International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

# Rest-Period Exploitation and Safety Risk Among NAIA General Aviation Dispatchers

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**Abstract**
The study was focused on the rest period exploitation of aviation personnel in the sector of NAIA, with flight dispatchers in general aviation being the chosen group. The Ninoy Aquino International Airport has the most extensive and severe rotations and shifts, which significantly contribute to fatigue. The researchers used a mixed-method approach to obtain broad data by combining qualitative and quantitative methods. Seventeen people answered to fill in the structured survey, while other specific individuals were interviewed. Descriptive statistics, weighted mean analysis, and thematic interpretation were applied in the process of establishing the relationship between unsatisfactory rest, fatigue states, and safety performance. The results highlighted that there is a strong sign of a causal connection between the malpractices associated with the rest periods and the ensuing consequences of fatigue in terms of losing one's alertness, being unable to make sound decisions, and thus decreasing one's overall performance and increasing the risk of accidents. The internal organizational conditions, the issues of unstable working hours, heavy workloads, and no or very short time for recovery were pointed out as the main reasons for the misuse of rest breaks. Fatigue, mentioned as one of the major contributing factors, has become an area of the airline's operation where the management would take necessary steps to enhance the existing measures, e.g., better coordination of flight schedules, implementation of staff rotation, and giving more attention to fatigue detection and management. In the end, the study really underlined the fact that rest is not only the business of the worker but also a matter of the entire system in the context of Philippine aviation's safety.

**Keywords:** Aviation, Fatigue, Flight Dispatchers, Human Factors, NAIA, Rest Period Exploitation, Workload

## 1. INTRODUCTION

In the most sensitive of industries in safety and precision, aviation, one of the avenues that ensures its safety is proper rest, and this provides insurance against the dangers of fatigue. Similar to the Philippines,

the air crew, most especially the cabin crew, pilots, and technicians, are occasionally faced with getting the rest they need due to the tight schedules, the extraordinary work days, and other work-related demands. Fatigue may also distort an individual's judgment, slow down a reaction, and lead to amplification of risks that may be encountered during critical situations in a flight when rest intervals are impaired. Under such circumstances, the health of the workers is also at stake, as are passengers and operations.

Lack of sleep due to the tight company schedules and workloads has a significant effect on flight dispatchers as it does among other aviation professionals. A study by Van den Berg et al. (2020) provides insight into the problem of fatigue caused by inadequate rest combined with excessive workload and lack of organizational support which results in fatigue among the cabin crew, underlines the importance of fatigue management in ensuring safety, performance, and crew welfare. One of the leading causes of aviation accidents is the violation of the established work and rest modes (WRM), which is why the optimization of WRM practices is necessary to improve the flight safety, reduce operational risks, and efficiency according to Zibarev (2022).

Moreover, high workload stress usually forces workers to work longer hours at the expense of a proper rest that is an important part of optimal performance (Jung, Jung, and Choi, 2017). In the case of flight dispatchers, all of these can affect their alertness, decision-making, and the overall effectiveness of the operations, causing the safety incidents to be more likely and threatening the stability of the flight operations. Lack of sufficient rest is a serious factor that affects the alertness of flight dispatchers, which leads to 15-20% of aviation accidents when fatigue caused by excessive work hours and sleep deprivation leads to loss of cognitive abilities (Olaganathan et al., 2021).

Research stresses that to ensure the safety of both the personnel and safety of the operations, high-quality fatigue risk management systems (FRMS), such as napping and the possibility of rest during duty, are necessary (Wingelaar-Jagt, Y. Q., Wingelaar, T. T., Riedel, W. J., & Ramaekers, J. G. (2021).; Fletcher et al., 2022). The aviation safety standards, such as those of the ICAO rules, give a powerful human factors management, and minimise the associated risks linked to fatigue (Silitonga et al., 2022). Rudari, Johnson, Geske, and Sperlak researched the perception of the pilots regarding FAR Part 117 rest rules. Out of 92 surveyed, 43% reported having experienced greater safety, 35% less fatigue, and many of them were neutral/negative, and 79% were in favor of the regulations applying to the cargo pilots as well. The surveys also reveal the view that the perception of the controlled rest hours as stipulated in FAR Part 117 is less fatiguing and risky, hence the regulations should be applied to other aviation professions like cargo pilots and flight dispatchers. Moreover, the particular models of risk assessment related to the human factor in flight dispatchers also demonstrate the existence of cognitive fatigue as one of the main reasons for errors, that provide the existence of organizational gaps that affect the alertness and decision making in the environment of insufficient rest. This literature shows the significance of the developed rest policies to ensure the performance of not only the alert and safer flight activities of dispatchers, but also the impact of fatigue on the decision-making of the dispatcher.

Zhu and Liu developed a biomathematical fatigue model by introducing a fatigue coefficient, giving a precise measurement of fatigue swings and cumulative effects, labeling significant safety concerns in aviation. The Research suggests tools for designing and procedures that help uninterrupted planning, minimize task switching, and provide dispatcher training to better manage workload interruptions, helping lower fatigue and performance risks. Fatigue can critically reduce decision-making, and awareness is caused by sleep loss and circadian disruption, especially when shifts exceed sixteen hours or rest is under six. This shows how the lack of recovery directly heightens aviation accident risk and safety concerns.

Fatigue has a great impact on controllers' workload efficiency, situational awareness, and adaptability, undermining safe operations. These elaborate how the demanding shifts without sufficient rest directly threaten air traffic control safety and highlight the urgent need for organizational interventions. Time management, time off, and duties are the instruments in the civil aviation industry. These exercises lessen fatigue, can create efficiency and strengthen healthy labor relations, and give long-term organizational success (Bershadska, 2023). An institution should provide a good working environment for its staff to achieve high work efficiency. By providing proper training and clear responsibilities, the company can assist its employees in minimizing their workload and eliminating risks related to their jobs. (Tsismalidou & Kondilis, 2024).

Examine daily rest variations and their effects on fatigue recovery. Their findings demonstrate that adequate recovery periods are vital in aviation, where crew fatigue influences efficiency, safety performance, and the prevention of fatigue-related incidents. Kubo et al. (2018). FRMS allows flexibility beyond rigid duty-hour limits while still ensuring employees receive enough rest. This system supports dispatchers by helping identify critical fatigue periods and adjusting work schedules accordingly. Explores how seat pitch affects passenger comfort and safety perceptions. Winter (2019). The article shows safety extends beyond crew fatigue to operational decisions, proving that holistic safety measures significantly contribute to aviation health and overall security. Ramp workers experience fatigue due to continuous shift work, impairing alertness and increasing accident risk. A fatigue management system can be used to prevent unsafe operations by ensuring workers are fit, extending fatigue control beyond pilots and controllers. Causal factors like communication, teamwork, and attention were prioritized using fuzzy modeling in CAAP's Mactan tower. Fatigue and stress appeared as major effects, underscoring their role in degrading safety-critical performance and guiding future policy development for fatigue management.

These articles point out a crucial policy issue: organizations need a culture that promotes rest, equity, and safety. Time management, purposeful resting time, and proper tasks are the most effective in sustainable performance and positive working relations. To prevent employees from overworking into fatigue, but still achieving high levels of performance, literature suggests the use of mixed but accountable systems. Fatigue in civil aviation presents a multi-disciplinary challenge demanding an overall organization-wide program that uses a combination of regulatory structures, scientific modeling, organizational enablers, and a culture of individual well-being. By developing a certain correspondence of all three terms, namely policy, technology, and culture, fatigue management within civil aviation could be maintained at the highest levels of aviation, the operational risks would be diminished, and the safety of workers would be safeguarded.

### 1.1. Background of the Study

The Ninoy Aquino International Airport (NAIA) is the main airport in the Philippines for both international and domestic flights. It is also one of the busiest airports in Southeast Asia. The Nichols Field was constructed by the American military in the 1930s, and in 194,8 it became the Manila International Airport (MIA) to serve civilians. Throughout the years, NAIA expanded into a size that could serve more passengers, with four terminals constructed between 1954 and 2008. Its name was changed to Senator Benigno or Ninoy Aquino Jr. in 198,7 demonstrating the significance of the structure, both politically and culturally in the Philippines.

As NAIA's facilities grew, so did the needs of the people who keep it running every day. To keep the airport's nonstop schedule running smoothly, flight dispatchers, air traffic controllers, maintenance technicians, cabin crew, and other staff members work long hours. These people are more likely to get

tired because their shifts are uneven, their work is unpredictable, and there are a lot of flights coming in and out of NAIA. People have often missed the fact that the airport's workers have been fighting against problems related to rest for a long time, even though terminal expansions are very obvious.

The Chicago Convention formed the International Civil Aviation Organization (ICAO) in 1944. It established limitations on the amount of rest and duty the aviation workers were permitted to have. Fatigue has ever since been perceived as a safety problem globally. In 1947, the Philippines signed the deal and gradually aligned its labor and aviation laws to these standards. These standards were officially made by Civil Aviation Authority of the Philippines (CAAP) in 2008. However, despite the improvement of the rules, the situation at NAIA demonstrates that there is still a discrepancy between the time that is required to get rest and the time that is spent recovering.

Airport workers have had to deal with long shifts, unforeseen schedule modifications, and last-minute work extensions brought on by delays or crew shortages for decades. Because of the heavy traffic in Metro Manila, some workers, particularly dispatchers and controllers, sleep in their offices or remain close to the airport in between shifts. These procedures demonstrate how NAIA's work culture has historically accepted fatigue as normal.

In response to fatigue science, international regulators such as the European Aviation Safety Agency (EASA) updated flight-time restrictions in the 2000s. Although these reforms highlighted the universal nature of fatigue risks, the Philippine context still faces a greater challenge because of the competitive airline industry and NAIA's congestion. Airlines sometimes sacrifice adequate recovery time for workers in order to maximize aircraft and labor productivity. This conflict between worker welfare and operational efficiency explains why rest period exploitation continues in spite of current regulations.

Therefore, NAIA's history encompasses not only the expansion of its passenger base and infrastructure but also the changing demands placed on its employees. At the busiest aviation hub in the country, rest period exploitation, which is influenced by organizational, cultural, and legal factors, continues to endanger worker health and operational safety.

### 1.2. Theoretical Framework


**Fig. 1: Interactions Among Pilots' Working Conditions, Fatigue, Mental Health, and Safety**

Air traffic controllers, pilots, flight dispatchers, and maintenance technicians experience chronic fatigue and psychological stress as a result of their demanding operational schedules and inadequate rest periods, and this is compromising their safety as well as the safety of the traveling public. Using ICAO's Fatigue and Sleep Theory, Occupational Stress Theory, Reason's Swiss Cheese Model, and the Job Demands Resources Model, this paper reveals how fatigue drains cognitive and personal resources, contributing to safety resilience and systemic safety loss. As a result, addressing sleep deprivation in Philippine aviation involves a holistic approach on organizational, physiological and psychological levels.

### 1.3. Conceptual Framework

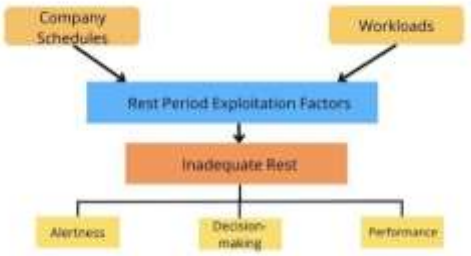


**Fig. 2: Impact of Company Schedules and Workloads on Flight Dispatchers' Rest and Performance**

The conceptual framework is based on theoretical knowledge from occupational psychology, fatigue and sleep theory, and occupational stress models. In this study, flight dispatcher schedules and workload are taken into account as the major factors that contribute to insufficient rest. In the theoretical framework, it was discussed that the effects of lack of sleep have a direct impact on alertness, decision making, and performance, which are key to safety-sensitive aviation operations. In addition, underlying conditions that exacerbate the problem are exploitation of rest periods, including long duty hours, irregular shift schedules, and circadian disruption. This framework draws attention to the causality between organizational demands and human performance, and illustrates that in this context, fatigue not merely degrades the dispatcher's well-being, but also has systemic consequences for aviation safety.

### 1.4. Statement of the Problem

This study focuses on the experiences and perspectives of individuals employed within the vicinity of the Ninoy Aquino International Airport (NAIA). For this research, the term "NAIA Area Workforce" is used to collectively refer to workers employed directly at NAIA as well as those working in establishments located in its surrounding areas, particularly within Pasay and Parañaque. Specifically, this study sought the answers to the following questions:

1. What are the effects of inadequate rest due to company schedules or workloads on flight dispatchers?
2. How does inadequate rest impact flight dispatchers in terms of their:

a. alertness
b. decision-making, and
c. performance?

3. What factors contribute to rest period exploitation?
4. Is there a significant difference between the misuse of rest hours and the safety performance of aviation personnel in the NAIA area?
5. What common themes can be seen based on the experiences of flight dispatchers when it comes to inadequate rest, heavy workload, and exploitation of their rest periods within the NAIA area?
6. Based on the study's findings, how can the Philippine aviation industry improve this case by addressing the misuse of rest hours to improve the overall safety performance of each aviation personnel?

### 1.5. Hypothesis

There is no significant difference between the misuse of rest hours and the safety performance of aviation personnel in the NAIA area.

### 1.6. Significance of the Study

The importance of this is that it showcases a previously neglected problem of rest period abuse among aviation employees at Ninoy Aquino International Airport (NAIA) Area workforce and the direct consequences of this issue on operational safety. Amidst focus on infrastructure, passenger services, and technological developments, the well-being of human resources, especially their rest and recovery, is underestimated.

This study would benefit the following:

1. Regulatory Bodies - Their advantage will be the ability to use the results to enhance labor regulations and aviation standards. This guarantees worker protection and the protection of the people.
2. Aviation Personnel - This study highlights the importance of fatigue safety issues and not as a personal weakness, with a view to fostering healthier working behaviors.
3. Airport Management - This study should help airport management work towards operational efficiencies through insights into how the abuse of resting times may affect safety and performance.
4. Healthcare and Wellness Specialists - The findings can be used to better understand how fatigue affects aviation personnel and design programs that can improve their physical and mental well-being.
5. Future Researchers - It adds to the current literature that addresses human factors in aviation, and provides information that can be used to conduct research on fatigue risk management and labor welfare in high-pressure sectors.

## 2. METHODOLOGY

### 2.1. Research Design

The current study is based on a qualitative-quantitative research design to deeply examine the problem of rest period exploitation and its impact on aviation safety.

The quantitative approach follows a descriptive method, using structured questionnaires and surveys among aviation personnel in the NAIA area to gather measurable data on rest hour misuse, fatigue levels, and safety performance.

Meanwhile, the qualitative approach has a case study approach in which the researchers can supplement the quantitative findings with the qualitative information using a documented study, which avoids the use of extensive interviewing yet depicts the experiences of workers in the General Aviation industry. This will help to be clear and focused without making the information irrelevant and unrealistic.

The qualitative data were then interpreted and organized through content analysis to assist in identifying common themes like rest period exploitation and unpaid overtime. This also simplifies the outcomes and creates a better correlation between the qualitative understanding and the quantitative results.

### 2.2. Respondents

This study targets employees in general aviation who are experiencing conflict with their work ethics due to rest exploitation. As they occupy a crucial position for every flight, employees working near the NAIA area are often burdened with a heavy workload, which can lead to fatigue and exhaustion. As a result, they can make a critical error in performing their duties.

The Slovin's formula for the survey determined a total of 92 respondents. In this case, the NAIA data indicate that, with a total population of 119, the 5% margin of error yields a 'computed sample size' of 92. There is a sufficient number to represent the entire population in NAIA without considering all the individuals. Selecting this number will also ensure that the problem remains manageable and statistically reliable for researchers.

Given that the base population was from NAIA, one of the busiest airports in the country, it provided a solid foundation for the researchers to determine a target number of respondents. With an acceptable response rate of 10-15% for studies focusing on external cases, the researchers achieved a total response rate of 18.48%, which exceeded the minimum accepted rate for this study.

| Sex | Frequency | Percentage |
|---|---|---|
| Male | 14 | 82.35 |
| Female | 3 | 17.65 |
| **Total** | 17 | 100.00 |

**Table 1: Frequency and Distribution of the Sex Representation of the respondents**

**2.3. Settings**

Among all of the various airports in the Philippines, the Ninoy Aquino International Airport (NAIA) stands out as the most notable type of airport because it is considered the major international airport in the Philippines. Its high operational intensity and large, diverse workforce increase the likelihood of fatigue and lack of rest. The nature of operational requirements at the airport makes the violation of rest periods directly and harshly impactful on safety and efficiency.

The study focused on understanding the inadequate rest periods experienced by the general aviation personnel of NAIA within the Parañaque and Pasay City area. The data collection involved surveying 80 employees.

The study is limited to individuals who are working under general aviation and have experienced a lack of rest, but still have to continue regardless of their condition. Those who are not under the general aviation sector will not be included.

**2.4. Instrumentation**

The primary research tool used in the study to investigate the effects of fatigue and rest period exploitation on aviation workers in the Pasay Area was a structured questionnaire. Twenty closed yes-or-no questions made up the three sections of the questionnaire: demographic profile, rest and fatigue factors, and the effect of fatigue on performance and safety. Following pilot testing, professional validators recommended removing items that placed undue emphasis on current regulations and adding elements like stress, workload, and a shortage of personnel as causes of fatigue. To guarantee clarity and applicability, redundant and similar questions were combined or improved. The final draft concentrated on evaluating the effects of scheduling, rest habits, and working conditions on aviation workers' fatigue and operational safety.

The researchers also conducted interviews with three professionals experienced in the study to help validate the gathered results and assess the rejected statements. The first validator was a professional working in aviation within the NAIA area. The second is currently an instructor with experience in the field of aviation, similar to the third validator, who worked in general aviation a few years back. With all the gathered information, the researchers compiled and considered all the recommendations.

**2.5. Data Analysis**

The researchers gathered 119 individuals as their population for their study. Using Slovin's formula, the

sample size is 92 with a 5% margin of error. These 92 employees will be the subject of ensuring the problem highlighted in the study. Securing such a number can make the results as valid as possible. When analysing the data of these 92 respondents, the researchers initially calculated the frequency and percentage distribution to give the demographic profile and overall general response trends of the respondents. This enabled the researchers to establish the prevalence of some of the perceptions, behaviors, or experiences among the sample. To ensure that the survey items used in the study were reliable, the researchers calculated Cronbach's alpha. The coefficient showed that the questionnaire had acceptable internal consistency, meaning that the items measured the intended constructs stably and dependably. The weighted mean was used to derive the meaning of agreement of the respondents with general statements on rest period exploitation and its effects. Furthermore, a t-test was used to find out whether there were significant differences between the groups, especially in testing whether the misuse of rest hours had any differences in safety performance. Lastly, thematic analysis was carried out on the basis of the interviews with 3 participants who were professionally involved in general aviation, which enabled the researchers to obtain more profound information concerning the study.

### 2.6. Ethical Considerations

To prevent plagiarism, the researchers made sure that all information, literature, and data referenced in the study were properly cited and referenced in accordance with the academic standards, and all literature presented in written form was formulated in their own words. Respondent and informant privacy was honored by maintaining confidentiality, administering anonymous surveys, obtaining consent prior to involvement, and prohibiting any personal or identifying information from being disclosed at any point in the research.

## 3. RESULT AND ANALYSIS

The total number of respondents in our survey was 17, with an 18.48% response rat,e which is within the acceptable range of 10-15% in an external survey. The number of respondents obtained was 17 people, including 14 males and 3 females, with the collected data. The general aviation industry within the area of Pasay City was the target of this study. The survey questionnaire involved the structure of field workload and fatigue, together with other factors which impacts on work performance. Using the four levels of responses, strongly agree, agree, disagree, and strongly disagree, the researchers were able to maneuver their responses through the 20-item questionnaire survey.

### 3.1. The effect of inadequate rest due to company schedules or workloads on flight dispatchers

| Statement | Standard Deviation | Weighted Mean | Remarks |
|---|---|---|---|
| I agree that adequate rest and support from the company are essential for reducing fatigue among aviation crew. | 0.2425 | 3.94 | Strongly Agree |
| I believe that complying with work and rest modes (WRM) helps improve flight safety and operational efficiency. | 0.33211 | 3.88 | Strongly Agree |
| I agree that work demands require employees to sacrifice adequate sleep. | 1.02899 | 2.94 | Agree |
| SDP 1 | 0.41716 | 3.59 | Strongly Agree |

Legend: 3.25-4.00 - strongly agree 2.50-3.24 - agree 1.75-2.49 - disagree 1.00-1.74 - strongly disagree

Table 2: Mean and Standard Deviation in the effect of inadequate rest due to company schedules or workloads on flight dispatchers

The findings reveal that the majority of flight dispatchers believe that proper rest and support by the com-

pany are significant to minimize fatigue and enhance safety. They also think that operational efficiency is supported by adherence to the correct guidelines of work-rest. Opinions, however, differ as to whether work requires them to compromise sleep, but overall data show that sleep is a major issue.

### *3.2. The impacts of inadequate rest among flight dispatchers concerning:*

The findings show that inadequate rest has a clear impact on flight dispatchers under SOP 2, especially in terms of alertness, decision-making, and overall work efficiency. Many respondents agreed that lack of sleep causes fatigue, lowers focus, and increases the possibility of human error during critical tasks. These results emphasize how essential proper rest is in maintaining mental sharpness and reliable performance. With this in mind, the study recommends stricter adherence to rest-period guidelines and stronger organizational support to help reduce fatigue and promote safer, more effective operations.

#### *3.2.1. Alertness*

| Statement | Standard Deviation | Weighted Mean | Remarks |
|---|---|---|---|
| I agree that Fatigue Risk Management Systems (FRMS), including protocols for napping and bunk sleeping are effective in reducing the occurrence of pilot fatigue and aviation accidents. | 0.61835 | 3.41 | Strongly Agree |
| I believe that meeting the ICAO safety regulations improves the safety level of the flight in its entirety? | 0.49259 | 3.65 | Strongly Agree |
| I notice that adherence to standard rest hours enhance employee performance and reduce fatigue. | 0.46967 | 3.71 | Strongly Agree |
| SOP 2: Awareness | 0.40016 | 3.59 | Strongly Agree |

Legend: 3.25-4.00 - strongly agree 2.50-3.24 - agree 1.75-2.49 - disagree 1.00-1.74 - strongly disagree

Table 3: Mean and Standard Deviation in Terms of Alertness

The perceptions of the respondents on alertness factors, such as effectiveness of fatigue risk management, regulatory compliance, and adherence to rest hours, as the weighted mean and standard deviation. Each statement was rated with a strongly agree remark.

#### *3.2.2. Decision-making*

| Statement | Standard Deviation | Weighted Mean | Remarks |
|---|---|---|---|
| I agree that the opportunity to sleep during duty is effective to reduce cognitive fatigue and aid in the operation of the flight missions in a safer way. | 0.91956 | 3.29 | Strongly Agree |
| I believe that pilot rest regulations reduce the risk of inadequate rest-related errors in their own decision-making. | 0.62426 | 3.53 | Strongly Agree |
| I agree that high-risk human factors help in making better decisions in dispatching the flight operation. | 0.95101 | 3.18 | Agree |
| SOP 2: Decision-making | 0.58926 | 3.33 | Strongly Agree |

Legend: 3.25-4.00 - strongly agree 2.50-3.24 - agree 1.75-2.49 - disagree 1.00-1.74 - strongly disagree

Table 4: Mean and Standard Deviation in Terms of Decision-making

Under our statement of problem number 2, the second variable is decision-making. Inadequate rest for the flight dispatchers significantly affects their performance and, in one crucial matter, makes choices before, during, and after the flight. Alongside their routine tasks, not every flight can be similar to repeat decisions without thoroughly checking on them. Here is why the researchers put this variable as a determining factor for jobs: to know how crucial it is in this line of work. With the data gathered in this table, the survey participants agreed that sleep is essential and can be a factor in solving high-risk human errors. Having a weighted mean of 3.29 in results from the participants in agreement with having an opportunity to sleep during duty is effective in reducing cognitive fatigue and aids in the operation of the flight missions in a safer way. The participants also believed that pilot rest regulations reduce the risk of inadequate rest-related errors in their own decision-making, with a weighted mean of 3.53. And with a weighted mean of 3.18, they agreed that high-risk human factors help in making better decisions.

### *3.2.3. Performance*

| Statement | Standard Deviation | Weighted Mean | Remarks |
|---|---|---|---|
| I believe that mandatory rest periods and scheduling policies, implemented by airline companies, effectively mitigate the negative impact of inadequate rest on a person's performance. | 0.58787 | 3.29 | Strongly Agree |
| I believe that health programs helped me with professional productivity despite irregular sleep schedules. | 1.07444 | 2.82 | Agree |
| I agree that lack of sufficient rest negatively affects the decision-making performance of flight dispatchers. | 0.49259 | 3.65 | Strongly Agree |
| I agree that extended or irregular shifts reduce the effectiveness of flight dispatchers' performance. | 0.71743 | 3.53 | Strongly Agree |
| I think that adequate time management and equitable scheduling prevent fatigue and encourage a safer and more productive working environment. | 0.39295 | 3.82 | Strongly Agree |
| SOP 2: Performance | 0.48416 | 3.42 | Strongly Agree |

Legend: 3.25-4.00 - strongly agree 2.50-3.24 - agree 1.75-2.49 - disagree 1.00-1.74 - strongly disagree

Table 5: Mean and Standard Deviation in Terms of Performance

The results show that when dispatchers do not get enough rest, their performance is noticeably affected. The weighted means reflect a strong agreement among respondents that lack of sleep impacts their accuracy, ability to finish tasks, and overall workload management. Participants shared that being tired slows down operations, lowers effectiveness, and increases the chances of making procedural mistakes. These findings clearly demonstrate that fatigue compromises performance, creating both safety and productivity concerns. Because of this, enforcing rest policies and applying fatigue-management strategies are strongly recommended.

### *3.3. The factors that contribute to rest period exploitation*

| Statement | Standard Deviation | Weighted Mean | Remarks |
|---|---|---|---|
| I believe that a supportive workplace is essential for achieving high work efficiency. | 0.39295 | 3.82 | Strongly Agree |
| I agree that consistent daily rest periods are crucial for effective recovery from fatigue. | 0.58787 | 3.71 | Strongly Agree |
| I believe that proper scheduling helps reduce fatigue-related risks amongst aviation workers. | 0.46967 | 3.71 | Strongly Agree |
| I think the company policies such as the organization of the crew and their workloads have a direct impact on the safety of the flight. | 0.49259 | 3.65 | Strongly Agree |
| I believe that rest period exploitation has become a common or accepted practice in aviation workplaces. | 0.80896 | 3.18 | Agree |
| I agree that workload demands considered in the explorations of flight dispatcher rest periods. | 0.78581 | 3.35 | Strongly Agree |
| SOP 3 | 0.44119 | 3.57 | Strongly Agree |

Legend: 3.25-4.00 - strongly agree 2.50-3.24 - agree 1.75-2.49 - disagree 1.00-1.74 - strongly disagree

Table 6: Mean and Standard Deviation in factors that contribute to rest period exploitation

There is a high opinion among the respondents that effective scheduling, conducive working environments, and regular rest intervals are important in safety and efficiency. They also suspect that the workload requirements/demands and policies of the company are also causing exploitation of the rest period. In general, the findings indicate a strong concern regarding the factors that decrease adequate rest.

*3.4. The significant difference between the misuse of rest hours and the safety performance of aviation personnel in the NAIA area*

| Statement | Mean | SD | F | Sig | Remarks |
|---|---|---|---|---|---|
| I think that adequate time management and equitable scheduling prevent fatigue and encourage a safer and more productive working environment. | 3.89 | 0.21 | 5.46 | 0.034* | Reject |
| I believe that a supportive workplace is essential for achieving high work efficiency. | 3.89 | 0.21 | 5.46 | 0.034* | Reject |
| I agree that consistent daily rest periods are crucial for effective recovery from fatigue. | 3.56 | 0.79 | 10.60 | 0.005** | Reject |

Legend:
↓ 0.05 is significant difference/relation - Reject
↑ 0.05 is no significant difference/relation - Accept
↓ 0.01 - very significant
Table 7: Mean and Standard Deviation of SOP 4 from the respondents
The study clearly indicates that there is a strong correlation between the improper use of rest periods and the safety performance of aviation workers around the NAIA. The study reveals that those factors that are affected by time management, workplace mood, and regular rest are all contributors to the increase in productivity and the decrease in fatigue. Each of the established premises showed significant results, thus leading to the null hypothesis being rejected. In light of the rejection of the null hypothesis, it is suggested to make changes in the scheduling of rests, to apply strict break policies, and to create a work environment that promotes health, safety, and productivity all at the same time.

### *3.5. Common themes on inadequate rest, heavy workload, and rest period exploitation*

| Master Theme | Superordinate Theme |
|---|---|
| Inadequate rest reduces alertness and cognitive function | Fatigue Weakens Cognitive Performance and Operational Judgment |
| | Emotional and Mental Fatigue as a Hidden Safety Threat |
| Heavy Workload and Operational Pressures Intensifying Fatigue | Non-Scheduled Operations and High Flight Frequency Leading to Continuous Duty Cycles |
| | Organizational Culture Normalizing Overwork and Rest Sacrifice |
| Factors Contributing to Rest-Period Exploitation | Blurring of Duty Time and Rest Time |
| | External Pressures Worsening Rest Deprivation |

**Table 8: Master and Superordinate Themes Related to Inadequate Rest, Heavy Workload, and Rest Period Exploitation**

Master Theme 1: Fatigue Weakens Cognitive Performance and Operational Judgment
Superordinate Theme 1.1: Fatigue Weakens Cognitive Performance and Operational Judgment
Informant 1: “How long is my rest period? I didn’t get my 8-hour rest period… hinahabol ka ng trabaho.”
Informant 2: “Insufficient sleep or chronic fatigue causes a measurable reduction of vigilance… impaired judgment, delayed responsiveness, and a significantly increased probability of operational errors.”
Informant 3: “Inadequate rest will lead you to wrong decision making… your reflexes will slow down.”
The experiences of the respondents are consistent with the literature that states that fatigue has a debilitating effect on cognitive functioning and judgment. According to Olaganathan et al. (2021), sleep deprivation causes fatigue and increased aviation accidents by 15-20 percent, which supports the assertion of participants that their reflexes were slow and they could not make the right decision. The same points

were also discussed by Jung et al. (2017), who indicated that the state of high workloads and lack of rest reduces mental alertness, which echoes the worry of the dispatchers. In the same vein, Zibarev (2022) emphasized that operational risks are considerably high with breaches of required work-rest cycles. In general, the experience of the respondents, as well as published studies, proves that insufficient rest is a burning risk that influences the performance of flight dispatchers and their safety in the workplace.

Superordinate Theme 1.2: Emotional and Mental Fatigue as a Hidden Safety Threat

Informant 1: "You're really being chased by work… hinahabol ka ng trabaho."

Informant 2: "Fatigue acts as a compounding stressor, exacerbating psychological strain… readily leading to mental overload."

Informant 3: "Mas nakakapagod pag sa utak kaysa sa katawan… mas nakakadrain out yun."

The fact that the respondents talked about mental and emotional exhaustion is the manifestation of scholarly evidence, which states that fatigue is a multidimensional phenomenon that not only impacts physical ability but also emotional stability and cognitive power. Van den Berg et al. (2020) pointed out that insufficient rest and overworking put psychological strain, which is what was reported by dispatchers. Research on air traffic controllers also indicates that mental exhaustion decreases situational awareness and flexibility (Fatigue-ATC studies, 2021). Kubo et al. (2018) went further to show that inadequate recovery affects the mood and cognitive control, which is in line with the respondent's report of experiencing mental exhaustion. These associations highlight the fact that emotional fatigue is a severe safety issue that needs specific fatigue risk management interventions.

Master Theme 2: Heavy Workload and Operational Pressures Intensifying Fatigue

Superordinate Theme 2.1: Non-Scheduled Operations and High Flight Frequency Leading to Continuous Duty Cycles

Informant 1: "There are times they'll give the flight info 11 p.m. for a 7 a.m. flight… we don't have adequate rest."

Informant 2: "The 24/7, high-stakes nature of the aviation industry… fundamentally increases stress and workload."

Informant 3: "I already worked with a company 30 days straight without off… you cannot go home until all aircraft return to base."

As it is proven by the experiences of the respondents, unpredictability in the schedules and constant operations lead to chronic fatigue. This is supported in the literature; Jung et al. (2017) said that high workload pressure leads to workers working more hours at the expense of rest and optimal performance, which is the case with the dispatchers. The research on the ramp workers and controllers demonstrates the same tendencies: the long shifts lead to fatigue that decreases alertness and increases the risk of accidents. There is also a warning of cumulative fatigue that is hazardous, as the fatigue model by Zhu and Liu predicts that cumulative fatigue deteriorates more quickly in the face of a continuous duty cycle. Such results confirm the accounts of the dispatchers on long working hours and insufficient rest.

Superordinate Theme 2.2: Organizational Culture Normalizing Overwork and Rest Sacrifice

Informant 1: "Whether you like it or not, this is the general aviation setup… expect non-scheduled flight details."

Informant 2: "Rest periods… are violated when a dispatcher is pressured or required to perform 'off-duty' tasks."

Informant 3: "There are companies that won't allow dispatchers to take leave because they're afraid the world will collapse without operations… minsan wag kayong masyadong galingan kasi tatamarin yung

company."

The narratives of the respondents indicate that the organizational culture condones and rewards overwork, in line with international human factors. Wingelaar-Jagt et al. (2021) state that aviation workers can be pressured to remain alert outside regular working hours, as dispatchers did. As highlighted by Bershadska (2023), appropriate time management and secured time-off are necessary to avoid fatigue and ensure fairness, but the stories provided by the respondents depict that the principles are not consistently. Another claim that Tsismalidou & Kondilis (2024) make is that organizational support and responsibility decrease worker fatigue, but the workers (dispatchers) state the contrary. This association validates that cultural dictates in local practices are factors that lead to the exploitation of the rest.

Master Theme 3: Factors Contributing to Rest-Period Exploitation

Superordinate Theme 3.1: Blurring of Duty Time and Rest Time

Informant 1: "If the passenger says, 'I want to fly at this time,' we need to cater to them… that's the main factor."

Informant 2: "Mandatory rest periods… are violated when a dispatcher is required to perform 'off duty' tasks."

Informant 3: "You cannot go home until all aircraft have returned… you need to monitor departure and arrival 24/7."

The experience of respondents reflects the literature that indicates that rest fragmentation and duty overlap are significant causes of aviation fatigue. According to FAR Part 117 studies (Rudari et al.), employees are highly interested in the use of guarded rest hours due to the fact that unguarded rest predisposes them to risks associated with fatigue. Strict human factors management to prevent the occurrence of duty-rest overlap is also highlighted in ICAO guidance (Silitonga et al., 2022). Also, according to FRMS research (Fletcher et al., 2022), there should be continuous rest and formal napping possibilities, the practices that were evidently broken in the working conditions of the respondents. The correspondence between the literature and the testimonies indicates that the violation of the rest and duty boundaries plays a major role in aggravating fatigue.

Superordinate Theme 3.2: External Pressures Worsening Rest Deprivation

Informant 1: "When a passenger says, 'I want to fly at this time,' we need to cater to them… if not, there might be no profit."

Informant 2: "Dispatchers are pressured to perform training, familiarization flights, or checking operational status during rest hours."

Informant 3: "VIP clients… pabago-bago… you fix something, then it changes again, so you need to repeat all over again."

"Weather is one of the most stressful things… you cannot relax until all aircraft return."

The external influencing factors, such as financial priorities, VIP expectations, operational change, and weather disturbance,s are confirmed by the RRL results as significant contributors to fatigue. According to the biomathematical fatigue studies conducted by Zhu and Liu, cumulative fatigue aggravates during situations when the workers are subjected to the interruption of the tasks and outside loads, and the dispatcher is subjected to constant planning changes. The research on ATC and ramp employees reveals that environmental and operational factors contribute to fatigue and diminished performance efficiency. Communication pressure, workload, and attention demands have also been cited by the literature on human factors modeling (Mactan Tower study) as significant amplifiers of fatigue. These similarities validate the fact that external influences have a high rate of hastening rest deprivation among dispatchers.

### *3.6 Addressing Misuse of Rest Hours to Improve Safety Performance in Philippine Aviation*

According to the interview data, the dispatchers always pointed out the fact that fatigue reduction and elimination of rest period misuse are the key to aviation safety enhancement in the Philippines. They said that lack of rest, excessive workloads, and unspecified borders of their responsibilities are harmful to their performance and pose higher safety risks. These issues should be resolved in case the industry wants to create a safer and more trusted working environment.

Despite the fact that aviation rules, such as PCAR Part 8, state the limits of duty and number of hours required, most of the respondents indicated that the rules are not always adhered to, particularly in general aviation. According to Informant 3, dispatchers have to work beyond the limits of legal duties due to understaffing, irregular flight schedules, high aircraft flights, and employer demand to satisfy the clients. Such a difference between regulation and actual practice results in accumulated fatigue, decreasing awareness, and increased likelihood of making mistakes, which correlates with the findings of the rest of the world that fatigue is a widespread safety concern.

The shortage of manpower was also mentioned by the respondents as one of the significant contributors to the misuse of rest periods. Informant 3 also described how there are companies where only "two operations officers are doing the work of many" and that the dispatchers are being forced to work longer or remain on duty until the time the last aircraft is back. This scarcity, accustomed to unsafe scheduling, curtails the chances of appropriate rest and recovery.

Improvements that were required in the Philippine aviation industry were also discussed by the respondents. They emphasized that PCAR Part 8 should be strictly adhered to by companies so that dispatchers would obtain their legal rest hours without any additional work. Another theme highlighted by them was the need to advance work-life balance, give mental health leaves and vacation, employ extra personnel in general aviation to lower workloads, and make satisfactory rest amenities like sleeping rooms or quarters. The respondents stated that these enhancements would aid in the reduction of fatigue and assist in the safe operations.

Other interviewees also compared the local ways with those of the outside world. Informant 3 indicated that in places such as the United States, there are hard work and rest rules, which have to be followed to the letter, when it is "5 p.m. out, it is 5 p.m. out, no overtime". Such systems enhance better mental health, less fatigue, and improved safety outcomes. The same practice would apply to the Philippines to ensure that the aviation sector is brought to the international standards.

In general, the results demonstrate that the optimal management of rest hours, the support of the organization, and higher staffing are needed in order to minimize risks that are associated with fatigue. Such measures would not only assist in ensuring that the dispatchers remain alert and healthy but also contribute to the overall safety performance and long-term reliability of the Philippine aviation sector.

## 4. DISCUSSION

### 4.1. Conclusions

Based on the results and analysis, the following were concluded:

4.1.1. According to the study, flight dispatchers in general aviation in the Pasay region are greatly impacted by insufficient sleep. In order to minimize fatigue and preserve safety, respondents stressed the importance of getting enough sleep and having company support. The overall data shows that sleep insufficiency remains a major concern within their operational environment, despite differing opinions regarding whether work frequently forces them to compromise their sleep.

4.1.2. The results demonstrate that three critical components of dispatcher performance under SOP 2: alertness, decision-making, and overall work efficiency, are directly impacted by insufficient sleep. Dispatchers overwhelmingly agreed that sleep deprivation impairs concentration, slows down reactions, and increases the risk of human error. These findings demonstrate how important sleep is for maintaining mental acuity and guaranteeing trustworthy decision-making in high-risk aviation operations.

4.1.3. In terms of performance, the findings show that dispatchers' accuracy, task completion, and workload management are all adversely affected by fatigue. Dispatchers suffer from slower operational flow, lower productivity, and an increased risk of procedural errors when rest hours are compromised. This demonstrates how fatigue directly jeopardizes operational effectiveness and safety.

4.1.4. Additionally, several factors that contribute to the exploitation of rest periods were identified by the study. These include erratic schedules, heavy workloads, and corporate policies that make it difficult to distinguish between work and relaxation. Inadequate scheduling procedures, unfavorable work environments, and extra off-duty responsibilities, according to respondents, make it difficult for them to get enough sleep.

4.1.5. Despite the existence of rules like PCAR Part 8, this study shows that dispatchers often forgo proper rest because of high flight volume, limited staffing, and strong company demands. This fatigue doesn't just wear them down; it undermines safety. If the industry wants to protect both people and operations, it must shift. More than enforcing rules, companies need to create a culture where rest is not seen as a weakness, but as essential. That change is key to keeping dispatchers alert, healthy, and able to work safely.

4.1.6. Given that we have aviation rules to abide by, such as the PCAR, specifically Part 8, the limitation of duty and the recommended resting hours are not always followed due to the high volume of flights and limited workforce. Companies expect and demand that their employees be present and work hard twice now, even with a growing fleet, from the same group of employees who were starting, to fulfill the satisfaction of their clients. This situation leads to workers becoming fatigued, which significantly affects the safety of every flight. Having this taken into consideration, the working level of the Philippine aviation industry can increase and even be a long-term action to provide quality service to each flight, while also providing care and protecting the rights of employees

**4.2. Recommendations**

Based on the discussed conclusions, the following recommendations are drawn from the gathered data.

4.2.1 Most respondents agreed that **inadequate rest** is critical in their line of work, which can lead to major catastrophes resulting from **human error**. Given the environment in their line of work is non-scheduled, some companies still lack **support for their employees**. Resulting from sleep deprivation and **fatigue**, which can cause accidents while performing their tasks.

4.2.2 The variables the researchers had were **alertness**, **decision-making**, and overall **performance**, which were affected by the consequences of being deprived of their **rest period**. All are being considered as **high-risk reasoning**, as not only does it affect the process in aviation, but hundreds to thousands of lives are also at stake. Some companies allocate a considerable amount of time and space to provide a temporary **resting area** for their employees, allowing them to recuperate more fully during their rest periods.

4.2.3 The recommendations from the interview responses provided the researchers with a new perspective on how a company can support and fully understand the **needs of its workers** while meeting its expected business targets. Some offer **quarters and beds** as a personal resting place that could help

them avoid being stuck in traffic on the way home, lessening the rest time period that they had. It is also recommended to have a good working environment where **work and life are balanced,** together with **additional manpower** to not overwork the employees. Companies offer various **alternatives** to their workers to help them stay refreshed and perform at their best while doing their job. Based on the experiences of the survey respondents, the **irregular schedule** of the aviation industry interferes with the correct rest period of each personnel. Sacrificing **sufficient rest** may lead to **performance below standard**, which is a crucial and unsafe practice in any workplace.

4.2.4 Overall, from all the information gathered, **inadequate rest** affects not only a personnel's welfare but also the specific **level of unsafe procedures** that are crucial for preventing human errors in the field and in aviation history. Accepting that we should discuss this matter, as many are saying, it **compromises safety**. Even with small efforts and the support of each company individually, the primary focus should be on how our country can achieve the **proper work-life balance** that other countries have.

4.2.5 The recommendations to address the issues of poor rest, work overload, and misuse of rest hours, it is essential to focus on three key areas: improvement of fatigue control, organizational culture change, and reduction of external pressures. All organizations must strengthen and strictly implement **FRMS** by introducing **real-time digital tracking of duty cycles** along with a required rest period. These interventions are critical to exclude the mixing of active duty and rest periods, as well as to ensure that the required rest-to-duty ratios are met. The management must maximize scheduling and staffing procedures in order to adapt to the fluctuations of operations that can be associated with unscheduled flight operations and higher frequency patterns, and, therefore, reduce the reliance on the continuous duty cycles. The organization must introduce a strict policy that will not allow mandatory work or communication during off-duty rest periods. This type of policy solves the weaknesses of personnel to outside forces that aggravate rest deprivation and the importance of restful dispatchers to the safety of operations. On their part, these interventions form a **systemic defense against fatigue** and serve to formulate the current culture as one in which safe rest is more valued than rest sacrifice.

4.2.6 To help in decreasing **flight dispatchers' fatigue** and enhance aviation safety, strict compliance with **PCAR part 8** should be applied by companies to make sure the proper duty limits and time off for all personnel. The work roster should be inspected constantly to avoid the situation of employees doing too much, specifically in the field of **general aviation,** where there is not enough staff. Recruiting more employees and making a **systematic rotation of shifts** are ways to relieve the pressure on the present dispatchers. Other than that, providing better rest facilities like sleeping quarters or quiet rooms, along with offering work and life balance, **mental health breaks**, and vacations, will be a huge help in dispatcher health and effectiveness. The authority will be able to react instantly to the problems as they arise through the continuous feedback from the dispatchers concerning the **workload,** as well as the **rest of the staff's accessibility**. The effects of strengthening these systems will not only curb fatigue but also improve the working environment and move local aviation practices nearer to **international standards**.

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