is not due to ignorance, but rather other factors such as availability of PPE or work habits. Effective supervision is key in improving compliance with the use of PPE in moulding department of PT Giken Precision Indonesia. With consistent implementation of disciplinary sanctions disciplinary sanctions, regular inspections, and increased worker awareness and initiative, the company was able to significantly reduce violations and improve work safety, creating a safer and productive.

5 Conclusion

Based on the results of the above analysis, it can be concluded that workers' non-compliance in the use of Personal Protective Equipment (PPE) is influenced by various factors that can be categorised as predisposing, supporting, and driving factors. Predisposing factors include a low level of education, where 88.46% of non-compliant workers have a low level of education, as well as sufficient knowledge about PPE (76.92%), but not yet fully applied in practice. In addition, 79.49% of non-compliant workers had more than two years of service, indicating that longer work experience does not necessarily increase compliance, although most workers had a positive attitude (88.46%) towards PPE use. Other contributing factors were the limited availability of PPE, which only reached 24.44% of the need, and inadequate training, although 57.69% of workers had attended training. The last driving factor is supervision, where 79.49% of workers already have an awareness of the importance of supervision and sanctions, but suboptimal supervision still contributes to this non-compliance. Therefore, improving worker compliance in PPE use requires a holistic approach that includes improved education, practical knowledge, availability of PPE, training, and more effective supervision.

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