



ENHANCING THE PHILIPPINE AIR FORCE SAFETY MANAGEMENT SYSTEM: A QUALITATIVE STUDY OF SELECTED MILITARY AVIATION UNITS

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ABSTRACT

Background: The Philippine Air Force Safety Management System (PAFSMS) provides an organizational framework for operational safety, force preservation, and mission readiness in military aviation. This study examined the experiences and perceptions of Philippine Air Force (PAF) personnel regarding safety management practices in selected units at Brigadier General Benito N. Ebuena Air Base (BGBNEAB), Lapu-Lapu City, Cebu, focusing on safety governance; safety culture and organizational learning; human factors and operational safety; and safety assurance and continuous improvement.

Methodology: A phenomenological qualitative design was used. Semi-structured key-informant interviews were conducted with 21 purposively selected personnel from five (5) participating PAF units. Participants included safety personnel, senior enlisted leaders, pilots, aircraft-maintenance personnel, and ground-support personnel. Interview data were analyzed using Braun and Clarke's six-phase thematic-analysis approach.

Results: Participants identified leadership commitment, clear safety responsibilities, coordinated oversight, trust, fair and non-punitive reporting, competency development, fatigue and workload management, proactive hazard reporting, evidence-based investigation, digital information management, and continuous monitoring as conditions that support safety management. The findings informed the development of the Enhanced Strategic Safety Management Framework, which integrates governance, safety culture and organizational learning, human-factors management, and safety assurance within a continuous-improvement model.

Conclusion: Effective PAFSMS implementation was experienced as an organizational process extending beyond procedural compliance. The findings indicated that governance, safety culture and organizational learning, human factors, and safety assurance should be addressed as interconnected elements of safety management. The ESSMF provides a context-specific framework to support operational safety, organizational resilience, and mission readiness within participating PAF units. Further research is recommended to evaluate its applicability in other aviation organizations.

KEYWORDS: Philippine Air Force Safety Management System; Military Aviation Safety; Safety Culture; Human Factors; Safety Governance; Safety Assurance; Organizational Learning

1. INTRODUCTION

The Philippine Air Force (PAF) operates in a high-risk aviation environment in which safety is closely associated with mission effectiveness, operational readiness, force preservation, and capability development. Units based at Brigadier General Benito N. Ebuena Air Base (BGBNEAB) perform flying, aircraft maintenance, logistics, command-and-control, and support functions requiring effective safety governance and consistent safety practices. The institutionalization of the Philippine Air Force Safety Management System (PAFSMS) through PAF Manual 17-5 established a proactive, system-based approach to safety management.

Contemporary safety science recognizes that accidents and operational losses may result from interactions among human, organizational, technical, and environmental conditions

rather than isolated individual errors. Reason's (1997) organizational accident perspective emphasizes active failures and latent organizational conditions, while systems-oriented approaches examine interactions among multiple components of an operational system (Delikhoon et al., 2022). Aviation safety therefore requires attention to leadership, communication, reporting, learning, human performance, and assurance mechanisms.

Safety culture is important because willingness to communicate hazards and report concerns may be influenced by leadership commitment, fairness, trust, and organizational response. Organizational learning requires that information from reporting, investigations, training, inspections, and safety activities be translated into improvements in procedures and practices. Human factors, including workload, fatigue, staffing,



competency, communication, decision-making, and operational pressures, also influence safety performance (Dekker, 2006).

Although the PAFSMS has been institutionally established, limited empirical research has examined how personnel in PAF units experience its day-to-day application, particularly in relation to governance, reporting culture, human performance, safety-information management, and organizational learning. This study therefore examined the experiences and perceptions of PAF personnel in selected units based at BGBNEAB. It further developed the Enhanced Strategic Safety Management Framework (ESSMF) to provide a context-specific basis for strengthening the existing PAFSMS.

2. OBJECTIVES

The study examined safety management practices in selected PAF units based at BGBNEAB, Lapu-Lapu City. Specifically, it sought to:

1. Examine organizational safety arrangements within participating PAF units;
2. Describe prevailing safety culture and organizational learning practices;
3. Identify human factors influencing incident prevention and reporting;
4. Examine safety reporting, investigation, and safety-information management practices; and
5. Develop a strategic framework for strengthening operational safety management.

3. METHODOLOGY

3.1 Research Design

A phenomenological research design was employed to explore the lived experiences and perceptions of PAF personnel regarding safety management implementation. The design enabled examination of how participants experienced and interpreted organizational safety management, safety culture, human factors, safety reporting, organizational learning, and operational safety practices (Creswell & Creswell, 2018).

3.2 Research Method and Data Collection

A qualitative methodology was employed to examine participants' experiences, perspectives, and interpretations of safety management implementation rather than statistically measure relationships among variables. Semi-structured key informant interviews (KIIs) were conducted using an expert-reviewed and pilot-tested interview guide. Interviews were conducted face-to-face, recorded with consent, transcribed, and supplemented by field notes. Verbatim quotations were retained during transcription, while identifying information was removed to protect confidentiality.

3.3 Data Analysis

Interview data were analyzed using Braun and Clarke's (2006) six-phase thematic analysis: familiarization with the data; generation of initial codes; development of candidate themes; review of themes; definition and naming of themes; and production of the final analytical account. Transcripts were

repeatedly reviewed, meaningful segments were coded, related codes were compared across participants, and recurring patterns were synthesized into themes aligned with the research objectives. Four (4) principal dimensions emerged: organizational safety governance; safety culture and organizational learning; human factors and operational safety; and safety assurance and continuous improvement.

3.4 Contextual Mishap Data

Available aircraft and ground mishap records for Calendar Years 2022–2026 were descriptively reviewed to provide organizational context. These records were not subjected to inferential analysis and were not used to establish causal relationships with the interview findings.

4. SAMPLING DESIGN

Twenty-one (21) active-duty PAF personnel were purposively selected from five BGBNEAB units: Air Mobility Command, Tactical Operations Wing Central, 220th Airlift Wing, 205th Tactical Helicopter Wing, and 560th Air Base Group. Participants represented safety personnel, senior enlisted leaders, pilots, aircraft maintenance personnel, and ground-support personnel. Selection was based on direct involvement in safety management, operational activities, or PAFSMS related practices and the ability to provide relevant information.

5. STATISTICAL DESIGN

No inferential statistical analysis was employed because the study used a phenomenological qualitative design. The interview data were analyzed thematically, while available mishap records were reviewed descriptively only to provide contextual organizational evidence.

6. GEOGRAPHICAL AREA

The study was conducted among PAF units based at BGBNEAB, Lapu-Lapu City, Cebu, Philippines. The participating units perform flying, maintenance, logistics, command-and-control, and support functions.

7. RESULTS

7.1 Organizational Safety Governance

Leadership commitment and accountability emerged as foundational conditions for effective safety management. Participants associated visible command support, clear responsibilities, monitoring, and appropriate resource allocation with stronger safety participation and compliance. They also emphasized that safety responsibilities extend beyond designated safety personnel and require coordination among commanders, safety offices, supervisors, operational personnel, maintenance personnel, and other functional elements.

A Pilot 2 remarked: "Safety starts with leadership. When people see that the commander takes safety seriously, everyone else takes it seriously as well."

A Safety Officer 1 explained: "It is important to clearly define the responsibilities of each safety officer and unit



commander to avoid overlapping duties and ensure that no responsibility is overlooked.”

The finding suggests that formal safety structures are strengthened when supported by visible leadership commitment, clear accountability, and coordinated implementation.

7.2 Safety Culture and Organizational Learning

Participants linked effective safety reporting to trust, open communication, and confidence that concerns would be treated fairly. A punitive or unsupportive environment was perceived as potentially discouraging hazard and near-miss reporting. Safety meetings, training, feedback, and lessons learned were viewed as important mechanisms for converting safety information into organizational learning.

An Aircraft Maintenance Officer 4 remarked: “Sharing experiences is important so that the same mistakes will not be repeated.”

A Safety Officer 3 explained: “It is better to report hazards immediately to prevent accidents.”

The finding indicates that effective reporting requires both procedures for submitting information and organizational responses perceived as fair, timely, and constructive.

7.3 Human Factors and Operational Safety

Workload, fatigue, competing duties, staffing constraints, communication, competency, and decision-making were identified as interconnected factors influencing safety performance. Participants emphasized recurrent training, mentoring, competency development, fatigue awareness, workload management, and risk-based decision-making as practical measures for reducing human-performance vulnerabilities.

Sergeant Major 1 further emphasized: “When personnel are well-trained, there are fewer operational mistakes.”

A Pilot 1 explained: “Crew rest is important before every operation to prevent fatigue from affecting decision-making.”

The findings support a systems-oriented view of human factors in which performance is considered within workload, staffing, competency, and operational conditions.

7.4 Safety Assurance and Continuous Improvement

Participants described reporting, investigation, monitoring, and corrective action as interconnected processes. Reporting was considered useful when it generated reliable information; investigation was valuable when it examined underlying and contributing conditions; and corrective action was meaningful when findings were communicated and monitored. Inspections, audits, mission risk assessments, safety meetings, and performance reviews were identified as mechanisms for identifying risks and evaluating controls. Digital information management was also viewed as an opportunity to improve information consolidation, trend analysis, and organizational learning.

A Safety Specialist 2 stated: “Hazards should be reported immediately so that they can be addressed before an accident occurs.”

A Safety Specialist 1 explained: “The focus is on identifying the root cause, not on determining who is at fault.”

The finding indicates that safety assurance should function as a continuous cycle of information collection, analysis, action, monitoring, and feedback.

7.5 Enhanced Strategic Safety Management Framework

The findings were synthesized into the Enhanced Strategic Safety Management Framework (ESSMF), which integrates the four (4) dimensions into a continuous safety-management model.

Table 1. Enhanced Strategic Safety Management Framework

Empirical Findings	Strategic Interventions	Intended Outcomes
1. Organizational Safety Governance	Institutionalize consistent PAFSMS practices; clarify roles and accountability; strengthen inter-unit coordination; conduct periodic safety-governance reviews	More consistent safety-management practices; clearer accountability; improved coordination
2. Safety Culture and Organizational Learning	Promote Just Culture principles; strengthen leadership engagement; expand safety communication; institutionalize lessons-learned processes	Greater reporting participation; stronger safety engagement; improved organizational learning
3. Human Factors and Operational Safety	Enhance competency-based training; manage fatigue and workload; strengthen personnel support; promote risk-based operational decision-making	Improved readiness; reduced exposure to human-factor vulnerabilities; improved operational effectiveness
4. Safety Assurance and Continuous Improvement	Strengthen digital reporting; coordinate safety-information management; improve trend analysis; monitor corrective actions and feedback	Faster hazard identification; better-informed decisions; continuous improvement; more sustainable safety practices

Source: Developed by the researcher based on the findings of the study.



8. SUGGESTIONS

Based on the findings, the following suggestions are offered for consideration by the appropriate PAF authorities, subject to existing policies, command authorities, resources, and institutional review:

1. Strengthen safety governance by reinforcing leadership accountability, clarifying safety responsibilities, standardizing applicable procedures, and improving coordination among safety and functional units.
2. Promote a fair reporting environment through trust, open communication, appropriate non-punitive reporting practices, and feedback mechanisms demonstrating organizational response.
3. Institutionalize organizational learning by incorporating lessons from reports, investigations, inspections, training, and safety meetings into appropriate procedures and operational practices.
4. Strengthen human-factors management through competency development, recurrent training, fatigue awareness, workload management, personnel support, and risk-based decision-making.
5. Improve safety assurance and information management through appropriate digital reporting, coordinated safety-information management, trend analysis, performance monitoring, corrective-action tracking, and feedback.
6. Pilot and periodically evaluate the ESSMF to assess feasibility, resource requirements, compatibility with existing PAF policies and authorities, and areas requiring refinement.

9. CONCLUSION

Safety management implementation within the participating BGBNEAB PAF units was experienced as an organizational process extending beyond procedural compliance. Four (4) interrelated dimensions shaped this process: organizational safety governance; safety culture and organizational learning; human factors and operational safety; and safety assurance and continuous improvement. Leadership commitment, clear responsibilities, coordinated oversight, trust and fair reporting, competency development, fatigue and workload management, proactive reporting, evidence-based investigation, digital information management, and continuous monitoring were identified as important conditions supporting safety management.

The ESSMF integrates these dimensions into a continuous organizational safety-improvement model and provides a context-specific basis for strengthening safety management within participating PAF units. Because the study used purposive qualitative sampling within a single organizational setting, the findings are not statistically generalizable to all aviation organizations. The ESSMF should therefore be considered a

context-specific framework requiring further empirical validation before broader application.

10. AREA FOR FURTHER RESEARCH

Future studies should examine the applicability, feasibility, and outcomes of the ESSMF across other PAF units and comparable aviation organizations. Quantitative, mixed-methods, and longitudinal studies may develop measurable indicators for the four ESSMF dimensions and assess whether changes in safety-management practices are associated with changes in reporting, safety-process performance, or other approved safety indicators over time.

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