Multidisciplinary Output Research For Actual and International Issue (MORFAI Journal) ISSN (e): 2808-6635
Volumes 5 No. 2 (2025)

RELATIONSHIP BETWEEN KNOWLEDGE AND ATTITUDE TOWARDS THE USE OF PERSONAL PROTECTIVE EQUIPMENT (PPE) IN BUS MECHANICS AT PT. INTER CROSS SUMATRA

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Received	: 17 March 2025	Published	: 13 May 2025
Revised	: 28 March 2025	DOI	: https://doi.org/10.54443/morfai.v5i2.2935
Accepted	: 12 April 2025	Link Publish	: https://radjapublika.com/index.php/MORFAI/article/view/2935

Abstract

This study aims to determine whether knowledge has a positive and significant effect on the use of PPE on bus mechanics at PT Antar Lintas Sumatra. This study uses two independent variables, namely knowledge and attitude with one dependent variable, namely the use of PPE. The type of data used in this study is primary data, where the data comes from the results of distributing questionnaires to bus mechanics at PT Antar Lintas Sumatra. After conducting a literature and field review and formulating a hypothesis, the population and sample in this study were 30 respondents, with a total sampling technique. This type of research is quantitative analytic with a cross-sectional approach. The research was conducted at the central workshop of PT Antar Lintas Sumatra in the period December 2024-March 2025. The research instrument used a closed questionnaire in the form of a Likert scale that had been tested for validity and reliability. Data analysis was carried out with software through multiple linear regression, as well as the t test and F test to test the relationship between variables, with the coefficient of determination (R^2) to see the magnitude of the influence of the independent variable on the dependent variable. The t test shows that the knowledge variable (X1) has a significant effect on the use of PPE. This is proven by the results of the t-test statistics for the knowledge variable indicated by a value of 3.518 and in the table of 2.048 and a Sig value (0.002 <0.05). The attitude variable (X2) has a significant effect on the use of PPE. This is proven by the results of the t-test statistics for the attitude variable which is shown with a value of 12.188 and in the table of 2.048 and a Sig value (0.000 <0.05). The F test shows that the variables of knowledge (X1) and attitude (X2) have a significant effect on the use of PPE simultaneously. The coefficient of determination shows that 86.0% of PPE use is influenced by knowledge and attitude variables, and the remaining 14.0% by other variables not examined. Suggestions in this study are that companies must be able to provide PPE according to standards, tighten supervision of PPE use, and increase socialization of PPE use in the work environment.

Keywords: ***Knowledge, Attitude, Use of PPE***

Introduction

AsThe most important thing in starting a job is maintaining occupational health and safety. This aims to prevent work accidents in the workshop or company environment. The use of Personal Protective Equipment (PPE) is one of the main factors that needs to be applied consistently. Every workplace or industry definitely wants to create a work environment that is free from accidents. Therefore, Occupational Health and Safety (K3) policies are important to apply to mechanics, by considering various aspects, including management, working conditions, and system integration to reduce the risk of accidents. In this case, Law No. 23 of 1992 concerning Health regulates that physical and mental health checks are mandatory in certain companies (Eko Saputra & Bimo Riandadari, 2020).

MenAccording to Zurimi (2019), Personal Protective Equipment (PPE) is a device designed to protect workers from potential hazards and accident risks in the workplace. The use of PPE is a preventive measure to minimize adverse effects that may occur in the workplace, such as unplanned injuries and damage. In addition, comfortable and easy-to-use devices can help mechanics work more efficiently. Role Good and easy-to-use equipment makes maintenance easier for mechanics. However, in addition to making work easier, gadgets can also cause work accidents. Therefore, using work tools requires soft skills and hard skills. Personal protective equipment is a tool that can help prevent work accidents, pollution and diseases that can occur in the work environment. Therefore, knowing

about occupational health and safety protection in the work environment is very important (Rubiono & Mukhtar, 2021).

Indonesian workers must be able to compete in the global era with high competence in their fields. Competent Human Resources (HR) are able to apply knowledge to improve the company's competitiveness, both in terms of service quality and operational efficiency. One form of work discipline that needs to be implemented is the implementation of Occupational Health and Safety (K3), including the use of PPE, to reduce the potential for work accidents (Hartono & Sutopo, 2018). Based on the Regulation of the Minister of Manpower Number 03/Men/1996, a work accident is defined as an unexpected event that can cause physical injury or damage to assets, which can occur due to violations of procedures or non-compliance in the use of PPE (Saputro & Solikin, nd).

Mistake Occupational accidents are unintentional events, either caused directly by workers or those that occur in the workplace (Handayani, 2012). Most mechanical accidents are caused by a lack of following existing procedures, and non-compliance by workers in using PPE can also cause work accidents.

Personal Protective Equipment (PPE) is work protection equipment worn by employees to protect their entire body from hazards in the work environment in order to prevent work accidents, (Tawaka 2014: 282). Then according to (Solehudin et al., 2024) the Use of Personal Protective Equipment (PPE) is a method of using special equipment used by police officers to protect themselves from physical harm.

APD includes all clothing and other work equipment that serves to protect against hazards in the work environment. (PPE) must be controlled by mechanics especially in the work environment. (PPE) in the construction industry includes clothing worn by workers in bad weather to protect them from one of the health and safety hazards. Production Safety Law Law No. 1 of 1970 regulates safe production conditions to protect the interests of workers. Employers are required to provide PPE to officers or workers in the workplace. Personal Protective Equipment (PPE) in accordance with the Indonesian National Standard or applicable standards. The safety of workers, machines, equipment and the work environment must be formed professionally. However, sometimes the risk of accidents cannot be fully controlled so that the use of personal protective equipment becomes an obligation. Therefore (PPE) is a last resort, namely the implementation of all technical procedures. accident prevention. Personal Protective Equipment (Abryandoko, 2018).

Practicek Proper K3 is needed to minimize accidents in the workplace, especially at PT Antar Lintas Sumatera (ALS). Therefore, an analysis must be carried out on the level of implementation of PPE facilities, occupational health and safety in order to take future action to reduce work accidents among mechanics at PT Antar Lintas Sumatera (ALS). (Priyono and Harianto 2020).

Occupational health and safety (K3) is an effort to create a healthy and safe working life to reduce the risk of work-related diseases and work accidents Technical activities that have the potential to impact occupational health and safety in the workshop (K3) (Apriliani et al., 2023). Occupational health and safety (K3) according to (Lukmandono, 2017) Conditions and factors that affect or may affect the health and safety of workers (including non-permanent workers), visitors or other people who work with them.

Mensequence (Rian et al., 2018) Handling of equipment and work areas must be adjusted to the performance of existing equipment and machinery, and lines must be installed to limit fence isolation to avoid potentially dangerous areas and machinery. Therefore, it is necessary to understand the problems at PT Antar Lintas Sumatera (ALS) to overcome the existing core issue, namely that awareness and discipline in the use of Personal Protective Equipment (PPE) for mechanics are still low. To minimize the consequences of work accidents, especially for mechanics, the implementation of good occupational health and safety is very important. Therefore, it is necessary to investigate the level of implementation of occupational safety and health facilities in construction work, so that future actions can be taken to reduce work accidents in construction projects (Priyono & Harianto, 2020). It is necessary to know the problems that exist in the PT Antar Lintas Sumatera (ALS) workshop in order to solve the core problems that exist, namely, awareness and compliance with the use of personal protective equipment (PPE) for mechanics is still very low (Aprilliawan & Widowati, 2016)

Safetyn work in the transportation sector, especially in PT, is a very important issue considering the high risks faced by workers, especially mechanics. PT Antar Lintas Sumatera (ALS) as one of the main terminals in Indonesia has a high operational volume, increasing the potential for work accidents. In recent years, there have been a number of incidents involving workers at this terminal, indicating that work safety is still a major challenge. (Suharto, 2020).

According to existing data, accidents at terminals are often caused by the lack of use of Personal Protective Equipment (PPE) by mechanics. For example, tragic incidents involving workers who were injured or even affected by occupational diseases can be attributed to non-compliance with the use of PPE (Wahyudi, 2021). In one incident, a mechanic was seriously injured while working without using appropriate protection while making repairs to a heavy

vehicle. This incident reflects a lack of awareness of the importance of PPE in protecting workers from the risk of injury. (Setiawan, 2022)

APD is designed to protect workers from various hazards, including mechanical accidents, exposure to hazardous chemicals, and ergonomic risks (Hendrawan, 2020). However, even though PPE is available, many mechanics at PT are still reluctant to use it. This can be caused by several factors, such as lack of knowledge about the benefits of PPE, negative attitudes towards its use, and inadequate availability of protective equipment (Nurhadi, 2021). Previous studies have shown that education and training on occupational safety can improve knowledge about the use of PPE (Sari, 2023). However, the implementation of effective training programs remains a challenge.

that, the work environment in PT often does not support the implementation of good occupational safety. Many mechanics work in dense and high-risk conditions without adequate supervision from management (Kusnadi, 2021). Research shows that strict supervision and clear safety policies can improve knowledge of PPE use. However, in many PTs, including ALS, such supervision is often less than optimal.

Considering all these factors, this study aims to analyze the level of knowledge of mechanics on the use of PPE at PT ALS and identify factors that influence this knowledge. It is expected that the results of this study can provide recommendations for terminal management to improve work safety and reduce the risk of accidents in the work environment.

Based on data from the Social Security Administering Agency for Employment (BPJS Ketenagakerjaan), the transportation sector recorded a significant number of work accidents, with many incidents involving workers at PT. These accidents are often caused by the lack of use of Personal Protective Equipment (PPE) by mechanics. PPE is designed to protect workers from various hazards, including physical injury due to mechanical accidents, exposure to hazardous chemicals, and ergonomic risks. Although PPE is available at PT ALS, the level of knowledge of mechanics in using it is still low. This can be seen from the ALS Bus accident data in 2022-2024.

Table 1. ALS Bus Accident Data 2022-2024

Date of Accident	Accident Location
October 28, 2022	Tapsel, North Sumatra,
March 27, 2023	Jonggol Intersection, Sibulele Hamlet, Sibolahotang Village, SAS DistrictBalige, Toba Regency, North Sumatra
December 19, 2023	Trans-Sumatra Highway (Jalinsum) in front of Aek Godang Field, Penyabungan District, Madina Regency, North Sumatra
April 15, 2024	Lambeh Jorong Nyiur Nagari, South Koto Malalak Village, Malalak District, Agam Regency, West Sumatra
April 24, 2024	Palembang toll road to Bakauheni
01 July 2024	Trans-Sumatra Highway (Jalinsum) Km. 18, Jorong Sungai Lomak (Near the Dharmas Indonesia University Campus), Koto Padang Village, Koto Baru District, Dharmasraya, West Sumatra,
July 20, 2024	Singkarak Lake Crossing Road

Through In this study, it is expected that there will be an increase in awareness of the importance of the use of PPE among mechanics as well as efforts to improve occupational safety policies at PT ALS. In addition, this study can also be a reference for further research on occupational safety and the use of PPE in other transportation sectors.

With this background, this study seeks to provide a positive contribution in creating a safer working environment for mechanics at PT Antar Lintas Sumatera (ALS). By considering all these factors, this study aims to analyze the level of knowledge of mechanics on the use of PPE at PT ALS and identify the factors that influence this knowledge. It is expected that the results of this study can provide recommendations for terminal management to improve work safety and reduce the risk of accidents in the work environment.

Research methods

This study uses a quantitative analytical approach with a cross-sectional design, which aims to examine the effect of knowledge and attitudes on the use of Personal Protective Equipment (PPE) on bus mechanics at PT Antar Lintas Sumatera. The study was conducted in the period December 2024–March 2025 at the PT Antar Lintas Sumatera central workshop located on Jl. Sisingamangaraja No.KM.6, Harjosari II, Kec. Medan Amplas, Medan City, North Sumatra.

The type of data used in this study is primary data, where the data is data derived from the results of distributing questionnaires to bus mechanics at PT Antar Lintas Sumatera. After conducting a literature and field review and formulating a hypothesis, the population and sample were 30 respondents.with total sampling technique.

The data analysis method used is multiple regression analysis.To determine the influence or relationship between independent variables (knowledge and attitude) and dependent variables (use of personal protective equipment (PPE)), the multiple linear regression method will be used and data analysis will also use software, the formula is as follows:

$$Y = a + b1X1 + b2X2 + e$$

Hypothesis Testing

t-test (Partial Test)

This test is used to test the significance of each regression coefficient, so that it is known whetherknowledge and attitude have a significant influence on the use of personal protective equipment. According to Rusiadi et al. (2016), to test each independent variable whether there is a positive or significant influence on the dependent variable. The value of the statistical t test will be compared with the value of the t table with a shift error of α = 5%. Then to test the truth of the hypothesis tested with the t test:

F Test (Simultaneous Test)

The simultaneous significance test (F statistic test) basically shows whether all independent or free variables included in the model have a joint influence on the dependent/related variables (Ghozali, 2017).

Coefficient of Determination (R2)

The coefficient of determination (used to determine the extent to which the model can explain the variance in the dependent variable. Between zero and one is the coefficient of determination. A small number indicates that the capacity of the independent variable to explain the dependent variable is very limited. A number close to one can be considered an independent variable that provides almost all the information needed to predict the variation of the dependent variable (Ghozali, 2017).

Research result

Multiple Linear Regression Test

Table 1. Multiple Linear Regression Test Results

Coefficientsa

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-12,649	4,561		-2,773	.010
	Knowledge about PPE	.322	.092	.248	3,518	.002
	Attitudes about PPE	.955	.078	.859	12.188	.000

a. Dependent Variable: Use of PPE

$$Y = -12.649 + 0.322\ X1 + 0.955\ X2$$

1). a = -12.649 or regression constant, which means if there is no independent value of variables X1 (knowledge) and X2 (attitude). In this case X1 and X2 are equal to 0 (zero) then the use of PPE will decrease by 12.649.
2). b1 = 0.322 for the independent variable X1 (Knowledge) which is positive means it has a unidirectional relationship, meaning that every increase of 1 unit will increase the amount of PPE use by 0.322.
3). b2 = 0.955 for the independent variable X2 (Attitude) which is positive means it has a unidirectional relationship, meaning that every increase of 1 unit will increase the amount of PPE use by 0.955.

Hypothesis Test (t-Test)

From the t $value_{table}$with a degree of freedom of 30 - 2 = 28 and a real level of 5% is 2.048. For the knowledge value (X1) the t-count value is 3.518 and the t-table is 2.048 and the Sig value (0.002 <0.05), then knowledge has a positive and significant effect on the use of PPE. For the attitude value (X2) the t-count value is 12.188 and the t-table is 2.048 and the Sig value (0.000 <0.05), then attitude has a positive and significant effect on the use of PPE

F Test Results (Simultaneous)

Table 2. F Test Results

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1801.655	2	900,827	90,179	.000b
	Residual	269,712	27	9.989		
	Total	2071.367	29			

a. Dependent Variable: Use of PPE
b. Predictors: (Constant), Attitude about PPE, Knowledge about PPE

From the ANOVA test, the results obtained that F count is 90.179 with a significance level of 0.000. So F count > F table (90.179 > 3.34) or sig F < 5% (0.000 < 0.05). This means that simultaneously the variables of knowledge and attitude have a significant effect on job satisfaction. With this it can be concluded that the hypothesis of this study can be proven.

Coefficient of Determination

Table 3. Results of Determination Coefficient

Model Summaryb

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,933a	,870	,860	5,27632

a. Predictors: (Constant), Attitude, Knowledge
b. Dependent Variable: Use of PPE

From the results*Adjusted*The R square for the use of PPE was obtained as 0.860, which means that 86.0% of the use of PPE is influenced by variables X1 (Knowledge) and X2 (Attitude) and the remaining 14.0% is determined by other variables.

Discussion

The Influence of Knowledge on the Use of PPE

From the results of the regression test, it was stated that knowledge had a positive and significant effect on the use of PPE. HaThis is in line with Fikra Wahyuni's research (2019) which states that knowledge about the use of personal protective equipment in workers has good knowledge because workers already know about the use of PPE. Likewise, research conducted by Saliha et al. (2018) which states that there is a relationship between knowledge and compliance with the use of PPE in toll road construction workers.

Good knowledge greatly influences the use of Personal Protective Equipment (PPE). The better a person's knowledge of PPE and hazards in the work environment, the more likely they are to use PPE correctly and consistently. Research shows that workers with better K3 knowledge tend to be more compliant in using PPE, which has an impact on reducing the risk of work accidents.Knowledge about PPE, the types of risks involved, how to use it correctly, and the importance of PPE in preventing accidents is crucial. Workers who do not understand the hazards in the workplace or do not know how to use PPE correctly are more likely to ignore or use PPE incorrectly.

The Influence of Attitudes on the Use of PPE

From the results of the regression test, it was stated that attitudes have a positive and significant effect on the use of PPE. HaThis is in line with Fikra Wahyuni's research (2019) which states that the attitude towards the use of PPE among workers is said to be good because workers already understand the use of PPE.

Workers' attitudes towards PPE (Personal Protective Equipment) have a significant influence on the use of PPE. A positive attitude towards PPE will increase compliance and correct use of PPE.Workers who have a positive attitude towards PPE will be more likely to understand the importance of using PPE to protect themselves from hazards in the workplace. They will be more willing to use PPE correctly and completely, thereby reducing the risk of accidents.

Workers' attitudes towards PPE are an important factor that needs to be considered to improve occupational safety and security. Efforts to improve positive attitudes towards PPE, for example through training and counseling, can

help workers be more compliant in using PPE and reduce the risk of work accidents.Likewise, research conducted by Saliha et al. (2018) stated that there is a relationship between attitudes and compliance with the use of PPE among toll road construction workers.

The Influence of Knowledge and Attitudes on the Use of PPE

From the results of the F test, it was found that knowledge and attitude have a positive and significant effect on the use of PPE. HaThis is in line with Fikra Wahyuni's research (2019) which states that knowledge and attitudes about the use of personal protective equipment in workers have good knowledge because workers already know about the use of PPE. Likewise, research conducted by Saliha et al. (2018) which states that there is a relationship between knowledge and attitudes with compliance with the use of PPE in toll road construction workers.

To improve the use of PPE, it is important to provide adequate training and information to workers regarding K3, the right type of PPE, how to use it, and the importance of using PPE. This training can be done through various means, such as formal training, educational materials, or posters explaining the use of PPE.

Conclusion

Based on the research results, it can be concluded that the test results using regression show that knowledgehas a positive and significant effect on the use of PPE by bus mechanics at PT Antar Lintas Sumatera. This is indicated by the t-value of 3.518 and t-table of 2.048 and the Sig value (0.002 <0.05), which means that the results of the study Ha1 are accepted, Ho1 is rejected. Attitude Alsohas a positive and significant effect on the use of PPE in bus mechanics at PT Antar Lintas Sumatera. This is indicated by the t-value of 12.188 and t-table of 2.048 and the Sig value (0.000 <0.05), which means that the results of the study Ha2 are accepted, Ho2 is rejected. Simultaneouslyknowledge and attitudehas a positive and significant effect on the use of PPE in bus mechanics at PT Antar Lintas Sumatera. This is indicated by the value of Fcount> Ftable (90.179> 3.34) or sig F <5% (0.000 <0.05) which means that the results of the study Ha3 are accepted, Ho3 is rejected.

The suggestion in this study is that the Company must be able to provide PPE in accordance with applicable operational standards. The Company is required to tighten supervision of the use of PPE and socialize the regulations on the use of PPE. Workers can remind each other with their colleagues if they do not use PPE while working.

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