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Impact of Duty Briefing on Aviation Safety Services at AirNav Indonesia Palembang Branch

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Abstract

Safety is a fundamental principle that cannot be compromised in air navigation services, as it represents the highest priority in every operational aspect. Air Traffic Controllers (ATC) play a crucial role in preventing aircraft collisions, avoiding obstacles, and ensuring overall operational safety. Therefore, the proper execution of ATC duties in accordance with standard procedures is essential. This study aims to analyze the effect of duty briefing on aviation safety services at Perum LPPNPI Palembang Branch. A quantitative research method was employed, with data collected through structured questionnaires distributed to ATC personnel. The research sample consisted of 50 respondents, and the data were analyzed using Statistical Package for Social Science (SPSS) version 26. Instrument testing showed that all questionnaire items were valid and reliable. The analysis results indicate a positive and significant relationship between duty briefing and aviation safety services, with duty briefing contributing substantially to the improvement of safety performance. The findings demonstrate that effective and consistent duty briefing enhances situational awareness, coordination among operational units, and the accuracy of safety-related information. This study concludes that duty briefing has a significant influence on aviation safety services at Perum LPPNPI Palembang Branch and should be maintained and optimized as a key element of safety communication within the Safety Management System.

Keywords: Duty Briefing, Aviation Safety Services, Air Traffic Controller, Safety Communication, Lppnpi

INTRODUCTION

In the aviation industry, safety is not only a reflection of compliance with technical standards and regulations but also a primary indicator of system reliability and professional performance among aviation stakeholders. Therefore, safety must remain the highest priority for all parties involved, including airlines, Air Navigation Service Providers (ANSP), civil aviation authorities, and Air Traffic Services (ATS) personnel, particularly Air Traffic Controllers (ATC). Aviation safety is a fundamental principle that cannot be compromised, as all operational procedures, equipment, and human resources must be continuously oriented toward accident prevention.

Operationally, aviation safety is achieved through the integration of hardware, software, operational procedures, and human resource competence. Among these elements, Air Traffic Services (ATS) play a critical role in ensuring safe, orderly, and efficient air traffic flow. ATC personnel are responsible for preventing aircraft collisions, maintaining safe separation, and ensuring the continuity of air traffic operations. Given the safety-critical nature of ATC duties, accurate, timely, and consistent information exchange among operational units is essential.

One internal mechanism designed to ensure shared situational awareness before duty execution is duty briefing, a short pre-shift meeting conducted to deliver essential operational information such as weather conditions, equipment status, NOTAM updates, procedural changes, and safety issues. Duty briefing is recognized as a strategic tool for enhancing situational awareness and coordination among ATS units. According to ICAO Doc 9859, duty briefing constitutes a key element of Safety Promotion within the Safety Management System (SMS), serving as a form of safety communication aimed at disseminating critical safety information and fostering a positive safety culture (ICAO, 2018).

In Indonesia, the importance of effective safety communication is further emphasized in Advisory Circular (AC) 19-06 issued by the Directorate General of Civil Aviation, which requires air navigation service providers to implement structured safety communication strategies, including briefings. However, operational observations at Perum LPPNPI Palembang Branch indicate that the implementation of duty briefing has not always been consistent, particularly following operational adjustments during and after the COVID-19 pandemic. The shift from structured face-to-face briefings to informal or digital communication channels has raised concerns regarding information completeness, consistency of understanding, and coordination effectiveness among personnel.

Several instances of miscommunication related to NOTAM dissemination, slot changes, and transfer of duty procedures have been observed, highlighting the potential impact of suboptimal duty briefing on aviation safety services. As service quality is closely linked to safety performance, inconsistencies in briefing practices may negatively affect situational awareness and operational safety. Therefore, an empirical assessment of the influence of duty briefing on aviation safety services is necessary to support improvements in operational communication and safety performance at Perum LPPNPI Palembang Branch.

Based on the background described above, the research problem of this study is formulated as follows: How does duty briefing influence aviation safety services at Perum LPPNPI Palembang Branch? In accordance with the research problem, the objective of this study is: To analyze the influence of duty briefing on aviation safety services at Perum LPPNPI Palembang Branch.

RESEARCH METHODS

Research Design and Approach

This study employed a quantitative research approach with an explanatory design to examine the influence of duty briefing on aviation safety services at Perum LPPNPI Palembang Branch. The quantitative approach was selected because the research aims to analyze relationships between variables that can be measured numerically and evaluated through statistical procedures. According to Sugiyono (2020), quantitative research is suitable for testing hypotheses and identifying the strength and direction of relationships between variables based on empirical data. The explanatory design was applied to explain how duty briefing practices contribute to aviation safety service performance in an operational air traffic control environment.

Research Location and Context

The research was conducted at Perum LPPNPI (AirNav Indonesia) Palembang Branch, an air navigation service provider responsible for managing air traffic services within its designated airspace. The Palembang Branch operates in a dynamic operational environment, handling domestic and international flights, and plays a strategic role in ensuring safe, orderly, and efficient air traffic flow. The complexity of operations at this branch makes it an appropriate setting for examining the role of duty briefing as a safety communication mechanism.

Population and Sampling Technique

The population of this study consisted of all Air Traffic Controller (ATC) personnel working at Perum LPPNPI Palembang Branch. ATCs were selected as the population because they are directly involved in operational decision-making and safety-critical activities. To determine the research sample, this study applied a sampling technique based on the Isaac and Michael formula, which is commonly used in quantitative research to obtain a representative sample from a known population size (Sugiyono, 2020). Based on this approach, a total of 50

ATC personnel were selected as respondents. This sampling technique was chosen to ensure that the sample adequately represented the population and to minimize sampling bias.

Research Variables and Operational Definitions

Two main variables were examined in this study. The independent variable (X) was duty briefing, defined as a structured pre-duty communication activity conducted to deliver essential operational and safety-related information, including weather conditions, NOTAM updates, runway and equipment status, procedural changes, staffing conditions, and safety issues. Duty briefing aims to establish shared situational awareness among personnel before assuming operational duties (ICAO, 2018).

The dependent variable (Y) was aviation safety services, defined as the capability of air traffic services to support safe, orderly, and efficient flight operations through accurate information delivery, procedural compliance, effective coordination, and risk management. This definition aligns with ICAO Doc 4444 on Air Traffic Management and ICAO Doc 9859 on Safety Management Manual.

Research Instruments and Materials

The primary research instrument used in this study was a structured questionnaire developed based on indicators derived from ICAO standards, national aviation regulations, and previous empirical studies. The questionnaire consisted of statements designed to measure respondents' perceptions of duty briefing implementation and aviation safety services. Responses were measured using a Likert scale, ranging from strongly disagree to strongly agree, to capture variations in perception and experience (Sugiyono, 2020).

Before data analysis, the questionnaire was subjected to instrument testing, including validity and reliability tests, to ensure that the instrument accurately and consistently measured the intended variables. Supporting materials included ICAO documents, national regulations, AirNav Indonesia internal procedures, and relevant literature on safety communication and air traffic services.

Data Collection Techniques

Data collection was conducted using a survey method, in which questionnaires were distributed directly to ATC personnel. The survey method was chosen because it allows efficient collection of data from a relatively large number of respondents within a limited time frame. In addition to questionnaires, document review was conducted to support the research context, including the review of operational manuals, safety policies, and safety management documentation related to duty briefing and aviation safety services.

Data Analysis Techniques and Statistical Model

Data analysis was performed using SPSS version 26. The analysis process began with descriptive statistical analysis to describe respondent characteristics and provide an overview of duty briefing and aviation safety service conditions. Instrument quality was evaluated through validity testing, using item correlation analysis, and reliability testing, using Cronbach's Alpha coefficients.

Prior to hypothesis testing, normality and linearity tests were conducted to ensure that the data met the assumptions required for further analysis. To examine the relationship between duty briefing and aviation safety services, correlation analysis was applied. Furthermore, simple linear regression analysis was used to assess the contribution of duty briefing to aviation safety services. Hypothesis testing was conducted at a 5% significance level, following standard quantitative research procedures. These statistical methods are well established and widely used in quantitative studies; therefore, only their names and purposes are presented without extensive formula exposition (Sugiyono, 2020).

RESULTS AND DISCUSSION

This study examines the influence of duty briefing on aviation safety services at Perum LPPNPI Palembang Branch. Data were collected from 50 Air Traffic Controller (ATC) personnel who are directly involved in operational air traffic services. The results and discussion are presented in an integrated format to provide a comprehensive interpretation of empirical findings within the context of safety-critical air traffic control operations.

Respondent Characteristics

The demographic profile of respondents indicates variation in gender, age, and educational background, reflecting the actual composition of ATC personnel at Perum LPPNPI Palembang Branch. This diversity provides a relevant basis for analyzing the effectiveness of duty briefing across different operational and experiential backgrounds.

Table 1. Respondent Demographic Profile

Characteristic	Category	Description
Gender	Male / Female	Majority male
Education	Diploma / Bachelor	Diploma dominant

The diversity in respondent characteristics highlights the importance of a structured communication mechanism, such as duty briefing, to ensure uniform situational awareness and shared operational understanding among personnel.

Duty Briefing Implementation

Duty briefing was measured through indicators related to coordination among operational units, consistency of information delivery, clarity of operational priorities, updates on weather, NOTAM, equipment status, and perceived readiness before duty. The descriptive analysis shows that the duty briefing variable falls within the high category, as summarized in Table 2.

Table 2. Duty Briefing Score Summary

Variable	Category
Duty briefing	High

This result indicates that duty briefing at Perum LPPNPI Palembang Branch is generally perceived as effective in supporting operational preparedness. Regular briefing sessions facilitate coordination among units such as TWR, APP, ARO, AIS, and technical services, contributing to common situational awareness. These findings are consistent with ICAO Doc 9859, which identifies briefing as a core element of safety communication within the Safety Management System (ICAO, 2016).

Aviation Safety Services

Aviation safety services were assessed through indicators related to accident and incident prevention, compliance with safety procedures, accuracy and timeliness of safety information, coordination among units, and responsiveness to operational changes. The descriptive results show that aviation safety services are also categorized as high, as presented in Table 3.

Table 3. Aviation Safety Service Score Summary

Variable	Category
Aviation safety services	High

This finding suggests that ATC personnel consistently apply safety procedures, maintain effective communication, and demonstrate awareness of operational risks. These conditions align with the objectives of Air Traffic Services as outlined in ICAO Doc 4444 and ICAO Doc 9426, which emphasize the importance of reliable information flow and coordination to maintain safe and orderly air traffic operations.

Relationship Between Duty Briefing and Aviation Safety Services

The relationship analysis reveals a positive and meaningful association between duty briefing and aviation safety services. As summarized in Table 4, duty briefing contributes substantially to aviation safety service performance.

Table 4. Relationship Between Duty Briefing and Aviation Safety Services

Analysis Aspect	Interpretation
Correlation	Moderate to strong positive relationship
Contribution	Duty briefing supports safety performance

This relationship indicates that effective duty briefing enhances situational awareness, reduces the risk of miscommunication, and supports consistent application of safety procedures. From an operational perspective, briefing sessions allow ATCs to anticipate potential hazards, align operational priorities, and maintain continuity of information between shifts. These findings support previous studies indicating that structured briefing improves safety-related performance and operational coordination (Lestary et al., 2023).

Furthermore, duty briefing serves as a practical implementation of safety promotion, reinforcing safety culture and encouraging proactive risk awareness among personnel (FAA,2020). In complex and dynamic operational environments such as air traffic control, the absence or inconsistency of briefing may lead to information gaps and reduced situational awareness, which can negatively affect safety services.

Overall, the integrated results and discussion demonstrate that duty briefing plays an important role in supporting aviation safety services at Perum LPPNPI Palembang Branch. Although safety service performance is already at a high level, consistent and well-structured duty briefing remains essential to sustain and enhance safety outcomes, particularly in response to changing operational conditions and increasing traffic complexity.

CONCLUSION

Based on the results and discussion, this study concludes that duty briefing has an important and positive role in supporting aviation safety services at Perum LPPNPI Palembang Branch. The findings indicate that duty briefing and aviation safety services are both perceived at a high level, reflecting effective safety communication, coordination, and information sharing among Air Traffic Controller (ATC) personnel. Well-implemented duty briefings enhance situational awareness, ensure the consistent dissemination of operational and safety-related information, and support the accurate application of standard operating procedures. In a dynamic and safety-critical air traffic control environment, duty briefing helps reduce the risk of miscommunication, supports continuity between shifts, and strengthens proactive risk awareness. Therefore, maintaining and optimizing structured duty briefing practices is essential to sustain and further improve aviation safety services, particularly in response to changing operational conditions and increasing traffic complexity.

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