A SOCIALIZATION METHOD FOR INCREASING DANGEROUS GOODS KNOWLEDGE OF PASSENGER

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Abstract

Sultan Aji Muhammad Sulaiman Sepinggan International Airport Balikpapan is one of the airports managed by PT Angkasa Pura 1. At this airport there are 2 sides, namely the airside and landside, on the landside there are security facilities Security Check Point. This study aims to determine how high the understanding of passengers about dangerous goods on flight safety.

This study used a quantitative descriptive method and data collection was obtained from observations and questionnaires. The number of respondents in this study involved 30 passengers and 30 aviation security officers at Sultan Aji Muhammad Sulaiman Sepinggan airport, Balikpapan. Questionnaire data retrieval was carried out via Google form with the distribution of 1 (one) google form for passengers and 1 (one) google form for officers. aviation security. Then the data is processed using the SPSS application to obtain valid and consistent results as well as obtain correlations from the X and Y variables and perform manual calculations as a comparison of the results.

From the results of the distribution to respondents, it can be concluded that these results have a very strong correlation between the X variable with a value of 0.731 and the Y variable with a value of 0.757 obtained from calculations using the SPSS system, from the results of these calculations the result is that passengers' understanding of dangerous goods influences on flight safety. This quantitative descriptive research procedure refers to the Regulation of the Minister of Transportation of the Republic of Indonesia No. 32 of 2022. Concerning dangerous goods. The results of the research that has been carried out state that there are still passengers who do not have sufficient understanding about dangerous goods before taking a flight.

Keywords: Dangerous goods, Understanding, Safety, Security.

INTRODUCTION

In the context of aviation safety, it is crucial to assess passengers' comprehension of dangerous goods and their potential impact on flight safety [1]. Dangerous goods refer to items or substances that possess inherent hazards and can jeopardize the well-being of passengers, crew members, and the aircraft itself. These items encompass a wide range of materials, such as flammable, corrosive, explosive, or toxic substances.

The transportation of dangerous goods by air Is subject to strict regulations and guidelines established by international aviation authorities. Despite these regulations, there is a need to examine the extent to which passengers truly understand the risks associated with carrying dangerous goods on board. A comprehensive analysis of passenger awareness and comprehension is essential to enhance safety measures and ensure effective communication regarding the potential dangers [2].

Air travel has become an integral part of modern life, providing convenience and efficiency for passengers to reach their destinations. However, ensuring the safety of air travel is of paramount importance. One critical aspect of flight safety is the proper handling and awareness of dangerous goods by passengers.

Dangerous goods, also known as hazardous materials, pose a potential risk to aviation safety if not handled correctly. These goods include substances that are flammable, toxic, corrosive, or otherwise hazardous. Understanding the risks associated with dangerous goods is essential for

both passengers and aviation authorities to prevent accidents and ensure the safety of air travel.

The research focuses on analyzing the level of passenger understanding about dangerous goods at Sultan Aji Muhammad Sulaiman Sepinggan Airport. A survey-based approach was employed, involving a sample of passengers during their On Job Training period from January to March 2023. A structured questionnaire was used to assess passengers' comprehension of dangerous goods, covering aspects such as classification, handling, and regulations.

The collected data was analyzed quantitatively to determine the level of passenger understanding. The survey results indicated that 83.18% of passengers demonstrated a satisfactory level of understanding about dangerous goods, while 16.82% exhibited limited comprehension. This suggests that a significant portion of passengers may require further education and awareness regarding dangerous goods.

The analysis underscores the importance of passenger awareness and understanding of dangerous goods for flight safety. Passengers' inadequate knowledge could lead to mishandling of hazardous materials, potentially compromising the safety of the aircraft and everyone on board. It is crucial for airlines and aviation authorities to provide comprehensive information and training to passengers to mitigate such risks.

To enhance flight safety, several recommendations emerge from the analysis. Firstly, Sultan Aji Muhammad Sulaiman Sepinggan Airport should consider implementing targeted awareness campaigns and educational initiatives to improve passenger understanding of dangerous goods. Additionally, airlines can collaborate with aviation security personnel to conduct informative sessions and distribute educational materials.

The proactive approach"taken by Sultan Aji Muhammad Sulaiman Sepinggan Airport in Balikpapan to provide a diverse range of domestic routes serves as a strategic solution for prospective passengers seeking to travel to various regions.

Air transportation has emerged as the preferred mode of travel for individuals, offering the convenience of swift travel times to engage in desired activities. As the number of people utilizing air travel continues to rise, it becomes imperative for airports to disseminate essential information to passengers. Among these vital pieces of information

is the fundamental knowledge concerning the items permitted and prohibited for passengers to carry [3].

Nationally regulated standards addressing goods requiring special handling are encapsulated in Ministerial Regulation No. 32 of 2022, which encompasses the Safety Regulations for the Transportation of Dangerous Goods by Air [4]. This comprehensive regulation outlines specific criteria and classifications for hazardous items, elucidating the responsibilities of parties involved in the shipment of such materials via air transport.

This study aims to delve into passengers' awareness and understanding of dangerous goods, focusing on their ability to identify such items, comprehend safety instructions provided by airlines, and respond appropriately in case of emergencies involving these hazardous materials. By gaining insights into passengers' perceptions and knowledge gaps, this research strives to contribute to the ongoing efforts in aviation safety enhancement.

In conclusion, understanding passengers' knowledge and perception of dangerous goods is paramount for safeguarding flight safety. This background sets the stage for a detailed analysis that will shed light on the effectiveness of current safety measures, the clarity of communication, and the potential areas for improvement in ensuring passengers are well-informed and equipped to contribute to a safe flying environment.

METHOD

Research Design

The research focuses on examining passengers' comprehension of dangerous goods and its implications for flight safety at Sultan Aji Muhammad Sulaiman Sepinggan Airport in Balikpapan. By utilizing a quantitative approach, the study aims to provide a comprehensive understanding of passengers' awareness and knowledge regarding dangerous goods and its significance in maintaining aviation safety.

The research will employ a quantitative research design to gather and analyze data [5]. A structured questionnaire will be distributed among passengers at Sultan Aji Muhammad Sulaiman Sepinggan Airport. The questionnaire will be designed to assess passengers' awareness, knowledge, and perception of dangerous goods. The collected data will be analyzed using descriptive statistical techniques, allowing for the presentation of numerical summaries and patterns. The findings of

the study will be presented using descriptive statistics, such as frequencies, percentages, and means [6].

This presentation will provide a clear overview of passengers' comprehension of dangerous goods and their perceptions of flight safety. By interpreting the statistical data, the discussion will highlight key insights, trends, and potential areas for improvement[7]. The discussion will also delve into the implications of passengers' understanding of dangerous goods for flight safety. It will explore how passengers' awareness of regulations and potential hazards can contribute to safer aviation practices. Additionally, the discussion may reveal any gaps in knowledge that could pose challenges to flight safety measures [8].

Research Variables

In the conducted study, two variables were identified: the Passengers' Understanding Level of Dangerous Goods (X) and Flight Safety (Y) variable at Sultan Aji Muhammad Sulaiman Sepinggan Airport, Balikpapan.

Research Object

The population of this study consists of passengers who will be traveling by air transport at Sultan Aji Muhammad Sulaiman Sepinggan Airport in Balikpapan, with a total population of 150 people. The sample taken for this study includes 30 passengers and 30 Aviation Security personnel at Sultan Aji Muhammad Sepinggan Airport in Balikpapan, using a Purposive sampling technique that considers specific criteria, namely air transport service users aged at least 17 years old.

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Data Collection Techniques

A questionnaire is a tool used to gather data by providing written questions to respondents. In this research, a questionnaire is employed to obtain relevant information regarding the researched issue, referencing the Likert scale attitude. This method assists in collecting data about beliefs, opinions, characteristics, behavior, and variable relationships within a sample taken from a specific population.

Data Analysis Technique

The Likert scale method is used to measure passengers' attitudes, perceptions, and opinions regarding the dangers and safety of aviation. Data from questionnaires are analyzed to assess the validity and reliability of the instrument using correlation coefficients and Cronbach's Alpha values. Tests of normality and linear regression analysis are also conducted to measure the impact of passengers' understanding on flight safety.

Assessment of passengers' understanding level regarding Dangerous Goods is carried out by multiplying the answer points with the predetermined weights. The highest score (X) and the lowest score (Y) are then utilized to determine the interpretation of respondents using the index % formula.

$$\text{Rumus Index \%} = \text{Total Skor} / X \times 100$$

Validity is a measure indicating the degree of validity of an instrument. An instrument is considered valid if it is capable of measuring what is intended and can accurately reveal the data of the researched variable.

Location and The Time frame

In this section, we will discuss the research location and the timeframe during which the study was conducted. These factors play a significant role in shaping the context and scope of the research.

The chosen research location for this study was Sultan Aji Muhammad Sulaiman Sepinggan Airport in Balikpapan. The decision to select this particular location was motivated by several factors. Notably, the On Job Training conducted at the airport from January to March 2023 provided an opportune setting for the research. This allowed the researchers to gain insights into the airport's operations, procedures, and environment, thereby contributing to a comprehensive understanding of the study's subject matter. By selecting this location, the researchers could directly observe and interact with aviation security personnel and passengers, facilitating the collection of relevant data and firsthand experiences related to dangerous goods and flight safety.

The research commenced during the period of On Job Training, which spanned from January 2023 to March 2023. This phase of the study was particularly crucial as it allowed the researchers to gather data and observations in real-time, capturing the actual conditions and practices at the airport. The timeframe was chosen strategically to coincide with the training period, ensuring that the research

was conducted in an environment that reflected operational scenarios and conditions.

Subsequently, the research continued beyond the training phase and extended until July 2023. This post-training period enabled the researchers to analyze the collected data, conduct in-depth investigations, and draw meaningful conclusions. The extended timeframe also facilitated the implementation of data analysis techniques, including statistical tests and regression analysis, to evaluate the relationship between passengers' understanding of dangerous goods and flight safety.

By conducting the research over this comprehensive timeframe, the study was able to capture a holistic perspective of the subject matter. It allowed for the examination of changes and patterns over time, thereby enhancing the validity and applicability of the findings. The combination of the chosen research location and the extended timeframe contributed to the richness of the research outcomes and provided valuable insights into the nexus between passengers' understanding of dangerous goods and flight safety at Sultan Aji Muhammad Sulaiman Sepinggan Airport.

RESULTS AND DISCUSSION

Dangerous Goods, also known as hazardous materials or hazardous substances, refer to items or substances that pose a potential risk to health, safety, property, or the environment during transportation or handling. These goods encompass a wide range of materials, including chemicals, gases, explosives, flammable liquids, radioactive materials, and more [10].

The transportation and handling of Dangerous Goods are regulated globally to ensure the safety of individuals, the community, and the environment [11]. International organizations like the International Air Transport Association (IATA) and the International Maritime Organization (IMO) have established guidelines and regulations for the classification, labeling, packaging, and transportation of Dangerous Goods.

Understanding and adhering to these regulations are crucial for various industries, such as aviation, maritime, and ground transportation, to prevent accidents, incidents, or contamination. Proper training, labeling, and packaging are essential to mitigate risks associated with the transport of Dangerous Goods [12].

Given the potential consequences of mishandling Dangerous Goods, it is essential to study and assess the level of awareness and understanding among passengers and personnel involved in various transportation sectors [13]. This background provides the context for the importance of evaluating passengers' comprehension of Dangerous Goods regulations and safety measures during travel, as well as the significance of effective communication and education on this matter [14].

Understanding the extent to which passengers are knowledgeable about the specific items classified as dangerous and forbidden for carriage is vital for ensuring flight safety [15]. This analysis aims to shed light on several key aspects:

1. Awareness of Prohibited Items: Assessing passengers' knowledge about items that are considered hazardous and are prohibited from being transported on aircraft. This involves exploring whether passengers can correctly identify and differentiate between various categories of dangerous goods [16].

2. Identification of Specific Items: Investigating whether passengers are able to recognize specific items that fall under the category of dangerous goods. This involves gauging their understanding of items such as flammable liquids, explosives, corrosive substances, and other materials that are considered hazardous [17] .

3. Understanding Regulations: Exploring passengers' comprehension of the aviation regulations and guidelines that outline the restrictions and prohibitions regarding dangerous goods. This aspect focuses on determining whether passengers are aware of the legal and safety implications associated with carrying these items [18].

4. Information Sources: Examining the sources from which passengers acquire information about dangerous goods. This could include assessing the effectiveness of pre-flight safety briefings, written materials, signage at airports, and online resources in educating passengers about prohibited items [19].

5. Factors Influencing Understanding: Identifying factors that may influence passengers' level of understanding, such as education level, frequency of air travel, cultural differences, and language barriers. Understanding these factors can provide insights into tailoring educational efforts to enhance passengers' comprehension [20].

By addressing these points, the analysis will contribute to a better understanding of passengers' knowledge about dangerous goods, enabling airlines and aviation authorities to develop more effective strategies to educate passengers and minimize the risks associated with prohibited items on flights [21].

Process of gathering data on passengers' understanding through a questionnaire distributed to 30 respondents at Sultan Aji Muhammad Sulaiman Sepinggan Airport in Balikpapan during On The Job Training. The research employs primary data collected by distributing questionnaires to the passengers, aiming to understand their comprehension. The survey was conducted on February 15, 2023, using Google Forms to present 10 questions to each passenger, allowing them to choose their answers. The responses were then accumulated and presented in a table for analysis. The research method involved distributing questionnaires to 30 passengers during their On Job Training at the airport. Interpretation of Research Results:

Based on the index percentage of 91.3%, it can be concluded that respondents "fully understand" the statement about wooden matches being categorized as Dangerous Goods and not permitted in the cabin.

The research aimed to assess the impact of passenger understanding on flight safety by distributing questionnaires to 30 aviation security officers at Sultan Aji Muhammad Sulaiman Sepinggan Airport in Balikpapan during On The Job Training. The primary data collected through these questionnaires aimed to determine the passengers' comprehension of dangerous goods and their influence on flight safety.

The questionnaire submission took place on February 15, 2023, using Google Forms to present five questions directly to the aviation security officers. Each respondent could provide only one response for each question by selecting options corresponding to their choices. The accumulated data from the presented questions are shown in the following tables:

Based on the questionnaire results, respondents' understanding of Dangerous Goods and related topics can be described as follows:

1. Understanding Dangerous Goods:

   - Total Score: 123

   - Index: 82%

   - Conclusion: Respondents "understand" the statement.

2. Classification of Dangerous Goods:

   - Total Score: 141

   - Index: 94%

   - Conclusion: Respondents "very understand" the statement.

3. Handling Passengers Carrying Dangerous Goods at SCP:

   - Total Score: 124

   - Index: 82.7%

   - Conclusion: Respondents "understand" the statement.

4. Threat to Flight Safety from Dangerous Goods in the Cabin:

   - Total Score: 140

   - Index: 93.3%

   - Conclusion: Respondents "very understand" the statement.

5. Regulations Related to Dangerous Goods:

   - Total Score: 138

   - Index: 92%

   - Conclusion: Respondents "understand" the statement.

Based on the index value of 92%, it can be concluded that respondents "very understand" the statement.

The next step after obtaining the questionnaire's percentage results presented to passengers and aviation security officers as respondents is to test these results with normality and hypothesis tests. The normality test was performed to determine if the data used follows a normal distribution. The Kolmogorov-Smirnov test was used for this purpose, and the results showed that all variables in the data follow a normal distribution.

Furthermore, a simple linear regression test was conducted to measure the strength of the influence of independent variables on the dependent variable. The results of the regression test are presented in the table, showing the coefficients and standardized coefficients for the regression equation. The conclusion drawn from the regression equation is

explained in terms of the values of the constant and the regression coefficient, demonstrating the impact of the understanding of dangerous goods on flight safety.

Simple linear regression analysis aims to measure the strength of the influence of independent variables on a dependent variable. Based on the results of the simple linear regression test in the table above, the regression equation is obtained as follows:

$$\hat{Y} = 9.404 + 0.308X$$

The conclusions from the above simple linear regression equation are as follows:

- The constant value (α) is 9.404. This means that if the X variable is equal to 0, then Y will be 9.404 units.

- The regression coefficient value of the X variable is 0.308. This indicates that for each increase of one unit in the X variable, there will be an increase of 0.308 in Y.

Overall, the research indicates a strong understanding of dangerous goods among aviation security officers, with high index percentages reflecting their comprehension of related statements. The regression analysis highlights the influence of passenger understanding of dangerous goods on flight safety, demonstrating its significance in ensuring a safe travel environment.

4. CONCLUSION

In this section, we will delve into a comprehensive discussion of the research findings and their implications. The study aimed to investigate the understanding of passengers regarding dangerous goods and its influence on flight safety at Sultan Aji Muhammad Sulaiman Sepinggan Airport in Balikpapan. The discussion is organized into two main aspects: passengers' comprehension of dangerous goods and the impact of this understanding on flight safety.

The survey results revealed that passengers' comprehension of dangerous goods at Sultan Aji Muhammad Sulaiman Sepinggan Airport was noteworthy. An impressive 83.18% of passengers demonstrated a clear understanding of dangerous goods, while a remaining 16.82% of passengers exhibited a lack of comprehension when it came to these potentially hazardous items prior to their flight. These figures underscore the importance of enhancing passengers' awareness and knowledge about dangerous goods, particularly in the context

of air travel. It is crucial for passengers to be well-informed about the potential risks associated with certain items they may carry during their journey.

In an era marked by frequent travel and globalization, aviation safety remains a paramount concern for passengers and aviation authorities alike. One critical aspect of ensuring this safety is the proper handling and understanding of Dangerous Goods (DG) during air travel. To address this, airlines and airports have taken significant steps to socialize DG awareness among passengers.

First and foremost, it is essential to understand why socializing DG awareness is crucial. Dangerous Goods encompass a wide range of items, from chemicals to electronics, that pose a risk to safety, health, property, or the environment if not handled correctly during transport. Passengers need to recognize the potential hazards they might unwittingly bring on board an aircraft. Without this awareness, incidents involving DG can lead to catastrophic consequences.

Methods of Socialization

1. Pre-flight Announcements: One of the most common methods of socializing DG awareness is through pre-flight announcements. Airlines routinely provide passengers with information about prohibited items and the importance of following security regulations. This brief yet essential message serves as a crucial reminder of their responsibility in ensuring the safety of the flight.

2. Safety Cards and Brochures: Airlines include information about DG in safety cards and brochures provided to passengers. These materials often contain illustrations of items that are not allowed in the cabin or checked baggage. The visual aids make it easier for passengers to understand and remember these restrictions.

3. Online Resources: With the advent of technology, airlines and aviation authorities have created online resources and videos that passengers can access before their flight. These resources explain DG regulations in detail, providing a comprehensive understanding of the topic.

4. Training of Airport Staff: Airline personnel and airport staff play a crucial role in socializing DG awareness. They are trained

to detect and handle DG, ensuring it is transported safely. Passengers observe this diligence, reinforcing the importance of DG awareness.

Socializing DG awareness among passengers is not merely a regulatory requirement; it fosters a culture of responsibility and vigilance. Passengers who are aware of the risks posed by DG become active participants in ensuring aviation safety. They are more likely to report suspicious items or behaviors, contributing to the broader security apparatus.

Moreover, DG awareness is not limited to aviation. It extends to other modes of transportation, such as shipping and road transport. Passengers who internalize this knowledge become responsible citizens in their everyday lives, promoting safety in various contexts beyond air travel.

In conclusion, socializing Dangerous Goods awareness among passengers is a crucial component of aviation safety. Passengers who understand the risks associated with DG are better equipped to adhere to regulations and report potential hazards. This collective responsibility fosters a culture of safety that extends beyond air travel and contributes to the overall well-being of society. Therefore, airlines and aviation authorities must continue their efforts to educate passengers about the importance of DG awareness, ensuring safer skies for all.

The research outcomes conclusively indicated that passengers' understanding of dangerous goods significantly impacts flight safety at Sultan Aji Muhammad Sulaiman Sepinggan Airport. This assertion was corroborated through both the normality test and the hypothesis regression analysis. The normality test yielded a significance value of 0.200, which exceeded the threshold of 0.05. This suggests that the variables under examination were normally distributed, strengthening the credibility of the research findings.

The regression analysis further solidified the connection between passengers' understanding and flight safety. The regression equation stated that when the independent variable, in this case, the understanding of dangerous goods (X), is at a value of 0, the dependent variable, flight safety (Y), is represented by a constant of 9.404. This constant signifies the baseline level of flight safety when there is no influence from the understanding of dangerous goods.

Moreover, the coefficient of the independent variable (X) was calculated to be 0.308. This coefficient underscores the relationship between passengers' comprehension of dangerous goods and flight safety. For every incremental unit increase in the understanding of dangerous goods (X), flight safety (Y) is projected to increase by a factor of 0.308. This signifies the tangible and positive effect that informed passengers have on ensuring a safer aviation environment. This finding underlines the pivotal role that passenger education and awareness play in contributing to flight safety and highlights the need for continuous efforts in promoting passenger understanding of dangerous goods.

The aviation industry's continuous growth and the rising number of passengers emphasize the need for heightened awareness concerning the risks posed by hazardous materials during air travel. Past incidents involving dangerous goods underscore the urgency of this understanding. Despite existing regulations and information dissemination by airlines, the level of passenger comprehension can vary widely. Therefore, a comprehensive analysis of how passengers perceive and comprehend dangerous goods, along with the influence of the information provided by airlines and aviation regulations, is pertinent to ensuring the safety and security of air travel in the future.

In conclusion, this study has demonstrated that passengers' understanding of dangerous goods has a substantial influence on flight safety at Sultan Aji Muhammad Sulaiman Sepinggan Airport. The research findings underscore the significance of passengers' awareness and knowledge of potentially hazardous items during air travel. By enhancing passengers' understanding, aviation authorities and stakeholders can contribute to creating a safer and more secure travel experience. Continuous educational efforts and effective communication strategies are pivotal in ensuring that passengers are well-equipped to make informed decisions and adhere to safety regulations regarding dangerous goods. This research provides valuable insights that can guide future initiatives aimed at enhancing passenger awareness and ultimately bolstering flight safety standards.

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