

# Factors Related to Behavior of APD Use in Welding Part II TAMBUN II

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## Abstract

Behavior is an act or behavior of someone who can be observed and can even be learned. The purpose of this study was to determine the factors associated with the behavior of the use of personal protective equipment (PPE) on welding workers of PT Suzuki Indomobil Motor Tambun II in 2019. The sampling technique was randomly according to the inclusion and exclusion criteria, the research design applied was quantitative with the Cross-Sectional approach. This research was conducted in the Welding Section of PT Suzuki Indomobil Motor Tambun II with a sample of 84 workers. Random sampling technique. The analysis used chi square statistical test with 95% CI ( $\alpha = 0.05$ ). The results showed that there was no relationship between years of service ( $p = 0.789$ , PR = 1.073), attitudes ( $p = 0.206$ , PR = 1,173) with the behavior of using PPE. On the other hand, research showed a relationship between knowledge ( $p = 0.002$ , PR = 1.538), supervision ( $p = 0.001$ , PR = 1.875) with PPE usage behavior. This research suggests PT Suzuki Motorized Tambun II motorbike intervenes by means of training employees more than 10 years later to make improvements in supervision and in sanctions for employees who violate.

## Keywords

PPE Usage Behavior, supervision, old employees

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## Introduction

### Background

In the modern era as it is today, occupational health and safety aspects have become common demands and needs. Labor is a valuable organizational asset and is an important element in the production process in addition to other elements. Therefore, the workforce must be guarded, fostered and developed to increase productivity. But in reality, the protection of occupational health and safety is ignored, especially by those who tend to seek profit. K3 Management is a process that is carried out continuously during work activities and company activities. In addition, the implementation of K3 management must also be reviewed periodically to ensure that the system implemented by the company has been able to provide optimal protection to workers. If the existing system is deemed insufficient to provide protection, OHS must be adjusted (Dewi, 2012).

Indonesia has a large natural wealth. This is used by Indonesia to develop the industrial sector. The development of the industrial sector resulted in work accidents that harm workers, companies and countries. (Arifin, et al, 2013). In RI Law No. 13 of 2013 states workers must be protected from the aspects of welfare, health and safety in the form of mental health and physical health of workers. The company has made various efforts in protecting its workers. One of the factors causing occupational accidents is unsafe behavior. This states that unsafe behavior can lead to death or loss caused by workplace accidents (Tambunan, 2015). Law number 36 of 2009 related to occupational health article 164, states that occupational health efforts are shown to keep workers for a healthier life and free from health problems, so that they are free from negative impacts.

Kurniawati (2013) in her book explained that the use of personal protective equipment (PPE) that is not good is included in one of the unsafe actions (unsafe actions) that result in work accidents. According to the Regulation of the Minister of Manpower and Transmigration Number PER. 08 / MEN / VII / 2010 concerning personal protective equipment, hereinafter abbreviated as PPE, is a device that has the ability to protect a person whose function is to isolate part or the whole body from potential hazards at work.

Based on the results of research Ika, (2014) that there is a relationship between age, knowledge, and supervision of compliance with the use of PPE. Based on Ningsih's research, (2016) that there is a relationship between education, work period of knowledge in the use of PPE. PT Suzuki Indomobil motor is engaged in automotive. PT Suzuki Indomobil motor has parts of the production process of making motorcycles and cars, while the names of these parts are pressing, welding, painting, assembling. Then the researcher will conduct research in the welding section of this welding section is the second stage of production, this component is still in the form of pieces of expansion and united to form a unit (car) or the shape of a car door. The type of work is operationalizing heavy equipment such as robots for spot (welding machine), this research is carried out in the welding section because there is a welding process, the welding process will have a direct effect such as eye irritation, irritation on the skin and can be exposed to sparks during the welding process if workers do not use PPE will be very at risk for workplace accidents. Work accidents in the welding section have occurred in the form of eyes being hit by a spark, a middle finger is exposed to a spot on a spot machine

The minor work accident data found from 2017 to 2019 is 7 people. Data on work accidents at PT Suzuki Indomobil Motor Tambun II in 2017 there were 2 workers where the hand was injured due to a plate in the pressing and welding area while the accident was in the form of a hand scraped by a large plate in the area. In 2018 there were 2 accidents in the assembling section of one employee suffered a leg injury after falling from a ladder that is + - 1.5 meters high, and there was also a unit bump when the employee wanted to inspect the unit, in 2019 there were 3 minor accidents such accidents could occur because of negligence of workers this often happens in the welding and assembling. It can be concluded that every year there is still a number of work accidents even though minor work accidents that should be zero accidents Although there has been a decrease in the number of work accidents, but it is still unknown exactly the factors that cause work accidents, it can be concluded that work accidents are still occur because of the behavior factors of workers who do not comply with the use of PPE.

Based on observations there are employees who do not use PPE in the Welding section, while those that are often not used are earplugs and aprons. In ISOS APD welding section, apron is

included APD that must be used. The employees who do not use PPE range from around 45-50 years old, for workers who violate the average high school education with a period of work for about 15 to 20 years. In ISOS APD, it is stated that workers must use PPE in the work area and the leader reminds them of the use of PPE every time they leave and go home and is observed as a sign that workers use PPE when working. however, in the supervision of the use of PPE it is still not very strict so that there are still violations, even though the work agreement has been written and stated that every worker must use PPE when working. This resulted in work accidents as for workplace accidents experienced by the index finger exposed to spot welding, resulting in blackened wounds on the affected fingers, employees who do not use Google result in workers being exposed to sparks so that workers must be treated medically. PT SIM's effort in monitoring the use of PPE is to use PPE check sheets where the filling of the check sheet is filled in by the leader of the pertim team and will be monitored by the P2K3 team but in supervision is still lacking even though in a written work agreement that PT SIM employees must use PPE.

Based on the results of the documentation study of PT Suzuki Indomobil Motor Tambun II's P2K3 division about work accidents, the accident rate from 2011 to 2015 reached number 23 events, the number 43% of these events have the most work accidents with the category of mild to moderate by 43% this results in workers losing time to work because of waiting for the recovery period, the company must lose productive employee time. The use of PPE at PT Suzuki Indomobil Motor Tambun II has been compulsory and if you do not use PPE the food will get a direct warning in the form of verbal, while still violating the same mistakes will get a written warning and even affect the appraisal every year.

## Research Methods

This research was conducted using quantitative methods, observational research design with cross sectional approach. Samples of workers in the production section of Tambun II Welding Section who used PPE had an accident and using PPE did not experience a work accident in 2019 as many as 84 respondents.

## Results and Discussion

### Results

#### 1. Univariate Analysis

Respondents' description of the research variables namely knowledge, years of service, attitudes, This research was conducted at PT Suzuki Indomobil Motor Tambun II. Data collected includes primary and secondary data. Primary data obtained through questionnaires. This data was obtained from independent variables, among others, knowledge, years of service, attitudes and role of supervision and on the dependent variable, namely the behavior of APD use in the Tambun II welding section. The method used to prove the hypothesis in this study uses the Chi square analysis test.

**Table 1.1**

Distribution of Respondents Based on Research Variables

Variable	Category	N	%
<b>Dependent</b> APD Usage Behavior	Np Compliance	63	75
	Compliance	21	25
<b>Independent</b> Knowledge	Bad	39	46.4
	Good	45	53.6
Years of service	No risk	56	66.7
	Risk	28	33.3
Attitude	Bad	38	45.2
	Good	46	54.8
Controlling	High	45	53.6
	Low	39	46.4



Based on table 1.1, the highest proportion of PPE usage behavior among workers is workers with non-compliant PPE usage behavior, which is as much 63 workers (75%), the highest proportion of workers' knowledge about the use of PPE is workers with good knowledge, as many as 45 workers (57.1%), Proportion the highest number of years of service is that workers have behaviors that use PPE that is not at risk, as many as 56 workers (66.7%), the highest proportion of workers' attitudes in the behavior of using PPE on workers are workers with good PPE use behavior, as many as 46 workers (54.8%), The highest proportion of supervision in behavior the use of PPE on workers is workers with high supervision, namely 45 workers (53.6%).

## 1. Bivariate Analysis

### Relationship between knowledge of PPE usage behavior in PT Suzuki Indomobil Motor Tambun II welding section in 2019

**Table 1.2**

Distribution of Respondents According to the knowledge of welding workers With PPE Usage Behavior in the PT Suzuki Indomobil Motor Welding II section

Knowledge	APD Usage Behavior				Amount		P value	PR (95%CI)
	No Comply		Comply		N	%		
	N	%	N	%				
Bad	36	92.3	3	7.7	39	100	0.002	1.538 ( 1.192-1.986 )
Good	27	60	18	40	45	100		

Based on table 1.2, the highest proportion of workers who have poor knowledge about the use of PPE are workers with a non-compliant PPE usage, which is 36 workers (92.3%). The highest proportion of workers with good knowledge about the use of PPE are workers with non-compliant PPE usage behaviors, as many as 27 workers (60%). Based on statistical tests with the chi square test, the value of P Value = 0.002 is obtained, which means there is a relationship between knowledge and behavior of the use of PPE with a PR (Prevalence Ratio) of 1.538 95% CI = 1,192-1,986. Where workers with poor levels of knowledge are more at 1,538 times the risk of disobedient behavior using PPE compared to workers with good levels of knowledge.

This is consistent with Nengsih's research (2018) which states that there is a relationship between knowledge and the behavior of using PPE. This relates to Ramsey (1978) in Wibowo (2010) that knowledge is a factor very important for the formation of a person's behavior, if workers have less knowledge of the potential or sources of danger that exist in the work environment, then the individual will tend to make wrong decisions (Saudi, 2014). The average worker is a senior high school equivalent and has a different opinion so as to create a poor level of knowledge management should provide training before work provisions for production employees to understand the importance of PPE when working Workers do not get retrained regarding safe behavior and the importance of using PPE when working because of management there is no scheduling and no budget to conduct training for workers who are at risk. From the level of poor knowledge that will make the chance of the occurrence of unwanted events is greater, then management should carry out training on appropriate use of PPE behavior with its part to be more compliant in the use of PPE when working, management should provide posters and communication media about the importance of PPE.

### Relationship of work period with PPE usage behavior in PT Suzuki Indomobil Motor Tambun II welding section in 2019

Based on table 1.3, the results of the study show that the highest proportion of workers with tenure who are not at risk are workers with non-compliant PPE usage behavior 41. The highest proportion of workers with tenure at risk about using PPE are workers with non-compliant PPE use behaviors, as many as 22 workers.

Based on statistical tests with the chi square test, the value of P Value = 0.789 is obtained, which means there is no relationship between work period with the behavior of the use of PPE with a PR value (Prevalence Ratio) 1.073 95% CI = 0.836 - 1.378. Where workers with years of work are not at risk more at risk 1,073 times for behaving disobediently to use PPE compared workers with tenure

at risk. This is in line with Wekoyla's research, 2012 which states the results of the chi square statistical test  $p: 0.965$  which means there is no relationship of work period with the use of PPE.

**Table 1.3**

Distribution of Respondents by Working Period of welding workers with PPE Usage Behavior in PT Suzuki Indomobil Motor tamb II II welding section

Year of service	APD Usage Behavior				Amount		P value	PR (95%CI)
	No Comply		Comply		N	%		
	N	%	N	%				
Risk	22	78.6	6	21.4	28	100	0.789	1.073 ( 0.836 – 1.378 )
No Risk	41	73.2	15	26.8	56	100		
					84	100		

According to Anderson (1994) in Arifien (2006), someone who has worked for a long time has broader and more experienced insight who plays a role in shaping the behavior of officers. In accordance with Sragian (1987) which states that the quality and work ability of a person increases and develops through two main channels namely work experience that can mature a person from service and education.

#### Relationship between attitude and behavior of PPE usage in welding section of PT Suzuki Indomobil Motor Tambn II in 2019 2019

**Table 1.4**

Distribution of Respondents According to welding worker attitudes With PPE Usage Behavior in PT Suzuki Indomobil Motor tamb II II welding section

Attitude	APD usage behaviour				Amount		P value	PR (95%CI)
	No Comply		Comply		N	%		
	N	%	N	%				
Bad	31	81.6	7	18.4	38	100	0.206	1.173 (0.919 – 1.496)
Good	32	69.6	14	30.4	46	100		
					84	100		

Based on table 1.4 the research results obtained the highest proportion of workers who have a good attitude about the use of PPE are workers with non-compliant PPE use behavior, which is 32 workers (69.6%). The highest proportion of workers with bad attitudes about using PPE are workers with non-compliant PPE use behaviors, namely 31 workers (81.6%)

Based on statistical tests with the chi square test, the value of P Value = 0.206 is obtained, which means there is no relationship between attitude and behavior of PPE usage with a PR value (Prevalence Ratio) 1.173 95% CI = 0.919 - 1.496. Where workers with good attitudes are 1,066 times more likely to behave disobediently to use PPE compared to workers with bad attitudes.

This study is in accordance with research Bambang, (2009) said that the relationship between attitude and PPE usage behavior with the statistical test results obtained  $p$  value = 0.06 can be concluded that there is no significant relationship between attitude and PPE usage behavior.

Attitude is a reaction or response that is still closed from someone to a stimulus or object. Mental state and readiness arranged through experience, gives a dynamic or directed influence on individual responses to all objects and situations related to them. The attitude clearly shows the connotation of the suitability of the reaction to certain stimuli (Notoadmodjo, 2007).

#### The relationship of supervision to the behavior of the use of PPE in the welding section of PT Suzuki Indomobil Motor Tambn II in 2019 2019

Based on table 1.5 the results of the study found that the highest proportion of workers who have a low level of supervision about the use of PPE are workers with non-compliant PPE use behaviors, as many as 39 workers (29.2%). The highest proportion of workers with high supervision regarding the use of PPE are workers with non-compliant PPE use behavior that is as many as 24 workers (33.8%).

**Table 1.5**

Distribution of Respondents According to supervisors of welding workers with PPE usage behavior in PT Suzuki Indomobil Motor tamb II II welding section 2019

Controlling	APD usage behaviour				Amount		P value	PR (95%CI)
	No Comply		No Comply		N	%		
	N	%	N	%				
Low	39	100	0	0	39	100	1.875(	
High	24	33.8	21	11.2	45	100	0.001	
					84	100	1.427 - 2,646)	

Based on statistical tests with the chi square test the value of P Value = 0.001 means that there is a relationship between supervision and PPE usage behavior with PR value (Prevalence Ratio) 1,875 95% CI = 1,427 - 2,646. Where workers with low supervision are 1,875 times more likely to behave disobediently using PPE than workers with high supervision. This is in line with Nur's research, 2018 with the results of the chi square statistical test with a p value of 0.001 with the conclusion that there is a relationship between supervision and PPE usage behavior. This is in accordance with Manulang, 2006 to improve work safety by complying with applicable regulations. The main purpose of monitoring is to seek feedback that can then be improved. Supervision can be done through direct visits or observations of observed objects.

## Conclusions and Suggestions Conclusions

The highest proportion of workers' personal protective equipment (PPE) use behaviors are workers with a number of non-compliant behaviors in using PPE 63 workers 75%. The highest proportion of the level of knowledge about the use of PPE in workers is the worker with the level of knowledge good ie as many as 45 workers (53.6%), the highest proportion of workers with tenure who are not at risk are workers with non-compliant PPE use behavior 56 or 66.7%. The highest proportion of workers who have a good attitude about the use of PPE are workers with non-compliant PPE use behaviors, as many as 46 workers (54.8%). The highest proportion of workers who have a high level of supervision about the use of PPE are workers with non-compliant PPE use behavior, which is 45 workers (53.6%). There is a relationship between the knowledge of PPE on the behavior of PPE use in welding workers With the statistical test results P Value 0.002 and PR value 1.538, There is no relationship between attitude with PPE use behavior of welding workers with P Value 0.206 with a PR value of 1.173, There is no relationship between the working period with the behavior of the use of personal protective equipment (PPE) on welding workers with the statistical test results P Value 0.789 with a PR value of 1.073. there is a relationship between the role of supervision of the behavior of the use of personal protective equipment (PPE) on welding workers with the statistical test results P Value 0.001 with a PR value of 1.875.

## Suggestion

1. management should conduct training on the behavior of using PPE
2. It is better to impose sanctions on employees who violate violently and if PPE creates an allergic response to replace APD with different ingredients.
3. It is better to create a compliant attitude towards the use of PPE that management should reward workers with good attitude and give punishments to workers with bad attitude.
4. management should reward the role of good supervision, and give punishments to the role of supervisors that are low to create a role for good supervision.
5. Add more tightened supervision with regular daily inspections
6. Add routine counseling about the use of PPE and add information media in the work environment with posters

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