THE EFFECT OF AIRPORT PERSONNEL'S KNOWLEDGE OF EMERGENCY FACILITIES ON THE SAFETY OF TERMINAL BUILDING OCCUPANTS AT UPBU CLASS II SULTAN BABULLAH TERNATE

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ABSTRACT

The safety of terminal building occupants is a critical aspect of airport operations, especially in disaster-prone areas such as Ternate. This study aims to determine the influence of airport personnel's knowledge of emergency facilities on the safety of terminal occupants at UPBU Class II Sultan Babullah Ternate.

Using a quantitative approach and descriptive-associative method, data were collected through questionnaires distributed to 46 operational personnel. The Spearman Rank correlation test showed a significant relationship (r = 0.344; sig. = 0.000), while the simple linear regression analysis indicated that personnel knowledge accounted for 11.2% of the variance in occupant safety.

Findings reveal limited technical understanding among personnel and weak coordination during emergency situations. Therefore, enhancing practical training and strengthening internal coordination systems are essential to support risk mitigation efforts within the airport terminal environment..

Keywords: *Personnel Knowledge, Emergency Facilities, Terminal Safety, Airport Operations, Risk Mitigation*

1. INTRODUCTION

The safety of terminal building occupants at airports is a vital aspect in flight operations, especially in disaster-prone areas such as Ternate City. Sultan Babullah Airport which is managed by UPBU Class II is located in zone high risk due to its proximity to the active Mount Dukono and the potential for tornadoes. Catastrophic events such as eruptions that result in ash Volcanic and infrastructure damage due to strong winds are important indicators of the need for an effective emergency response system.

In this context, emergency safety facilities such as light fire extinguishers (APAR), evacuation routes, assembly points, fire alarms, and detector systems will only function optimally if supported by adequate personnel knowledge and preparedness. Lack of understanding of procedures and use of these facilities can hinder the evacuation process and increase the risk for Terminal building residents.

Research Ini aims to assess the extent to which personnel's knowledge of emergency facilities affects the safety of terminal building residents at UPBU Class II Sultan Babullah Ternate. Through a descriptive-associative quantitative approach, the study Ini Analyze the relationship between the variables of personnel knowledge and occupant safety, in the hope of providing a basis for improving internal safety policies.

The results of the research are expected to be able to make a practical contribution in the

form of recommendations to increase the technical capacity of personnel, as well as theoretically enrich the study of risk management in the airport environment, especially in terminal areas in disaster-prone areas. These findings are important to support the implementation of safety systems that rely not only on infrastructure, but also on human resource readiness as the first line of emergency response.

1.1 Problem Formulation

Based on the background that has been described above, the problem is obtained:

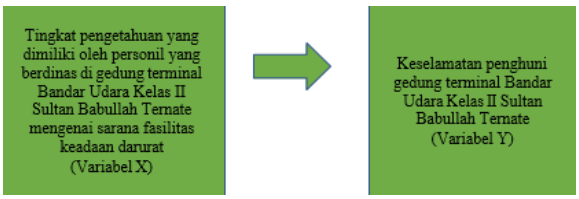
1. What is the level of knowledge of UPBU Class II Sultan Babullah Ternate personnel regarding the emergency response facilities available in the terminal environment?
2. What efforts are being taken to increase the effectiveness of personnel knowledge on the implementation of safety in terminal buildings?

1.2 Research Objectives

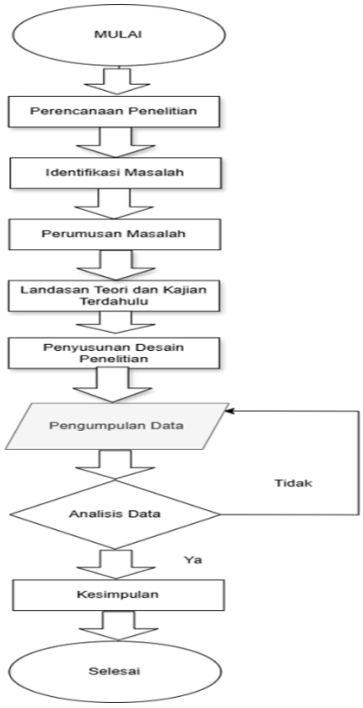
Purpose of the research Ini are as follows:

1. To find out the level of knowledge of UPBU Class II Sultan Babullah Ternate personnel regarding the emergency facilities available in the terminal building area.
2. Increase the effectiveness of knowledge and implementation of safety by personnel at terminal environment, including training, socialization, provision of visual information, and occupational safety management systems that exist.

2. METHOD



Research Ini using a quantitative approach with a descriptive-associative method to analyze the relationship between the level of knowledge of airport personnel towards emergency facilities (variable X) and the safety of terminal building occupants (variable Y) at UPBU Class II Sultan Babullah Ternate. The selection of this approach aims to measure strength and direction relationship between variables statistically and explain the influence that occurs objectively and measurably.



The population in this study is all personnel who are on duty in the terminal area, with a total of 87 people. The sampling technique was carried out probabilistic using the Taro Yamane formula with a precision level of 10%, so that a sample of 46 respondents was obtained. The determination of respondents was focused on personnel who were directly on duty inside the terminal building, such as Aviation Security officers, apron movement control officers, and terminal management staff.

Variables in a study are elements or elements that are set by the researcher as the focus of observation to obtain specific data or information, which will later be analyzed to produce a conclusion (Sugiyono, 2019). The variables analyzed in this study are divided into 2, namely:

The data collection instrument used was in the form of a closed questionnaire with a 5-point Likert scale. The preparation of statement items refers to indicators that have

been determined based on related literature and regulations, such as ICAO Annex 14, Government Regulation No. 36 of 2005, and the Regulation of the Minister of Transportation of the Republic of Indonesia related to airport safety facilities.

The collected data were analyzed using two main statistical techniques:

- Spearman Rank Correlation Test, to measure the relationship between personnel knowledge and occupant safety;
- Simple Linear Regression Test, to find out the magnitude of the influence of variable X on variable Y.

The entire data processing process is carried out with the help of SPSS software version 26, which includes validity, reliability, and basic assumption testing. The research was carried out in the UPBU Class II terminal environment of Sultan Babullah Ternate in the period from January to March 2025.

3. DATA COLLECTION TECHNIQUES

The research location was chosen deliberately (purposive) because when the author carried out On the Job Training in the terminal building of Sultan Babullah Airport, there was a fire incident in the gate area that caused damage even though it was not large. This incident is an important background for research to be conducted in order to contribute to increasing safety awareness and more effective emergency handling.

Data collection is carried out through three methods, namely:

- Questionnaire: Distributed to 46 terminal personnel to measure knowledge of emergency facilities and perceptions of building safety.
- Observation: Observation was carried out directly to answer the formulation of the problem, by describing the emergency facilities at the Sultan Babullah Airport terminal. The results were compared with the provisions in Government Regulation No. 26 of 2008, SNI 03-1746-2000, as well as the Regulation of the Minister of Public Works and Public Works and Government Regulation No. 36 of 2005 Article 59 which regulates the planning and installation of evacuation routes in buildings.

4. DATA ANALYSIS

- The Validity Test is used to find out whether the question items in the questionnaire are really capable of measuring the variables being studied. The instrument is declared valid if the correlation value of the item is greater than the critical value of the r-table.
- The Reliability Test aims to measure the consistency of the instrument. An instrument is considered reliable if it produces stable and consistent results when retested. The size used is Cronbach's Alpha.

$$r_{11=}\left(\frac{k}{(k-1)}\right)\left(1\frac{\sum \sigma b^2}{\sigma t^2}\right)$$

Information:

$r^{11} = reliabilitas\ instrumen$

$k = banyak\ butir\ pernyataan$

$\sum \sigma b^2 = jumlah\ varians\ butir$

$\sigma t^2 = varians\ total$

A questionnaire is declared reliable if Cronbach's Alpha value ≥ 0.70, which indicates the instrument has a sufficient level of reliability. A value above 0.80 indicates that all items in the questionnaire are consistent and reliable tall.

- The Spearman Rank Correlation test is used to see the relationship between two ordinal variables. This test is used when the data does not meet the assumption of normality. The results show whether there is a significant relationship and the direction of its correlation (positive or negative).

The Spearman Rank test is used to measure the degree of relationship between two variables and test the significance of the associative hypothesis. The analysis was carried out using statistical software such as SPSS, with the interpretation of the strength of the relationship based on the value of the resulting correlation coefficient. Data between variables doesn't have to be from the same group. With the following references:

- The Simple Linear Regression Test and the T Test are used to determine the influence of one independent variable on one dependent variable. This analysis produces regression equations that show the direction and magnitude of the influence. Next, a t-test (partial) was carried out to test the significance of the influence. If the significance value < 0.05, then the independent variable has a significant effect on the dependent variable.

5. RESULTS AND DISCUSSION

This research was conducted on 46 personnel who served in the UPBU Class II terminal building Sultan Babullah Ternate, with the aim of assessing how much knowledge about emergency facilities the personnel had and their influence on the safety of the residents of the terminal building.

The research instrument used a Likert scale questionnaire that contained negative statements to avoid social bias, and reverse scoring was carried out in data processing. The analysis was carried out quantitatively using validity, reliability, Spearman Rank correlation, and simple linear regression.

Field findings show that:

- Personnel already have access to emergency facilities such as fire extinguishers, evacuation routes, fire alarms, and gathering points.
- Understanding of the use and function of these facilities is not evenly distributed. Some personnel do not fully understand the location, functions, and procedures of using the facility.
- Evacuation simulations have not been carried out routinely and do not involve all parties in the terminal, including tenants and public service staff.

Coefficient	Category
0,00	No Connection
0,01 – 0,09	Less Relationship
0,10 – 0,29	Weak Relationships
0,30 – 0,49	Moderate Relationship
0,50 – 0,69	Strong Relationships
0,70 – 0,89	A Very Strong Relationship
> 0.90	Near-Perfect Relationships

Validity Test Results

Personnel Knowledge Variable (X)

Based on the test results, the majority of the items in the questionnaire were proven to be valid. The r-table value used as a reference was 0.2907, with a total of 46 respondents (df = 44, α = 5%). From the calculation results, the entire r-calculated value on the statement item of variable X is greater than the r-table. Thus, the variable X questionnaire was declared valid and could be used in the study.

Pernyataan	Rtabel	Rhitung	Keterangan
Tingkat pengetahuan personil yang dimiliki oleh personil yang berdinas di gedung terminal Bandar Udara kelas II Sultan Babullah Ternate			
x.1	0,2907	.513	Valid
x.2	0,2907	.563	Valid
x.3	0,2907	.525	Valid
x.4	0,2907	.542	Valid
x.5	0,2907	.567	Valid
x.6	0,2907	.526	Valid
x.7	0,2907	.590	Valid
x.8	0,2907	.490	Valid
x.9	0,2907	.523	Valid

Terminal Building Occupant Safety Variable (Y)

Pernyataan	Rtabel	rhitung	Keterangan
Keselamatan penghuni gedung terminal Bandar Udara Kelas II Sultan Babullah Ternate			
y.1	0,2907	.807	Valid
y.2	0,2907	.789	Valid
y.3	0,2907	.807	Valid

Based on the table above, it can be seen that the r-count value in each statement item of variable Y (Safety of occupants of the terminal building of Sultan Babullah Class II

Airport) is greater than the R value of the table. Therefore, the questionnaire for variable Y can be declared valid.

Reliability Test Results

No	Variabel	Nilai *Cronbach Alpha*	Keterangan
1	X	.720	Reliabel
2	Y	.719	Reliabel

Based on the results of the calculations that have been carried out, it is known that Cronbach's Alpha value for variable X is 0.720 and for variable Y is 0.719, both of which are above the minimum limit of 0.600. Thus, it can be concluded that the instrument used to measure the variable level of knowledge of airport personnel and the safety variable of the occupants of the terminal building at Sultan Babullah Ternate Class II Airport has good reliability and can be trusted.

Spearman Rank Test Results

The test results showed that the value of the correlation coefficient between the variable of personnel knowledge (X) and occupant safety (Y) was 0.821, which means that there is a strong and positive relationship between the two. A significance value of 0.000 (< 0.05) indicates that this relationship is statistically significant. This means that the better the personnel know about emergency facilities, the higher the level of safety of the terminal building residents.

Bibliography Writing

Correlations

			TOTALX	TOTALY
Spearman's rho	TOTALX	Correlation Coefficient	1.000	.821**
		Sig. (2-tailed)	.	.000
		N	46	46
	TOTALY	Correlation Coefficient	.821**	1.000
		Sig. (2-tailed)	.000	.
		N	46	46

**. Correlation is significant at the 0.01 level (2-tailed).

The Bibliography is a list of written works that the author reads in preparing his article and then uses it as a reference. In scientific articles, the Bibliography must exist as a complement to references and reference source instructions. Bibliography writing follows the rules in this Guidebook.

Results of Simple Linear Regression Test and T Test Results

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	1.514	1.271		1.191	.240
	TOTALX	.344	.038	.806	9.042	.000

a. Dependent Variable: TOTALY

Based on the results of simple linear regression analysis using SPSS, the following regression equations were obtained:

$$Y = 1.514 + 0.344X$$

A constant value of 1.514 indicates that if there is no increase in variable X (personnel knowledge), then the value of variable Y (occupant safety) remains at 1.514. The regression coefficient of 0.344 indicates that every one unit increase in the knowledge variable will increase the safety value by 0.344 units. Since the coefficient is positive, the relationship between the X and Y variables is unidirectional: the higher the knowledge of personnel, the higher the level of safety of the occupants of the terminal building.

The results of the t-test showed a t-calculated value of 9.042, greater than the t-table (1.67866) with a significance value of 0.000 < 0.05, which means that variable X has a significant effect on variable Y. With a correlation coefficient value of 0.806, it can be concluded that the influence of variable X on Y is included in the category of strong and statistically significant.

Discussion

The results of the study showed that personnel knowledge of emergency facilities had a strong and significant relationship with the safety of terminal building occupants. The Spearman Rank correlation test yielded a value of 0.821 (significant at $p < 0.05$), which indicates that the higher the personnel knowledge, the higher the level of safety.

Result test a simple linear regression shows the equation Y = 1.514 + 0.344X,

which means that every one unit increase in knowledge will increase safety by 0.344 units. The t-test yielded a t-count value = 9.042 > t-table = 1.67866, with a significance of 0.000, which reinforces that the influence of knowledge is statistically significant.

These findings show that improving personnel knowledge through training and simulation is essential to create a safe terminal environment. The results of this study also support safety regulations such as Government Regulation No. 36 of 2005 and SNI 03-1746-2000, which emphasize the importance of understanding emergency facilities for the safety of building occupants.

CLOSING

Conclusion

- Based on the results of data processing on 46 operational personnel at the UPBU Class II terminal building in Sultan Babullah Ternate, it is known that the level of knowledge of personnel about emergency facilities is still low. Although all questionnaire items were declared valid and reliable, many personnel did not understand the procedures and functions of facilities such as fire extinguishers, evacuation routes, alarm systems, and evacuation gathering points.
- The results of the Spearman Rank correlation test showed a strong and significant relationship between personnel knowledge and the safety of terminal building occupants (r = 0.821; sig. 0.000). A simple linear regression test showed that knowledge contributed 34.4% to safety. This means that increasing knowledge has a real impact on creating a safer terminal environment. Because that, periodic training, simulation, and provision of safety information media need to be improved.
- The high score on the X2 variable shows that many personnel do not understand the technicalities of using emergency facilities such as fire extinguishers and evacuation routes. Thing This indicates that practical training is not optimal and can hinder a quick response when an incident occurs. Therefore, direct technical training needs to be a priority in the safety program.
- The statement on the Y11 variable shows that coordination and communication between work units during emergencies is still weak. This can slow down the evacuation process and reduce the effectiveness of incident handling. Improving the internal communication and coordination system is an important aspect in supporting preparedness at terminal environment.

Suggestion

- Improve routine training and socialization for all personnel regarding the use of emergency facilities, including technical aspects, SOPs, and realistic evacuation simulations.
- Strengthen supporting facilities such as evacuation routes, early warning systems, and integration of safety systems with external agencies such as fire brigades and emergency medical.
- Conduct periodic internal safety audits to assess personnel readiness and facility feasibility, as well as identify potential risks early on.
- Involve all terminal occupants—including tenants, general staff, and service users—in a safety awareness

enhancement program through simulation and visual socialization.

- Develop clear and easy-to-understand emergency communication protocols, as well as conduct integrated simulations between Unit to improve coordination and response in times of emergency.

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