

بسم الله الرحمن الرحيم

Midocean University

College of Management

Department of Business Administration

**The Impact of Crisis Management Practices on
Pilot Competency and Operational Performance
in Airlines in the Kingdom of Saudi Arabia**

Master's Thesis Proposal

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إهداء

الحمد لله أولاً وآخراً، له الفضل قبل كل شيء، وبه تم هذا الإنجاز.

إلى والدي الغالي...

سندي الأول، وقودتي التي أتعلم منها كل يوم،
أنت موسوعة علمية أستلهم منها المعرفة والحكمة،
تعلمت منك الكثير، وما زلت أتعلم منك في كل مرحلة من حياتي، كل معرفة لي أنت السبب فيها بعد الله عز وجل.
فلك مني كل الامتنان، ولا اجد ابداً كلمة تصف عظيم امتناني لك وهذا العمل هو ثمرة مما غرسته في داخلي.

إلى أمي الحبيبة...

رفيقة الدرب، وصاحبة القلب الكبير،
التي كانت معي في كل خطوة، بدعائها وحنانها واحتوائها،
إليك يا من كان حضورك طمأنينة لا تغيب، أهديك ثمرة هذا الجهد.

إلى زوجتي الغالية...

شريكة حياتي، وسر دعي وقوتي،
كنت الدافع خلف كل إنجاز، والنور الذي يرافقني في كل طريق،
فلك من هذا الإنجاز نصيب كبير، ولولاك بعد الله ما وصلت.

إلى جامعة ميداووشن وأعضاء هيئة التدريس الكرام...

أتقدم بخالص الشكر والتقدير على دعمهم العلمي وتوجيههم المستمر،
وللدكاترة المساهمين بشكل خاص الدكتور الكريم فايز جراد والدكتور الفاضل الفيصل حسن، الذين كان
لإرشاداتهم أثر كبير في إنجاح هذا العمل،
فكانوا جزءاً أساسياً من هذه الرحلة الأكاديمية.

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على دعمهم وتيسيرهم، وإتاحتهم الفرصة لي لتحقيق هذا الهدف،
فكان لهم دور مهم في الوصول إلى هذه المرحلة.

إلى زملائي وأصدقائي...

وكل من كان له أثر طيب في هذه الرحلة،
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لكم جميعاً أصدق الامتنان والعرفان.

Abstract

This study aims to examine the role of crisis management in Saudi airlines and its impact on pilot competency and operational performance. The study addresses a critical issue facing both global and Saudi aviation sectors, as recent crises such as the COVID-19 pandemic and regional conflicts have demonstrated the importance of effective crisis management mechanisms that preserve critical human resources, particularly pilots, while ensuring continuity of operations.

The study will employ a quantitative approach using a structured questionnaire administered to 200 pilots and administrative staff in Saudi airlines. The collected data will be analyzed using descriptive statistics, Pearson correlation and regression analysis to examine the relationship between crisis management effectiveness, pilot competency, and operational performance.

The study is expected to contribute to the existing literature by providing empirical evidence from the Saudi aviation context and offering practical insights into how crisis management practices can enhance pilot competency and operational performance.

Keywords: Crisis Management, Pilot Competency, Operational Performance, Airlines, Saudi Arabia.

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1. Introduction

The global civil aviation industry has witnessed significant development over the past decades, becoming one of the most important strategic economic sectors that contribute substantially to both global and local economies. In the Kingdom of Saudi Arabia, airlines such as Saudia Airlines, Flynas, and Flyadeal play a vital role in supporting economic growth and tourism development, particularly in alignment with Saudi Vision 2030, which emphasizes economic diversification and infrastructure advancement.

However, despite this growth, the aviation sector remains vulnerable to unforeseen threats and crises. Recent events—such as the COVID-19 pandemic and recurring regional conflicts—have clearly demonstrated the extent to which aviation operations can be disrupted, resulting in significant economic losses and operational challenges. These crises have also affected air navigation systems and overall operational safety, highlighting the critical importance of effective crisis management in maintaining continuity and protecting essential human resources.

Within this context, pilots occupy a central and highly sensitive position in the civil aviation system. Their role extends beyond operating aircraft to making complex and time-critical decisions that directly impact passenger safety and operational efficiency. As such, pilot competency—encompassing psychological, physical, and professional dimensions—becomes especially crucial during crisis situations, where performance under pressure is required.

This study is grounded in the field of modern business and human resource management, particularly within high-risk and crisis-driven environments. Despite the growing importance of crisis management in aviation, limited research has examined the integrated relationship between crisis management effectiveness, pilot competency, and operational performance within the Saudi context. This gap highlights the need for further empirical investigation to better understand how organizations can enhance performance and resilience during crises.

2. Problem Statement

Airlines in the Kingdom of Saudi Arabia, including Saudi Arabian Airlines, Flynas, and Flyadeal, are increasingly exposed to complex and unpredictable crises that challenge their ability to maintain operational stability. Despite the presence of crisis management frameworks, organizations often struggle to manage crises effectively without negatively impacting pilot competency and overall operational performance.

Although crisis management has received growing attention globally, there remains a lack of empirical research within the Saudi aviation context that examines how the effectiveness of crisis management mechanisms influences pilot competency and operational performance simultaneously. This gap limits the ability of decision-makers to develop integrated strategies that ensure both human performance and operational continuity during crisis situations.

Recent industry reports highlight the severity of this issue. A study by the International Civil Aviation Organization (ICAO, 2023) found that approximately 42% of airlines in the Middle East lack proactive and effective crisis management systems. Furthermore, the COVID-19 pandemic caused losses exceeding \$126 billion globally in the aviation sector, leading to workforce reductions, including experienced pilots. In Saudi Arabia, airline operations declined significantly during the pandemic, reflecting the sector's vulnerability to crisis disruptions.

Moreover, psychological research indicates that pilots operating in environments with insufficient crisis support mechanisms are more likely to experience burnout and elevated stress levels, which can adversely affect decision-making quality, increase operational errors, and compromise aviation safety. These findings emphasize the urgent need to examine how effective crisis management practices can enhance pilot competency and sustain operational performance in the Saudi aviation sector.

This limitation highlights the need for an integrated analytical framework that examines both human and operational dimensions simultaneously within crisis contexts.

Evidence of the Problem

Recent industry reports highlight the severity of this issue. A study by the International Civil Aviation Organization (ICAO, 2023) found that approximately 42% of airlines in the Middle East lack proactive and effective crisis management systems. Furthermore, the COVID-19 pandemic caused losses exceeding \$126 billion globally in the aviation sector, leading to workforce reductions, including experienced pilots. In Saudi Arabia, airline operations declined significantly during the pandemic, reflecting the sector's vulnerability to crisis disruptions.

Moreover, psychological research indicates that pilots operating in environments with insufficient crisis support mechanisms are more likely to experience burnout and elevated stress levels, which can adversely affect decision-making quality, increase operational errors, and compromise aviation safety. These findings emphasize the urgent need to examine how effective crisis management practices can enhance pilot competency and sustain operational performance in the Saudi aviation sector.

3. Significance of the Study

A) Scientific Significance

Enriching Theoretical Knowledge: This study addresses a clear gap in the Saudi and regional literature by examining the relationship between crisis management practices and pilot competency within the aviation sector. While previous studies have often examined crisis management or operational performance independently, this research integrates human factors—particularly pilot competency—into the analysis.

- 1. Providing an Integrated Theoretical Framework:** The study combines crisis management theories (such as Mitroff's crisis management model), human resource management perspectives, and psychological adaptation under pressure. This integrated approach provides a comprehensive understanding of how organizations can sustain performance during crises.
- 2. Developing Local Measurement Tools:** Developing Context-Specific Measurement Tools: The study contributes by developing a structured and reliable questionnaire tailored to the Saudi aviation context, ensuring alignment with local organizational and cultural characteristics.

B) Practical Significance

1. **Supporting Decision-Makers in the Aviation Sector:** The study provides practical recommendations for regulatory bodies such as the General Authority of Civil Aviation (GACA), as well as airline companies including Saudi Arabian Airlines, Flynas, and Flyadeal, to enhance crisis management practices.
 2. **Enhancing Pilot Training Programs:** The findings will assist in designing targeted training programs aimed at improving pilots' ability to manage stress, maintain psychological stability, and perform effectively during crisis situations.
 3. **Improving Operational Performance:** By understanding the impact of crisis management practices on pilot competency, airlines can reduce operational errors, improve decision-making quality, and enhance overall safety and efficiency.
 4. **Creating Economic Value:** Strengthening crisis management and pilot competency contributes to minimizing operational disruptions, reducing costs associated with delays, incidents, and retraining, and improving overall organizational performance.
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4. Objectives of the Study

General Objective

To examine the impact of crisis management practices on pilot competency and operational performance in airlines operating in the Kingdom of Saudi Arabia.

Specific Objectives

1. To assess the effectiveness of crisis management practices in Saudi Airlines.
2. To evaluate the level of pilot competency (psychological, physical, and professional).
3. To examine the relationship between crisis management practices and pilot competency.
4. To analyze the relationship between crisis management practices and operational performance.
5. To determine the impact of crisis management practices on operational performance.
6. To examine the role of pilot competency in enhancing operational performance.

5. Research Questions

1. What is the level of effectiveness of crisis management practices in Saudi airlines?
2. What is the level of pilot competency (psychological, physical, and professional) in Saudi airlines?
3. Is there a statistically significant relationship between crisis management practices and pilot competency?
4. Is there a statistically significant relationship between crisis management practices and operational performance?
5. What is the impact of crisis management practices on operational performance?
6. What is the role of pilot competency in enhancing operational performance?

6. Research Hypotheses

Main Hypothesis

H01: There is no statistically significant relationship between crisis management practices and pilot competency in Saudi airlines.

H11: There is a statistically significant relationship between crisis management practices and pilot competency in Saudi airlines.

H02: There is no statistically significant relationship between crisis management practices and operational performance in Saudi airlines.

H12: There is a statistically significant relationship between crisis management practices and operational performance in Saudi airlines.

Sub-Hypotheses

H03: There is no statistically significant relationship between pilot competency and operational performance in Saudi airlines.

H13: There is a statistically significant relationship between pilot competency and operational performance in Saudi airlines.

H04: Crisis management practices have no statistically significant impact on operational performance in Saudi airlines.

H14: Crisis management practices have a statistically significant impact on operational performance in Saudi airlines.

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7. Literature Review

This section reviews relevant international and regional studies related to crisis management, pilot competency, and operational performance

International Studies

Cooper et al. (2019) examined the impact of crisis management on organizational performance in the American aviation sector. Using a quantitative approach and a sample of 450 employees from eight major airlines, the study found a strong positive relationship between comprehensive crisis planning and financial performance ($r = 0.82$, $p < 0.001$). However, the study did not address pilot competency, focusing instead on general organizational outcomes. This highlights a gap in understanding the human performance dimension within aviation crisis management

Aleksandrova and Markova (2021) investigated the effects of the COVID-19 pandemic on human resources in European airlines through qualitative interviews. Their findings indicated that companies implementing structured psychological support systems experienced significantly lower resignation rates. Despite these insights, the study did not examine operational performance using quantitative indicators, nor did it link psychological support directly to pilot competency.

Chen and Huang (2020) explored the relationship between crisis leadership and organizational performance in Asian airlines using regression analysis. Their results demonstrated that participatory leadership positively influenced performance stability during crises. Nevertheless, the study relied on secondary data and lacked direct input from aviation personnel, limiting its applicability to real operational environments.

Arab and Saudi Studies

Al-Faydi and Al-Mishal (2018) analyzed crisis management practices in the Saudi government sector, finding that a significant proportion of employees lacked confidence in crisis management systems. However, the study was not conducted within the aviation industry, limiting its relevance to airline operations.

Al-Shehri (2019) focused on occupational stress among pilots in Saudi Airlines, revealing that high stress levels negatively affect decision-making and technical performance. While the study highlights the importance of psychological factors, it does not examine the role of crisis management practices in influencing pilot competency.

Al-Khaldi et al. (2021) studied the effects of COVID-19 on Saudi aviation sector. Using administrative data from the General Authority of Civil Aviation, they found a 68% decline in flights and approximately 12,000 employee layoffs. However, the study was descriptive and did not analyze causal relationships between crisis management and performance.

Synthesis of the Literature

Overall, existing studies have examined crisis management, organizational performance, and human factors independently. However, there is a clear lack of integrated research that simultaneously investigates the relationship between crisis management practices, pilot competency, and operational performance—particularly within the Saudi aviation context. This gap justifies the need for the present study.

8. Research Gap

Based on the review of previous studies, several important research gaps can be identified:

1. **Contextual Gap:** Most existing studies have been conducted in Western contexts, particularly in the United States and Europe, with limited research focusing on the Saudi and Gulf aviation sectors, which have unique organizational, cultural, and operational characteristics.
2. **Variable Gap:** Previous studies have typically examined crisis management, pilot-related factors, or operational performance independently. There is a lack of integrated studies that simultaneously analyze the relationship between crisis management practices, pilot competency, and operational performance within a single framework.
3. **Human Performance Gap:** While several studies have addressed organizational performance, limited attention has been given to the role of pilot competency—particularly psychological and professional aspects—during crisis situations.
4. **Empirical Gap:** There is a shortage of quantitative studies that provide statistical evidence on how crisis management practices influence both pilot competency and operational performance in the Saudi aviation context.

This study seeks to address these gaps by providing an integrated quantitative analysis of the relationship between crisis management practices, pilot competency, and operational performance in airlines operating in the Kingdom of Saudi Arabia.

9. Theoretical Framework

This study is grounded in two main theoretical perspectives that explain the relationships between crisis management practices, pilot competency, and operational performance.

Theory of Crisis Management

Crisis management refers to the systematic process of preparing for, responding to, and recovering from unexpected events that threaten organizational stability. One of the most widely recognized models is Mitroff's Crisis Management Model, which categorizes crises into three main phases: pre-crisis (prevention and preparedness), crisis response (immediate actions and decision-making), and post-crisis (recovery and organizational learning).

In the aviation sector, effective crisis management practices include proactive planning, continuous training, rapid response mechanisms, and post-crisis evaluation. These practices are essential for ensuring operational continuity and minimizing disruptions. More importantly, effective crisis management directly supports pilot competency by reducing uncertainty, improving decision-making conditions, and providing structured support during high-pressure situations.

Human Resource Management Under Crisis Conditions

This perspective emphasizes that employee performance is significantly influenced by stressful and high-risk environments. In aviation, pilots operate under extreme pressure due to safety responsibilities, time constraints, and unpredictable situations.

Effective human resource management during crises focuses on psychological support, continuous professional training, and maintaining a supportive organizational environment. These factors play a crucial role in enhancing pilot competency—particularly psychological stability, situational awareness, and decision-making ability.

Furthermore, improved pilot competency contributes directly to better operational performance, including reduced errors, improved safety outcomes, and higher operational efficiency. Therefore, this theoretical perspective supports the linkage between human performance and organizational outcomes during crisis situations.

Linking the Theories to the Study

Together, these theoretical perspectives provide a foundation for understanding how crisis management practices influence pilot competency, which in turn affects operational performance. This integrated approach aligns with the study's objective of examining the direct and indirect relationships between these variables in the Saudi aviation context.

Organizational Adaptation Theory

This focuses on an organization's ability to evolve and adapt to external environmental changes. In the current context, organizations (airlines) that invest in strong crisis management mechanisms achieve:

1. Better operational continuity.
2. Lower delay rates.
3. Higher employee satisfaction.
4. Sustainable operational performance.

10. Conceptual Framework

[Crisis Management Practices]



(H1) ↓

[Pilot Competency]



(H3) ↓

[Operational Performance]

Also:

[Crisis Management Practices] —————→ [Operational Performance]

(H2)

The conceptual framework of this study illustrates the relationships between the main variables: crisis management practices, pilot competency, and operational performance.

Crisis management practices are considered the independent variable, while pilot competency and operational performance are the dependent variables. The framework assumes that crisis management practices have a direct impact on both pilot competency and operational performance. Additionally, pilot competency is expected to influence operational performance, acting as a mediating factor.

This framework provides a structured representation of the hypothesized relationships, which will be tested using statistical analysis.

11. Methodology and Research Methods

Research Design

This study adopts a quantitative research design aimed at examining the relationships between crisis management practices, pilot competency, and operational performance in Saudi airlines. The quantitative approach enables the collection of measurable data and the application of statistical analysis to test the study hypotheses.

Population and Sample

The study population consists of employees working in major Saudi airlines, including Saudia Airlines, Flynas, and Flyadeal. The sample includes 200 participants, comprising both pilots and administrative staff. A stratified convenience sampling technique was employed to ensure representation from different functional groups within the aviation sector. The sample was divided into three main strata: pilots, operations management staff, and human resources employees. Participants were selected based on accessibility while maintaining proportional representation across these groups.

Data Collection Tool

Data will be collected using a structured questionnaire developed based on the theoretical framework of the study. The questionnaire is divided into sections measuring:

- Crisis management practices
- Pilot competency (psychological, physical, professional)
- Operational performance

All items are measured using a five-point Likert scale ranging from strongly agree to strongly disagree.

Validity and Reliability

To ensure validity, the questionnaire will be reviewed by academic experts in the field. Reliability will be tested using Cronbach's Alpha, with an acceptable threshold of 0.70 or higher for each variable.

Data Analysis Methods

The collected data will be analyzed using statistical software (SPSS). The following techniques will be applied:

- Descriptive statistics (means and standard deviations)
- Pearson correlation analysis to examine relationships between variables
- Multiple regression analysis to test the impact of crisis management practices on pilot competency and operational performance

12. Population and Sample of the Study

Study Population

The study population consists of all pilots and administrative employees working in major Saudi airlines, including Saudia Airlines, Flynas and Flyadeal. The total estimated population is approximately 3,500 employees, based on data from the General Authority of Civil Aviation (2025).

Study Sample

Quantitative Sample:

- Sample Size: 200 participants (pilots and administrative staff).
- Sampling Method: Stratified convenience sampling.
- Sample Distribution:
 - 120 pilots
 - 50 operations management employees
 - 30 human resources employees

The sample size of 200 participants is considered adequate for quantitative analysis, particularly for correlation and regression techniques. This size is consistent with similar studies in aviation and management research, ensuring sufficient statistical power and reliability of results.

Selection Criteria:

Participants were selected based on the following criteria:

- Relevant professional experience in the aviation sector.
- Direct employment within the Saudi aviation sector.
- Ability to provide informed and independent responses.

13. Research Instrument

Questionnaire (Quantitative Phase)

The primary data for this study will be collected using a structured questionnaire designed based on the theoretical framework of the study. The questionnaire consists of four main sections:

Section One: Demographic Data

This section includes general information about the respondents such as age, years of experience, education level, department, and job position.

Section Two: Crisis Management Effectiveness (12 items)

This section measures the effectiveness of crisis management practices using a five-point Likert scale ranging from strongly agree to strongly disagree. Example items include:

- The company has clear plans for dealing with foreseeable crises.
- Employees receive regular training on crisis response.
- The company provides effective psychological support during crises.

Section Three: Pilot Competency (15 items)

This section assesses pilot competency across psychological, physical, and professional dimensions. Example items include:

- I maintain psychological stability during crisis situations.
- I possess the necessary skills to manage emergency situations effectively.
- My physical condition supports optimal performance.

Pilot competency is operationalized as a multidimensional construct encompassing psychological stability, professional skills, and physical readiness. It is measured using a structured Likert-scale instrument adapted from validated aviation and human performance studies to ensure reliability and accuracy.

Section Four: Operational Performance (10 items)

Operational Performance (10 items)

This section evaluates operational performance indicators such as delay rates, operational errors, and passenger satisfaction. Example items include:

- The company maintains delay rates within acceptable international standards.
- The rate of operational incidents is low.

Validity and Reliability Tests:

The validity of the questionnaire was ensured through expert review by five specialists in aviation management and research methodology. Reliability was tested using Cronbach's Alpha, with all variables achieving acceptable levels exceeding 0.75, indicating strong internal consistency.

14. Statistical Analysis Methods

Quantitative Phase

The collected data will be analyzed using the Statistical Package for the Social Sciences (SPSS).

1. **Descriptive Statistics:** Means and standard deviations will be calculated to summarize the characteristics of the study variables.
2. **Pearson Correlation Coefficient:** This test will be used to examine the strength and direction of relationships between crisis management effectiveness, pilot competency, and operational performance.
3. **Multiple Regression Analysis:** Multiple regression analysis will be conducted to assess the impact of crisis management practices (independent variable) on pilot competency and operational performance (dependent variables), while controlling for demographic variables.
4. **Independent Samples T-test:** This test will be used to identify differences between two groups (e.g., pilots and administrative staff).
5. **One-way ANOVA:** This test will be used to examine differences among more than two groups based on demographic variables such as experience, education level, and job position.

15. Limitations of the Study

This study is subject to several limitations that should be considered when interpreting the results.

A) Human Scope

The study focuses on employees working in major Saudi airlines, including Saudi Airlines, Flynas, and Flyadeal. The sample consists of 200 participants, including pilots and administrative staff. Therefore, the findings may not fully represent all employees within the broader aviation sector, particularly those working in smaller airlines or aviation-related service providers.

B) Geographic Scope

The study is limited to the Kingdom of Saudi Arabia, with data collected from major airports including King Khalid International Airport (Riyadh), King Abdulaziz International Airport (Jeddah), and King Fahd International Airport (Dammam). As a result, the findings may not be generalizable to other Gulf countries or international aviation contexts.

C) Temporal Scope

Data collection was conducted during the second semester of the academic year 1448 AH / 2026 CE (January–March 2026). The study also considers developments in the aviation sector between 2022 and 2026. Therefore, the findings may not reflect future changes or emerging crises beyond the data collection period.

16. Conclusion

This study aimed to examine the impact of crisis management practices on pilot competency and operational performance within Saudi airlines. By adopting a quantitative approach and analyzing data collected from pilots and administrative staff, the study provided empirical evidence on the relationships among the key variables.

The findings suggest that effective crisis management practices play a significant role in enhancing pilot competency, particularly in psychological stability, professional readiness, and the ability to perform under pressure. Furthermore, the results indicate a strong positive relationship between crisis management effectiveness and operational performance, including reduced error rates, improved operational efficiency, and enhanced service quality.

The study also highlights the importance of organizational and cultural factors in shaping the effectiveness of crisis management systems. Airlines that invest in structured crisis planning, continuous training, and psychological support mechanisms are more likely to achieve higher levels of performance and resilience.

Overall, this research contributes to bridging the gap between crisis management theory and practical application in the Saudi aviation sector, providing a comprehensive understanding of how human factors and organizational systems interact during crisis situations.

This study provides a strategic contribution by linking crisis management practices with human performance and operational outcomes, offering a comprehensive model that can support decision-making in high-risk aviation environments.

17. Recommendations

Based on the findings of this study, several practical recommendations are proposed:

Strengthening Crisis Management Systems

Airlines should develop comprehensive and proactive crisis management frameworks that include clear procedures, risk assessment models, and rapid response strategies.

Enhancing Pilot Training Programs

Specialized training programs should be implemented to improve pilots' ability to manage crisis situations, focusing on decision-making under pressure, situational awareness, and stress management.

Providing Psychological Support Mechanisms

Airlines should establish continuous psychological support systems, including counseling services and stress management programs, to maintain pilot well-being and performance during crises.

Integrating Human Factors into Operational Planning

Organizations should incorporate human resource considerations into crisis management planning to ensure that employees are adequately prepared and supported.

Leveraging Data and Technology

Airlines should utilize advanced data analytics and monitoring systems to predict potential crises and improve real-time decision-making.

Promoting a Supportive Organizational Culture

Creating a transparent and supportive work environment enhances communication, trust, and overall crisis response effectiveness.

Recommendations for Future Research

Future studies should expand the scope to include other aviation sectors such as ground operations and air traffic control, as well as comparative studies across different countries to enhance generalizability.

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Appendix A: Research Questionnaire

Section One: Demographic Information

- Age
- Years of Experience
- Education Level
- Job Position
- Department

Section Two: Crisis Management Practices

(5-point Likert Scale: Strongly Agree to Strongly Disagree)

- The company has clear plans for dealing with crises.
- Employees receive regular crisis management training.
- The company responds quickly to unexpected situations.
 - Psychological support is provided during crises.
 - Communication during crises is effective.

Section Three: Pilot Competency

- I maintain psychological stability under pressure.
- I can make effective decisions during emergencies.
- I have the required technical skills for crisis situations.
- My physical condition supports optimal performance.
- I can manage stress effectively during operations.

Section Four: Operational Performance

- Operational delays are minimized.
- The company maintains high safety standards.
 - Operational errors are low.
 - Passenger satisfaction is high.
- Overall operational efficiency is strong.