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# PREVALENT STRESSORS AMONG PAL EXPRESS PILOTS

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*Abstract:* **In light of the World Health Organization's 2023 definition of stress as a state of mental tension prompted by challenging circumstances, this study ventures into the realm of aviation stress, particularly focusing on PAL Express pilots. The inquiry is anchored on the recognition that while stress may occasionally bolster performance, it predominantly induces adverse effects, intensifying significantly in high-exposure professions such as aviation. Rooted in evidence from multiple incidents and existing research, the study acknowledges the multitude of both internal and external stressors in aviation, ranging from demanding flying schedules to emotional turbulence due to family issues or job instability. Given the grave responsibilities pilots shoulder, including passengers' safety, the need for effective stress-coping mechanisms becomes paramount. Thus, this investigation primarily seeks to identify the prevalent stressors and the prevalence of stress among PAL Express pilots, aiming to equip administrators with essential data to design effective interventions to ameliorate these stressors and uphold the pilots' mental health and functionality.**

**This study entitled "Prevalent Stressors Among PAL Express Pilots" employed a quantitative descriptive methodology, surveying both Captains and First Officers. The survey revealed that the pilots, largely males aged 26-41 years, face environmental, occupational, and personal stressors. Physical demands, inadequate rest areas, lack of control over work schedules, task complexity, and work-life balance pressures surfaced as predominant concerns. Notably, the study found no significant variation in stressor experiences based on age, gender, or the type of aircraft flown, underscoring the universality of stress experiences in the aviation sector.**

**The research emphasizes the need for holistic interventions to manage these stressors, including stress management programs, regular health checks, improved work conditions, enhanced team-building activities, and an open organizational culture encouraging dialogue about stress. It also calls for further exploration into individual stress experiences, potentially leading to more personalized stress management strategies. Despite some limitations, this study contributes valuable insights into the pervasive issue of pilot stress in PAL Express and its broader implications for the aviation industry.**

*Keywords:* **mental health, PAL Express pilots, aviation industry.**

## I. INTRODUCTION

According to the World Health Organization (2023), stress refers to the state of worry or mental tension brought about by challenging circumstances. This mental pressure triggers a natural response in humans, provoking them to tackle difficulties and threats. Stress, while occasionally promoting heightened performance, frequently has a detrimental effect when experienced over extended periods. Despite the universality of stress, understanding its complexities and how it impacts performance can prove arduous. Notably, what serves as a stressor for one individual might not affect another, further complicating its comprehensive definition and effects.

Pilots are exposed to unique occupational hazards within the aviation profession, paramount among these being an escalated level of stress compared to other professions. A diverse array of aviation stressors accounts for this heightened

susceptibility. These include unpredictable and lengthy flight schedules, incessant noise and vibration, high-altitude flying, and the constant looming threat of technical errors. However, the sources of stress in the aviation industry are not limited solely to operational factors.

Despite their professional engagements, pilots must grapple with various emotional stressors. Striking a balance between personal life and work often proves taxing, given the extended periods they spend away from their families. These emotional stressors are further exacerbated by issues such as social pressures, job instability, and the psychological toll of witnessing or being involved in aircraft accidents. Moreover, if not adequately managed, rigorous flying schedules could compound these stressors, leading to emotional disarray.

Stress can overwhelm pilots, and their responses can take a negative turn without adequate coping mechanisms. The consequent reactions may manifest as feelings of despondency, tendencies to blame others, or even self-destructive behaviors. These extreme emotional responses under the duress of stress endanger the pilot's health and compromise the safety of passengers on board.

The primary duty of pilots, ensuring the safety of every passenger on board, naturally heightens the stress levels associated with their work. The demands of their job, coupled with working round-the-clock, combating jet lag, and enduring long periods of separation from their homes, further magnify their stress. This necessitates the establishing and maintaining positive, healthy habits as a significant mitigating measure against the pressures they face.

Despite the demands of their job, failure to adequately address these stressors could lead to grave health consequences. These risks are not confined to the pilots but extend to all passengers aboard the aircraft. Therefore, it is of paramount importance that pilots prioritize their mental and emotional well-being. Successful navigation and management of these occupational stressors will enhance their performance but also ensure the safety and well-being of all onboard.

In conclusion, this study seeks to delve into the prevalent stressors among PAL Express pilots. Acknowledging these stressors forms the foundation for effectively managing and alleviating their impacts. Thus, this endeavor aims to foster healthier stress management practices within aviation, thereby cultivating a safer and more supportive working environment for all involved.

**Background of the Study**

The landscape of the aviation industry, strewn with inherent challenges and occupational hazards, necessitates an unflinching focus on the multifarious stressors plaguing pilots. Empirical research (Cullen et al., 2016, 2017; Cahill et al., 2021) reveals a complex web of internal and external stressors, substantially escalating the mental duress experienced by those navigating the skies. High-profile incidents, such as the tragic Germanwings 9525 crash in 2015, starkly illustrate the urgent imperative to prioritize the mental well-being of pilots, bringing to the fore the perils of inadequately managed work-related stress (WRS). Co-pilot Andreas Lubitz, diagnosed with suicidal ideation yet harboring fears of professional consequences, concealed his deteriorating mental health status, inadvertently setting the stage for disaster (Shuster, 2015).

An analogous incident unfolded in 2018 when the US-Bangla airliner succumbed to a crash in Nepal. The investigative probe highlighted the emotional turmoil engulfing the pilot, Captain Abid Sultan, contributing to a cascade of fatal decisions. Operating under the shadow of mental stress, Sultan exhibited a spectrum of unusual behaviors indicative of his strained mental state. These incidents underscore the catastrophic implications of neglecting pilots' mental health, leading to irreversible and tragic consequences.

The culture of silence prevalent within the pilot community, exacerbated by the fear of losing their hard-earned licenses, often inhibits frank discussions on health matters, especially mental health. Coupled with a pervasive lack of awareness regarding the deleterious impacts of chronic stress, pilots often find themselves ensnared in a cycle of detrimental coping mechanisms.

The onslaught of the recent global pandemic has further exacerbated the stress milieu within the aviation industry. Widespread furloughs, premature retirements, and unprecedented salary cuts have precipitated an epidemic of financial stress among pilots. Additionally, the recall of pilots under diminished benefit structures, coupled with airport congestions and prolonged duty periods owing to manpower shortages, have served to compound their stress burden, underscoring the need for immediate intervention.

The proposed research, "Prevalent Stressors Among PAL Express Pilots," assumes paramount importance in this context. This comprehensive study aims to elucidate the prevalent stressors and evaluate the magnitude of stress endured by PAL Express pilots, equipping administrators with invaluable data to craft suitable interventions. The research seeks to ensure the psychological well-being of these pilots, a prerequisite for maintaining optimal functionality and passenger safety.

With its unique set of challenges, the global pandemic lends added urgency to this study. By enabling an in-depth exploration of the mental state of PAL Express pilots, this study will account for the seismic shifts triggered within the industry and their consequent impact on pilots. This proactive approach will aid in averting potential crises such as manpower shortages and burgeoning airport congestion, culminating in a safer, more supportive working environment for our aviators during these trying times.

**Statement of the Problem**

The study aims to determine and investigate the prevalent stress among PAL Express pilots. This study seeks to address the mental health issues and concerns of pilots in order to mitigate human-error related aviation accidents.

For a deeper understanding, the study will be guided by the following questions:

1. What is the demographic profile of the participants, in terms of:

1.1 Age;

1.2 Sex;

1.3 Aircraft Equipment; and

1.4 Years in service?

2. What are the prevalent stressors experienced by PAL Express pilots in terms of:

2.1. Environmental/physical stressors;

2.2. Occupational stressors; and

2.3. Personal stressors?

3. What significant difference in the prevalent stressors experienced by PAL Express pilots when grouped according to demographic profile?

4. What is the impact of stress on the job performance of PAL Express pilots in terms of:

4.1. Decision making;

4.2. Teamwork; and

4.3. Communication?

5. What significant difference exist in the impact of stress on job performance based on the aforementioned variables?

6. Based on the findings of the study, what recommendations can be made to significantly reduce the stressors among PAL Express pilots?

**Hypothesis**

$Ho_1$ There is no significant difference in the prevalent stressors experienced by PAL Express pilots when grouped according to demographic profile.

$Ho_2$ There is no significant difference exists in the impact of stress on job performance based on the aforementioned variables.

**Conceptual Framework**

This research seeks to explore the prevalent stressors among PAL Express pilots, with the overarching goal of mitigating human-error-related aviation mishaps that can be influenced by stress. The conceptual framework generated to guide this

investigation is anchored in the conviction that a thorough comprehension of these stressors and efficacious strategies to address them can markedly bolster safety within the aviation industry.

The framework accentuates the significance of the pilots' demographic profile, which functions as the independent variable in this study. The demographic elements under scrutiny encompass age, gender, the type of aircraft equipment operated, and duration of service in years. These elements are pivotal in decoding the multifaceted experiences and perceptions of pilots vis-à-vis stressors in their professional milieu.

The research further specifies the prevalent stressors into three distinct categories: environmental/physical, occupational, and personal. The aim is to ascertain how these stressors fluctuate across diverse demographic cohorts. This analysis will yield insights into the pronounced differences in stress levels when grouped according to the demographic profile.

Beyond identifying and categorizing stressors, the study also endeavors to comprehend the repercussions of these stressors on job performance. It specifically identifies the impact of stress on the decision-making, teamwork, and communication of the PAL express pilots. The objective is to discern if there are notable differences in the influence of stress on these facets of job performance predicated on demographic factors.

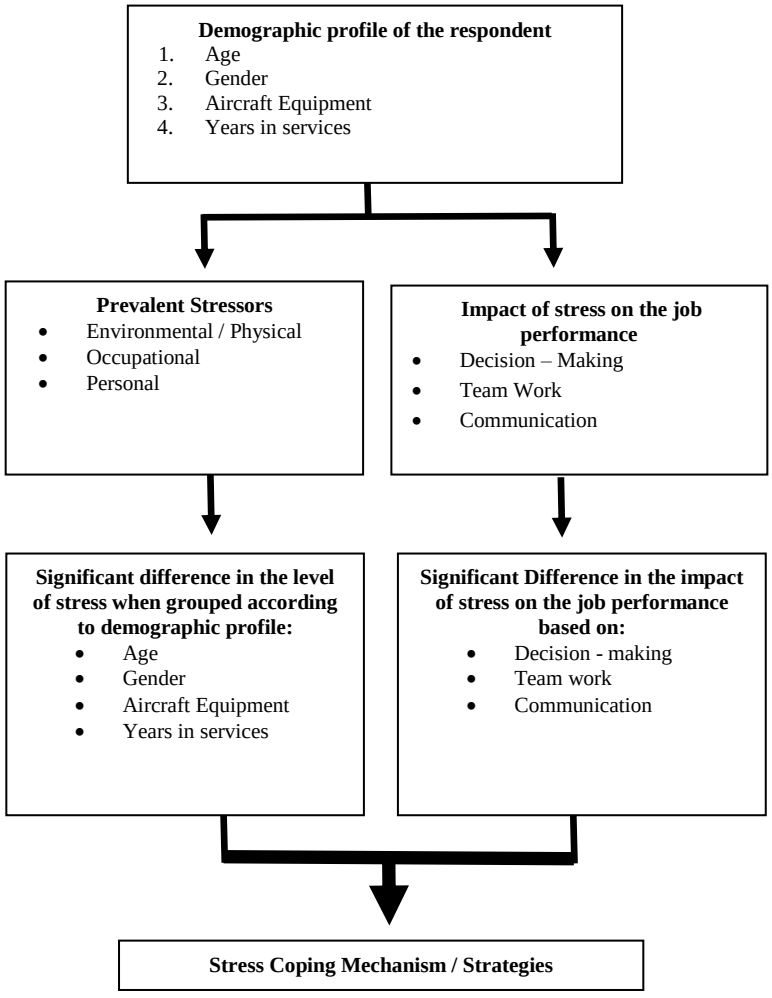


**Figure 1: Conceptual Framework of the Study**

The findings from this study will not only cast light on the prevalent stressors among PAL Express pilots and their influence on job performance but also lay the groundwork for the formulation of efficacious stress-coping mechanisms and strategies. These strategies will be custom-fitted to the unique needs and experiences of the pilots, as informed by their demographic profiles. The ultimate aspiration is to augment the well-being of the pilots and, by extension, contribute to the overarching safety and efficiency of the aviation industry.

**Significance of the Study**

**PAL Holdings, Inc.** As this initiative is for a globally competitive, modernized PAL Express pilot. The psychological fortitude of PAL Express pilots enables them to withstand any challenge, regardless of their work's intensity, thus ensuring their effective strength. Their indomitable mental fortitude should be bolstered by effective psychological interventions, such as stress management and effective coping strategies.

**PAL Express pilots**. This study will serve as a reference in determining the most common stressor among their colleagues, which will help them understand their mental health status and raise awareness of the importance of administering psychological interventions to maintain and sustain an efficient and well-functioning pilot.

**PAL Holdings, other related communities**, **and the country**. This research may be used as a guideline for the development of innovative sustainable psychological interventions, as well as an instructive study to educate the general population about stress awareness. Moreover, this study can be utilized to improve stress management among aviation crews and pilots, leading to safer and more effective personnel and eventually contributing to decreasing the aviation-related accidents rooted in human-error.

**Academe**. This research can contribute to the multitude of narratives dealing with stress issues, topics, and concerns, particularly in the context of participatory intervention by mental health professionals, the immediate family of patients, and the public.

**Nation building.** This study can enhance aviation safety, improve pilot retention and recruitment, promote mental health, protect the national image, and contribute to policy development. Ultimately, this research can positively impact the nation's economic growth, international reputation, and the well-being of pilots who play a vital role in connecting the country with the world.

**Other researchers**. This paper can be a foundation for future research on stress management and suitable psychological therapies for aviation.

**Scope and Limitation of the Study**

The scope of this study is to determine the prevalence rate of stress among PAL Express pilots; this includes the identification of prevalent stressors in terms of environmental/physical, occupational, and personal factors. This study will also discuss the negative impacts of stress on their job performance. This study is limited only to the PAL Express pilots; pilots outside the organization shall not be included in the study, as well as the PAL pilots. This study will be limited in discussing the negative impacts of stress on their job performance and will not further include the positive impacts on their well-being.

**Definition of Terms**

This study used operational and technical terms in order to achieve its objectives. The terms used in this paper are defined as follows:

**Anxiety.** A state of apprehension, uneasiness, or worry that is often accompanied by physical symptoms such as increased heart rate, sweating, and restlessness. It is a normal human response to stress or perceived threats, but when it becomes excessive or prolonged, it can interfere with daily functioning and overall well-being. In the context of the study, anxiety may be examined as a potential mental health issue among PAL Express pilots, impacting their performance and job-related stress levels.

**Aviation**. The operation of aircraft, including airplanes, helicopters, and other flying vehicles. It encompasses various aspects such as aircraft design, manufacturing, piloting, air traffic control, and airport management. In the context of the study, aviation refers to the specific industry and profession of commercial air transportation, with a focus on PAL Express pilots.

**Aviation Accidents**. Events involving aircraft that result in loss of life, injuries, or significant damage to the aircraft or property. They can occur during takeoff, landing, or during the flight itself. Aviation accidents can be caused by a variety of factors, including technical failures, human error, adverse weather conditions, or a combination of factors. Examining aviation accidents may provide insights into the potential consequences of stress among pilots and the importance of mitigating stress-related risks.

**Catastrophe**. A sudden and widespread disaster or event that causes significant damage, loss of life, or severe disruption to normal functioning. In the context of aviation, a catastrophe can involve a major aviation accident, such as a plane crash, resulting in multiple fatalities and extensive damage. Understanding the potential links between stress and catastrophes is crucial for identifying risk factors and implementing preventive measures.

**Crash.** An incident in which an aircraft collides with the ground or another object, resulting in damage to the aircraft and often causing injuries or fatalities. Crashes can occur due to various reasons, including technical failures, pilot errors, adverse weather conditions, or external factors. Investigating the relationship between stress levels and the occurrence of crashes is important for identifying potential contributing factors and improving aviation safety.

**Depression.** A mental health disorder characterized by persistent feelings of sadness, loss of interest or pleasure, changes in appetite and sleep patterns, decreased energy, and difficulty concentrating. It is a serious condition that can significantly impact a person's daily life, including work performance. In the context of the study, depression may be considered as a potential mental health issue among PAL Express pilots affected by stress.

**Distress.** A state of extreme emotional or psychological suffering or discomfort. It is often associated with negative emotions such as anxiety, sadness, or despair. Distress can result from various sources, including work-related stressors, personal challenges, or traumatic experiences. Understanding the levels and sources of distress among pilots can help identify areas of intervention and support.

**Environmental Stressor.** The external factors in the environment that induce stress or have the potential to disrupt psychological and physiological well-being. In the context of pilots, environmental stressors can include factors such as high workload, time pressure, noise, turbulence, or challenging weather conditions. Investigating the impact of environmental stressors on pilots can inform the development of strategies to manage and mitigate their effects.

**Gaps.** Discrepancies or areas of deficiency in existing knowledge or practices. In the context of the study, gaps may pertain to the lack of comprehensive research or understanding regarding the prevalence of stress among PAL Express pilots, the associated risk factors, or the effectiveness of current interventions. Identifying gaps is essential for guiding future research and interventions to address the specific needs of pilots.

**Human-error Accidents.** The incidents or accidents that occur due to mistakes, lapses in judgment, or failures in performance by individuals involved. In the context of aviation, human-error accidents refer to incidents caused by errors or actions of pilots, air traffic controllers, or other personnel directly involved in the operation of aircraft. These accidents can have serious consequences, including loss of life, injuries, and damage to property.

**Intervention.** An action or strategy is implemented to address a specific issue or problem. It involves deliberate efforts to bring about change, improvement, or resolution in a targeted area. In the case of stress among PAL Express pilots, interventions may include implementing stress management programs, providing psychological support services, or introducing policies and practices to mitigate stressors and enhance pilot well-being.

**Mental Health**. Encompasses a person's emotional, psychological, and social well-being. It affects how individuals think, feel, and act, influencing their ability to cope with stress, relate to others, and make choices. Good mental health is characterized by a state of well-being, while poor mental health may involve the presence of mental health disorders or difficulties that impact one's functioning and quality of life.

**Mental Health Issues:** The conditions or disorders that affect an individual's mental well-being and functioning. They encompass a wide range of conditions, such as anxiety disorders, depressive disorders, bipolar disorder, schizophrenia, and others. Mental health issues can vary in severity and duration and may require a professional diagnosis, treatment, and ongoing management.

**Mental Health Programs**. The initiatives, policies, or services aimed at promote mental health, prevent mental health issues, and support individuals with mental health challenges. These programs can include awareness campaigns, counseling services, access to psychiatric care, support groups, and workplace mental health initiatives. Mental health programs play a crucial role in addressing mental health concerns and improving overall well-being.

**Occupational Stressor.** The specific factors or conditions within the work environment that contribute to the stress experienced by individuals in their jobs. In the context of pilots, occupational stressors may include high workloads, long working hours, time zone changes, job demands, performance pressures, and challenging or emergency situations. Identifying and addressing occupational stressors is essential for mitigating stress and promoting well-being among pilots.

**Personal Stressor.** Individual-specific factors or life circumstances that contribute to stress. These stressors may originate from personal relationships, financial difficulties, health problems, family issues, or other challenges unrelated to work. Personal stressors, including pilots, can significantly impact a person's mental health and overall well-being.

**Pilot.** An individual who is trained and licensed to operate an aircraft. Pilots are responsible for flying aircraft, ensuring the safety of passengers and cargo, and following aviation regulations and procedures. They undergo rigorous training and are required to possess technical skills, decision-making abilities, and situational awareness to perform their duties effectively.

**Psychiatric Morbidities.** The mental disorders or illnesses that are clinically diagnosable conditions. These conditions involve disturbances in cognition, emotion, behavior, or a combination of these areas, leading to significant distress or impairment in functioning. Common examples of psychiatric morbidities include depression, anxiety disorders, bipolar disorder, schizophrenia, and post-traumatic stress disorder (PTSD). Understanding the prevalence and impact of psychiatric morbidities is essential for identifying and addressing mental health concerns in a population or specific group, such as PAL Express pilots in this study.

**Psychological Intervention.** The therapeutic approaches or treatments aimed at addressing psychological and emotional difficulties. These interventions are typically delivered by mental health professionals, such as psychologists or psychotherapists, and are tailored to the specific needs of the individual or group. Psychological interventions can encompass various modalities, such as cognitive-behavioral therapy (CBT), psychodynamic therapy, mindfulness-based therapies, and supportive counseling. Psychological intervention aims to alleviate psychological distress, enhance coping skills, promote emotional well-being, and improve overall mental health.

**Stress.** The potential pressures, demands, and challenges that pilots may experience in their professional roles. These stressors can include long work hours, irregular schedules, high workload, time zone changes, operational pressures, and the responsibility of ensuring passenger safety. Investigating the prevalence of stress among PAL Express pilots is essential for understanding its impact on their well-being, job performance, and safety, and for developing appropriate interventions and support systems to mitigate the negative effects of stress on this specific population.

## II. REVIEW OF RELATED LITERATURE AND STUDIES

This chapter presents an overview of the existing literature on stress among pilots, including the stressors experienced by pilots, the effects of stress on pilot performance, and the coping mechanisms utilized by pilots to manage stress.

### Foreign Related Literature

The human body is designed to experience and react to stress, as defined by Cleveland Clinic (2021). Stress is a human response triggered when neuro-receptors detect a change or a challenge. The clinical organization explains that stress can be beneficial if it heightens human awareness and motivation and prepares the body to avoid danger. However, it can also pose a threat and risk to one's health, particularly if it continues unchecked and experienced for an extended period.

As stated in Nature Reviews Endocrinology, Russell & Lightman (2019) explained that the human stress response has evolved to maintain homeostasis under actual or perceived duress conditions. This role is accomplished by neural and hormonal autoregulatory systems working closely with the central and peripheral rhythms. The authors stated that the hypothalamic–pituitary–adrenal (HPA) axis is a critical system that synchronizes the stress response with circadian regulatory processes. Cortisol is the end product of this pathway which is secreted in a pulsatile pattern, which explains having a circadian pattern whenever there are changes in pulse amplitude. Regulation of the HPA axis is very dynamic with both ultradian and circadian oscillations, which is why short-term and longer-term stress result in different regulatory mechanisms involving hypothalamic, pituitary and adrenal activity and cortisol metabolism. Thus, Chronic elevation and nonphysiologically patterns of cortisol result in poor cognitive, metabolic, and immune function.

In line with the discussed literature, cognitive health is vital for aircraft pilots since it is responsible for the information process, particularly during aircraft control, and is closely related to flight safety (Wang et al., 2020).

Furthermore, pilots will inevitably encounter situations that differ from those encountered during training in the actual flight environment. In such a scenario, cognitive function, particularly the pilot's expertise in decision-making, will be utilized. Thus, a healthy cognitive function will yield the appropriate application of simulations that can facilitate the development of such competencies, enhancing pilots' ability to perceive and respond adaptively to novel situations (Rosa, 2021).

On the other hand, physical health and well-being are equally important to the pilot's cognitive health to maintain optimal function. Hanratty (2020) claimed that mental health issues are more likely to emerge in those who are in poor physical condition. Similarly, poor mental health can negatively alter physical health. The author explained that the human body is an essential source of information – such as the sensation of tightness in the chest or difficulty in breathing, butterflies in the stomach, tension or pain in the neck, a dull ache in the back, and fire in the belly, all of which have been said to be an indicator or cues of a pilot's health status (Hanratty, 2020).

During the COVID-19 pandemic, according to the University of South Australia (2022), the stress levels of commercial airline pilots have skyrocketed, placing their mental health at risk. Their survey revealed 75.5% of 49 commercial pilots in the Asia Pacific Region, Europe, and North America. It was identified that their uncertainty about the future, divergence of values, and anti-social working hours resulted in stress among the participants.

According to an article posted in WebMD, stress is triggered by many factors; among these, work stressors were found to be on top due to the survey they conducted among U.S. workers. It was found that the causes of stress were job dissatisfaction, workload, strenuous working hours, poor management, dangerous working conditions, risk of termination, colleagues, and work discrimination (Watson, 2022). These triggers are only a few of the many reasons why an individual experiences stress.

A news report published online on April 2, 2023, in line with Stress Awareness Month, discussed stress among aviation workers, wherein it was emphasized that stress is every day among aviation workers since the aviation industry has a demanding job nature. The authors emphasized that it is essential to identify stress to manage it properly (Kylie, 2023).

Environmental or physical stressors and personal and occupational stressors are one of the three causes of stress in aviation (SKYbrary,2021). They clarified that physical stressors are inherent conditions that can be either internal to the body, such as pain, starvation, lack of sleep, and exhaustion, or external to the body, such as noise, pollution, overcrowding, and excessive heat. As previously explained, these stressors generate a physically disagreeable environment that can lead to stress. In addition, they noted that stress is not solely dependent on the magnitude of a stimulus but also on the duration of exposure.

The first type of stress discussed is time stress, which is the most common form. Time stress arises from the fear of not having enough time to accomplish important tasks due to the prevalence of deadlines and the demand for immediate responses. Individuals experiencing time stress may feel overwhelmed and pressured to meet deadlines, leading to increased anxiety and a sense of time scarcity.

The second type of stress is encountering stress, which occurs when individuals feel anxious about interacting with a group of people whose outcomes are unpredictable or undesirable. This type of stress can also result from spending excessive time with others, leading to burnout and emotional exhaustion. Encounter stress highlights the impact of social interactions on an individual's well-being and the potential challenges they may face in group settings.

Anticipatory stress is another type discussed, characterized by the fear and anxiety associated with anticipating future events. It involves worrying about what might happen, which can lead to increased stress levels and a preoccupation with negative possibilities. Anticipatory stress highlights the psychological toll of anticipating potential challenges and their impact on an individual's well-being.

Lastly, situational stress refers to stress that arises from unexpected and alarming situations, particularly those that are uncontrollable. This type of stress occurs when individuals find themselves in distressing or challenging circumstances, such as accidents, emergencies, or crises. Situational stress underscores the immediate and acute impact of unforeseen events on an individual's stress levels and overall well-being.

Understanding these four types of stress is significant because stress manifests in various forms and affects individuals differently. Individuals can develop more effective stress management strategies by identifying and comprehending the source and nature of stress. Recognizing the specific type of stress experienced can help individuals tailor their coping mechanisms and seek appropriate support. Overall, this understanding can contribute to improved stress management, enhanced well-being, and increased resilience in the face of stressors.

The study's goal is to identify the different stressors of PAL Express pilots, and this model of stress by Dr. Karl Albrecht will guide the researcher in exploring this objective, particularly in classifying whether the source of stress is due to environmental, occupational, or personal factors.

The General Adaptation Syndrome Theory (GAS) explains how the human body adapts to stress through certain physiological changes. Hans Selye initially characterized it in 1936. His study established the three phases of GAS in 1950: alarm, resistance, and exhaustion. Selye asserted that prolonged stress impacts both the body's physical and mental health, and the likelihood of long-lasting unfavorable impacts increases as your body moves through the phases of general adaptability (Edwards, 2022).

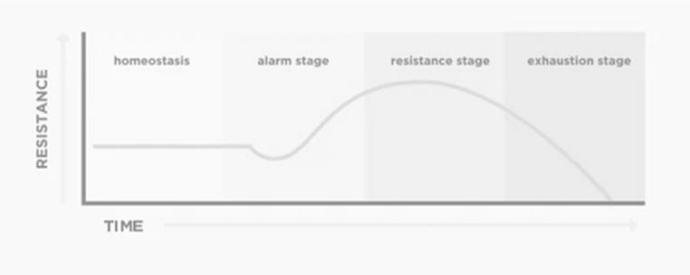


**Figure 2: Stages of GAS (LUCILLE, 2019)**

Lucille (2019) described the phases of GAS according to Selye's theory. According to the author, the alarm stage occurs when a stressor is perceived, activating the sympathetic nervous system and releasing hormones that initiate the body's fight-or-flight response. During this phase, physical manifestations include dilated pupils, an elevated heart rate, rapid respiration, trembling, pale or reddened skin, and heightened senses. However, it was observed that symptoms of most of the alarm response stage subside or revert in the resistance stage, only to reappear in the concluding exhaustion stage.

The parasympathetic nervous system takes over in the second stage of the general adaptive response (GAS) and works to restore homeostasis if the stressor is no longer sensed (Lucille, 2019).

The final stage of GAS is exhaustion, which begins when the body perceives stress continuously; enduring stressors without relief depletes your physical, emotional, and mental resources to the point where the body can no longer cope with stress, leaving it vulnerable to disease. This stage disrupts the body's homeostasis due to persistent stressors (Lucille, 2019).

**Foreign Related Studies**

According to research, Stress from work can potentially adversely affect on mental health (Cahill et al., 2021). According to their journal study, the top four causes of work-related stress (WRS) are working irregular hours, socially isolated hours, the wide variance among values of pilots and management, and doing lengthy tasks such as working long duties.

Personal stressors are problems or occurrences outside of the job that might increase stress, such as family struggles, health problems, or financial difficulties (Cahill et al., 2021). According to Scott (2022), the signs of personal relationship stress are comparable to those of general stress and might include physical health, sleep, sadness, and anxiety. The author also highlighted how daily interactions with others on social networking sites like Facebook can be a contributor to stress.

According to Cullen et al. (2021), the aviation workforce and industry have been under heightened strain because of the pandemic. The capacity of the industry has diminished. In addition, many people were laid off, had their pay cut, or were furloughed. Their motivation and financial stability have suffered as a result. Those still in the workforce do so in drastically altered settings that come with distinctive stresses. Due to that, researchers surveyed aviation workers about

their reporting cultures, coping methods, fitness for work evaluations, and company assistance during the COVID-19 pandemic to assess the impact of the pandemic on aviation workers. The survey included numerous standardized questionnaires to assess the prevalence of prevalent mental health problems. A total of 2,050 aviation personnel took part in and completed the survey. Based on the survey findings, 63% of participants strongly agree or agree that their mental health concerns have deteriorated since COVID. The study also revealed that a substantial number met the criteria for mild depression (36% = 647), moderate depression (17.7% = 317), moderately severe depression (7.4% = 134), and severe depression (4.55% = 80), respectively. The scenario seems to be more detrimental for the cabin crew. The results led the researchers to conclude that organizations and employees must learn to cope with stress and anxiety caused by occupational hazards like COVID-19.

Another study was conducted focusing on the mental health analysis of pilots. Yu et al. (2022) conducted a study that investigates pilots' mental health and analysis of influencing factors in China. The authors hypothesized that a pilot's state of mind and body were major determinants in determining flying safety. Hence, it has significance for aviation safety, health management, and psychological security to learn more about pilots' health-related quality of life (HRQoL). Using quantitative approaches and a cross-sectional study design, the researchers surveyed 200 pilots. Their findings revealed that personality traits such as neuroticism and extraversion substantially affected psychological and behavioral health. Furthermore, their research demonstrated that major life occurrences negatively influence individuals' physiology and psychology. Following the results, the researchers suggest utilizing resilience as an essential defense for the individual under stress, enhancing the individual's ability to cope with a complex environment and promoting recovery from negative emotional experiences.

Venus and Holtforth (2022) explained that stress and allostatic (over) burden could compromise immune responses on multiple levels. Some immune reactions are suppressed, while others overreact, increasing the risk of malignancy or a weakened resistance to viral infections. In this context, it is noteworthy that pilots are nearly six times more likely to develop kidney disease and nearly fifty times more likely to develop melanoma skin cancer (Sykes et al., 2012). Additional allostatic burden manifestations include atherosclerosis, obesity, bone demineralization, and brain nerve cell atrophy. Many of these mechanisms are present in major depressive disorder and may manifest in other chronic anxiety disorders.

Due to its impact on human performance, Masi et al. (2023) asserted that stress is an important topic in aviation. Stress, mental burden, fatigue, distraction, and situational ignorance can result in a variety of scenarios, ranging from minor inefficiencies to catastrophic events. In addition, the study's authors noted that the long-term effects of exposure to flight stress include post-traumatic stress disorder, anxiety disorder, depression, back pain, and cervical pain. A complex relationship exists between stress, burden, anxiety, and focus, interacting with a diverse environment. Consequently, it is impossible to investigate tension in isolation, particularly with aircraft pilots. This study aims to evaluate tension and mental burden in civil and military aircraft pilots. To collect the essential data for the study, the researchers conducted a literature search using the available online databases. From 400 results in the three online databases, 48 articles were chosen. From this, the researchers determined that the primary issues that arise from this review are associated with the mutual interaction of various aspects, stressors, and stimuli during a complex task, such as a flight task. The researchers concluded that performance evaluation serves as a supplement to self and objective evaluation. This can be explained by the fact that performance impairment is a crucial aspect of workload and stress response; consequently, performance evaluation enables the crucial design of predictive models that relate workload/stress to future performance. It is possible to link the behavior of objective or self-assessment metrics with performance variations through combined measures. However, performance evaluation as a solitary technique cannot predict the pilot's internal psychophysiological conditions.

Fonkeng (2018) demonstrated in her thesis that workplace stress affects work job performance. This has been confirmed by the results of her study, which revealed that 68.75 percent of the study's 80 participants have their performance negatively impacted by stress.

Salas (2022) showed that a 2020 survey revealed that job security is the major cause of pilots' stress in the cockpit. This shows that pilots who participated in the survey identified that the most common cause of stress is occupational stressor.

**Local Related Literature**

In an article published online, stress was described as the "ultimate killer" after discussing that the coronavirus crisis carries acute and chronic stresses. As mentioned in the article, Brené Brown quoted that the problem is that a pandemic is both an acutely stressful situation and a slow unraveling of every one of the systems and rhythms that keep us tethered to our lives and to each other (Mirasol, 2021).

The physical, economic, social, and human systems of the aviation sector have reportedly been disrupted by climate change, according to a story from The Manila Times. It has given society an unsettling encounter and a depressing innervation. Extreme temperatures, heat waves, unpredictable rainfall patterns, more severe and frequent tropical cyclones, storms, rising sea levels rise, rain-induced landslides, a prolonged period of drought, variations in wind speeds, and other harmful hazards are some of the changes brought about by this environmental disarray. Reduced aircraft performance, probable infrastructure damage, schedule disruption, and flight cancellation are some effects on the aviation industry. Each effect develops in opposition to the others. However, many disruptions have a common magnitude that may last a long time and is not always apparent at the moment of impact. Due to that situation, Capt. Stanley K. Ng, President and COO of Philippine Airlines (PAL), has made significant progress toward a resilient aviation industry that is low in carbon. He achieved this by conducting the most thorough risk and impact assessments, using science-based solutions, making evidence-based policy recommendations, and implementing gender-transformative programs. According to PAL, resilience is a forward-looking quality that anticipates consequences and dangers rather than responding to them while continuously learning from real experiences and occurrences. Scientific advances, tools, innovations, knowledge, training, and capacity development have been sparked to lessen environmental risks and impacts and build a stronger foundation for future growth. These efforts have been guided by the scientific models of the Intergovernmental Panel on Climate Change (IPCC), the strategic objectives of the International Civil Aviation Organization (ICAO), and support from the International Air Transport Association (IATA). The climate program also includes psychological impact assessments to measure the degree of stress, anxiety, sadness, and other psychological suffering experienced during catastrophic events (Banaguas, 2023).

**Local Related Studies**

Cabico (2020) found that Filipinos around the globe have a general reluctance and unfavorable attitude toward formal help-seeking, despite high rates of psychological distress. They preferred to seek assistance from close relatives and acquaintances. Filipinos residing in the Philippines cite financial constraints and inaccessibility of services as obstacles. The resilience and self-reliance of Filipinos prevent them from seeking assistance. Instead, Filipinos use only specialized mental health care as a last resort or when the problem is severe.

According to a local study, the aviation industry, particularly in terms of air traffic control, is becoming more complex and demanding because of the rising number of aircraft movements at major airport hubs. Consequently, the need to examine the interplay of performance-shaping factors has also increased. The role of fatigue in such factors is overlooked despite its relative impact on air traffic controllers, as tasks are performed under varying workloads and work shifts (Bongo & Seva, 2021). This study relates to stress which can lead to fatigue and may impact an individual's job performance.

As explained by Link (2018), severe stress can induce symptoms, including fatigue. This is because stress can also disrupt sleep and cause insomnia, which can result in low energy, which can become more severe if left untreated or unmanaged, and can likely contribute to chronic fatigue.

Canoll (2018) argued that airline pilots must be able to control an aircraft in a dynamic and constantly changing environment. Pilots routinely interact with air traffic control, examining current weather and forecasts, and monitoring the performance of engines and systems. However, airline pilots must also be capable of handling unexpected safety issues. Whether it is a cargo compartment fire, a medical emergency, or a disruptive passenger, the list of conceivable, yet unpredictable, events is practically infinite. This study highlights the significance of pilots' optical health in achieve full competence, especially because they are responsible for flight safety.

According to Bongo et al. (2018), air traffic controllers are more susceptible to stress owing to an increase in workload as a consequence of a staffing shortfall. Because one of their responsibilities is to maintain aircraft safety, this line of work is

complicated. Their study's conclusion explained how the stresses that create workload stress were evident, which made it harder for them to carry out their duties.

In line with aviation accidents, Philippine Star reported a plane crash in Sulu on July 5 2021 possibly caused by human error. The author reported that the Air Force C-130 disaster that killed dozens of soldiers and civilians may have resulted from a strong wind and pilot error. Military spokesman Major General Edgard Arevalo explained this was proposed after it was determined that the crash was not caused by the equipment used, as it was in "very good condition" and had 11,000 flying hours remaining before its next scheduled maintenance. The investigating team from the 220th Airlift Wing and the 45th Infantry Battalion and Tactical Operations Group 11 arrived at the incident site to continue securing the area and collecting additional evidence (Punongbayan, 2021). This report emphasizes that one of the key roles of an aircraft pilot is to ensure safety.

In accordance with the study's assumption that stress negatively impacts aircraft pilots' job performance, these studies attempt to explain the relationship between stress and job performance, particularly in the aviation industry.

**Synthesis**

The foreign literatures used to discuss stress among pilots is related to their physical and cognitive health, both of which are equally significant in maintain the optimal function to perform the responsibilities and tasks assigned for being a pilot. The GAS theory, cited in foreign literature, provides a theoretical basis for understanding the physiological effects of stress on the body and analyzes how people react to stressful situations. Concerning this, the study hypothesized that PAL pilots dealing with stress over an extended period might harm health and, consequently, have a negative impact on job performance.

The local literature showed that the aviation sector is subject to several environmental issues. Personnel working in the aviation industry, particularly aircraft pilots, are susceptible to various stresses that may negatively influence their mental health. As a result, PAL places a high value on workplace resilience since it helps the company manage risks and consequences rather than just responding. Moreover, it also demonstrated the significance of evaluating anything that may interfere with work or even the health of an aircraft crew.

Since ensuring flight safety is a pilot's primary responsibilities, aircraft pilots must be physically and mentally fit to be fully competent. However, due to the nature of their work environment, the aviation industry has a higher stress prevalence rate than other industries. In accordance with the study's objectives, which are to determine the prevalence rate of stress, identify stressors, and investigate the negative impact of stress on employees' jobs, the review of relevant literature contains significant studies and multiple pieces of literature that will guide the researchers' arguments.

## III. RESEARCH DESIGN AND METHODOLOGY

This chapter described the research design, population, sample, and sampling techniques used in this study. It also presented data collection methods, such as survey questionnaires and data analysis techniques that has been employed. Finally, ethical considerations and limitations of the study was also discussed.

**Methods of Research**

The methods of research will be essential to conducting a study that will yield accurate and reliable results. In this study, the researcher used survey questionnaires as the primary data collection method. The survey questionnaire is a popular tool in social science research and involves asking participants a set of questions on a specific topic. The responses to the questions will then be analyzed using statistical methods.

The research methodology was used in this study will be descriptive research. This approach aims to describe the characteristics of a phenomenon or group. In this case, the researcher will be interested in obtaining objective measures of the phenomenon under investigation. The survey questionnaire will be designed to gather data that will help the researcher better understand the phenomenon.

This study aimed to identify the prevalence of stress among PAL Express pilots and explore the different stressors contributing to their stress level, which will negatively affect their job performance. The purpose will be to assess the participants' experiences related to stress and evaluate different stressors that contribute to their stress level. By employing

these quantitative research methods, this study will provide valuable insights into the prevalent stressors among PAL Express pilots, their impacts on job performance, and potential recommendations to address these issues effectively.

**Participants of the Study**

The target participants for this study were PAL Express pilots, including both Captains and First Officers, who were employed in 2023. The distribution of participants in terms of aircraft equipment is presented in Table 1.

The table illustrated the total number of PAL Express pilots participating in the study. A specific distribution of pilots based on aircraft equipment was provided.

**Table 1: DISTRIBUTION OF THE PAL EXPRESS PILOTS**

| Aircraft Equipment | Frequency (f) | Percentage (f) |
|---|---|---|
| Dash 8 Q 400 | 30 | 50% |
| Airbus 320/321 | 30 | 50% |
| **Total** | **60** | **100%** |

These participants were selected to ensure a balanced representation of pilots operating different types of aircraft within PAL Express. This distribution enabled this study to capture potential differences in prevalent stressors and their impacts based on the type of aircraft being operated.

**Validation of Instrument**

For the validation of the survey questionnaires, the researcher presented them to several recognized experts in this field of study for their comments and suggestions (content validation). The experts were currently active in the field of research. The validators evaluated the content, structure, and directions in answering the survey questionnaire. Revisions were considered from the suggestions and comments given by the experts. These individuals were (1) Captain Rafael T. Andres (VP for Flight Operation) of PAL Express, (2) Captain Patrick Roa (Director and Vice Chairman) of the Asian Business Aviation Association (AsBAA), and (3) Captain Timothy S. Mapeso (ATR Line Captain) of CebGo Inc. The mentioned professionals were currently engaged in research.

**Data Gathering Instrument**

This study used a survey questionnaire to gather the participants' needed quantitative data. The survey was distributed among the participants online using Google Forms.

This survey questionnaire had three parts: (1) the demographic profile of the participants, (2) the Prevalent Stressors, and (3) the Negative Impacts of Stress on work performance.

The first part of the survey questionnaire was designed to collect the necessary data to describe the study participants. This contained the identity of the participants in terms of age, sex, years in service, and aircraft equipment being driven.

The second part of the survey questionnaire identified the prevalent stressors of PAL Express and also described each respondent’s stress level in terms of different stressors. The tool used for this section was adapted from an existing study created by the heads of some pilots' associations and several pilots.

The third section of the survey questionnaire determined the impacts of stress on the respondent's job through a 4-point Likert Scale of Frequency. The negative impacts listed under this section were referenced by Cahill et al. (2021). This section still underwent psychometrician validation as it was a self-made questionnaire.

**Statistical Treatment of Data**

The researcher used descriptive and inferential statistics to analyze the 4-part survey questionnaire.

The responses from the four sections of the survey questionnaires were analyzed through descriptive and inferential statistics.

1. **Frequency & Percentage**. The frequency and percentage were used to determine the participants’ demographic profile as categorized by age, sex, years in service, and aircraft equipment being flown.

*The formula is as follows:*

$$P = \frac{f}{n} \times 100$$

where:

$P$ = percentage

$f$ = frequency

$n$ = number of selected participants

2. **Weighted Mean**. This was used to determine the level of stress among the participants, identify prevalent stressors, and the negative impact of stress on the respondent's work performance.

*The formula is as follows:*

$$\bar{x} = \frac{\Sigma x}{n}$$

where:

$\bar{x}$ = (read as 'x bar') is the mean of x values

$\Sigma x$ = sum of all the x values

$n$ = number of x value

**Likert Scale**. The four-point Likert Scale was used to determine the prevalent stressors experienced and the impact of stress on the job performance by PAL Express pilots. The interpretations were as follows:

**Table 2: FOUR POINT LIKERT SCALE**

| *Weighted Mean* | *Descriptive Rating* |
|---|---|
| 3.25 – 4.00 | Always /Strongly Agree |
| 2.50 – 3.24 | Often /Agree |
| 1.75 – 2.49 | Sometimes / Disagree |
| 1.00 – 1.74 | Never / Strongly Disagree |

3. **Kruskal-Wallis H test.** This rank-based, non-parametric test was used to determine whether there is statistically significant difference in the prevalent stressors experienced by PAL Express pilots when grouped according to the demographic profile when grouped according to age and years in service. The test compared the sum of ranks for each sample to assess significance. It was solved using the formula:

Kruskal-Wallis Formula

$$H = \frac{12}{n(n+1)} \sum \frac{R_i^2}{n_i} - 3(n+1)$$

Kruskal-Wallis Formula

where: n = Total number of values

R = The sum of the ranks for each sample

n with an i = The number in each sample

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According to the Minitab 17 instruction manual, the null hypothesis was rejected if the p-value was less than or equal to the significance level (a-level). Conversely, if the p-value was greater than the a-level, the null hypothesis was accepted.

4. **The Mann-Whitney U Test**. a non-parametric test, was used to determine whether there was a statistically significant difference in the prevalent stressors experienced by PAL Express pilots when grouped according to Sex and Aircraft Equipment profile. It was used to test the null hypothesis that two samples come from the same population (i.e., have the same median) or, alternatively, whether observations in one sample tend to be larger than observations in the other.

*The formula is as follow:*

$$U_1 = n_1 n_2 + \frac{n_1(n_1+1)}{2} - R_1$$

$$U_2 = n_1 n_2 + \frac{n_2(n_2+1)}{2} - R_2$$

The Mann-Whitney U Test Formula

where:

$R_1$ is the sum of the ranks for group 1,

$R_2$ is the sum of the ranks for group 2,

$U_1$ is the smaller value that supports the hypothesis, and

$U_2$ is the larger value that supports the null hypothesis.

The null hypothesis will be tested at a 5 percent significance level. It sets up a hypothesis and determines the level of significance and select the appropriate test statistic. The rejection or acceptance of the null hypothesis will be based on the following guide:

$H_0$: The two populations are equal versus

$H_1$: The two populations are not equal a=0.05

## IV. PRESENTATION, ANALYSIS, AND INTERPRETATION OF DATA

This chapter presents a summary of the data gathered from the survey conducted by the researcher, who underwent statistical treatment. The tabulated data were analyzed in relation to the research purpose and specific questions stated in the problem statement. The analytical tables are presented based on the series of questions, followed by their interpretation and analysis.

**1. Demographic profile of the participants in terms of:**

Table 3 presents the frequency and percentage distribution of participants based on four key demographic factors: age, sex, aircraft equipment, and years in service. This study includes a total of 60 participants (N = 60).

Regarding age, most of the participants fall within the 26-33 age range, comprising 41.67% of the sample. The age group of 34-41 follows closely, representing 48.33% of the participants. A smaller proportion of pilots (10.00%) were aged 41 and above. However, no participants were listed in the 18-25 age group.

**Table 3: FREQUENCY & PERCENTAGE DISTRIBUTION OF PARTICIPANTS DEMOGRAPHIC PROFILE**

| Particulars | Frequency | Percentage |
|---|---|---|
| **1.1. Age** | | |
| 18 – 25 | - | - |
| 26 – 33 | 25 | 41.67% |

| Particulars | Frequency | Percentage |
|---|---|---|
| 34 – 41 | 29 | 48.33% |
| 41 above | 6 | 10.00% |
| **1.2. Sex** | | |
| Female | 12 | 20.00% |
| Male | 48 | 80.00% |
| **1.3. Aircraft Equipment** | | |
| Airbus | 30 | 50.00% |
| Dash 8 Q400 | 30 | 50.00% |
| **1.4. Years in Service** | | |
| 1 - 5 years | 28 | 46.67% |
| 6 - 10 years | 24 | 40.00% |
| 10 - 11 years | 7 | 11.67% |
| 16 above | 1 | 1.67% |

Concerning aircraft equipment, the study included an equal number of pilots operating Airbus and Dash 8 Q400 aircraft, each accounting for 50.00% of the participants.

Regarding years of service, the highest number of participants (46.67%) had been in service for 1-5 years. The group with 6-10 years of service represented 40.00% of the sample. Additionally, 11.67% of pilots had 10-11 years of service, and only 1.67% of those aged 16 years and above.

The implications of these findings could be crucial in understanding the prevalence of stress among PAL Express pilots. For instance, the higher proportion of pilots age ranged 26-41 might indicate that pilots in this age group are more likely to experience stress due to various life and career factors. Furthermore, the male-dominated gender distribution may suggest that stress-related issues in the aviation industry might differ for male and female pilots, warranting further investigation into potential gender-specific stressors.

The equal distribution of pilots across Airbus and Dash 8 Q400 aircraft may suggest that stress levels could be influenced more by common factors shared within the aviation profession than by specific aircraft type-related stressors.

Regarding years of service, the varying percentages might indicate that stress levels could change throughout a pilot's career. For instance, those with 1-5 years of service might face challenges associated with adapting to the demands of the job, whereas pilots with 6-10 years of service may experience stress related to job stability and career advancement.

**2. Prevalent stressors experienced by PAL Express pilots in terms of:**

**2.1 Environmental/Physical Stressors**

Table 4 shows the results of statistical analysis pertaining to the respondents' environmental or physical stressors. Accordingly, it was found that the respondents have often experienced environmental/physical stressors with an average weighted mean of 2.74. Among the five indicators, the primary stressor is the physical demand of the job, such as long hours and irregular schedules. This indicator has posed the highest mean of 3.30, interpreted as "always".

In addition, the respondents mentioned that the lack of proper rest areas or facilities at work have often contributed to their stress, with a mean of 3.23. This is in addition to their experienced stresses due to environmental factors, such as weather conditions, air quality, and physical working conditions (noise, temperature, lighting) with mean values of 2.67

and 2.58, respectively. Meanwhile, the least stressor among the respondents was the ergonomic design of the cockpit with a mean value of 1.90, interpreted as "sometimes."

**Table 4: MEAN DISTRIBUTION OF THE PARTICIPANTS' PREVALENT STRESSORS EXPERIENCED IN TERMS OF ENVIROMENTAL/PHYSICAL STRESSORS**

| Environmental/Physical Stressors | Mean | Verbal Interpretation |
|---|---|---|
| 1. The physical working conditions (e.g., noise, temperature, lighting) affect my performance. | 2.58 | Often |
| 2. Environmental factors (e.g., weather conditions, air quality) add to my stress level. | 2.67 | Often |
| 3. The physical demands of the job (e.g., long hours, irregular schedules) impact my well-being. | 3.30 | Always |
| 4. The lack of proper rest areas or facilities at work contributes to my stress. | 3.23 | Often |
| 5. The ergonomic design of the cockpit affects my comfort and contributes to my stress. | 1.90 | Sometimes |
| **Average Weighted Mean** | **2.74** | **Often** |

These findings provided insights into the things that affect the performance and physical well-being of the respondents. If left unaddressed, these stressors will lead into more evident and crucial impact on many aspects of the pilots' lives in and out of their profession. While some of these stressors could be managed through external factors such as through the initiatives of the aviation sector in providing proper rest areas and in making better facilities, some of these can be addressed by the pilots themselves. For example, weather conditions and air quality are intrinsically present in the environment. Adaptability to such scenarios is necessary for pilots to relieve stress pertaining to these variables.

### 2.2 Occupational Stressors

**Table 5: MEAN DISTRIBUTION OF THE PARTICIPANTS' PREVALENT STRESSORS EXPERIENCED IN TERMS OF OCCUPATIONAL STRESSORS**

| Occupational Stressors | Mean | Verbal Interpretation |
|---|---|---|
| 1. The high workload and time pressure in my job create stress. | 2.48 | Sometimes |
| 2. The complexity of the tasks and responsibilities I have to handle increases my stress level. | 2.23 | Sometimes |
| 3. The lack of control over my work schedule and assignments adds to my stress. | 3.12 | Often |
| 4. The constant need to stay vigilant and focused during flights causes stress. | 2.22 | Sometimes |
| 5. The expectations and performance demands from management contribute to my stress. | 2.13 | Sometimes |
| **Average Weighted Mean** | **2.44** | **Sometimes** |

As shown in Table 5, respondents sometimes experienced occupational stressors, with an average weighted mean of 2.44. Among the indicators, the primary stressor was due to respondents' lack of control over their work schedule and assignments with a mean of 3.12, interpreted as "often." All four indicators such as the high workload and time pressure in their job, the complexity of the tasks and responsibilities they have to handle, the constant need to stay vigilant and focused during flights, and the expectations and performance demands from management have contributed less to the overall occupational stress of the respondents with mean values of 2.48, 2.23, 2.22, and 2.13, all interpreted as "sometimes".

Although, in general, occupational stressors were not often experienced by the respondents, it would be interesting for the company of interest to look into the factors that best predict these stressors. This will allow them to take first-hand steps to decrease such predictors that will maximize the performance of pilots.

### 2.3 Personal Stressors

Finally, the prevalent personal stressors experienced by the respondent pilots were determined. Table 6 displays the results of the statistical analysis performed. Interestingly, personal stressors were found to be experienced at a minimal level with an average weighted mean of 2.19. This correspondent to a verbal interpretation of "sometimes." Among the five indicators, the stressor with the highest mean value corresponds to the pressures of maintaining work-life balance with a mean of 2.77. This means that this personal variable often contributes to the respondents' stresses.

While all four indicators were sometimes experienced by the respondents, the fear of making mistakes or experiencing accidents and the financial pressures and responsibilities have stood with the high mean values of 2.33 and 2.13. Finally, personal issues and problems outside of work and the lack of social support or connection with colleagues contributed the least stress relative to the other indicators with mean values of 1.93 and 1.77, respectively.

**Table 6: MEAN DISTRIBUTION OF THE PARTICIPANTS' PREVALENT STRESSORS EXPERIENCED IN TERMS OF PERSONAL STRESSORS**

| Personal Stressors | Mean | Verbal Interpretation |
|---|---|---|
| 1. The pressures of maintaining work-life balance contribute to my stress. | 2.77 | Often |
| 2. Personal issues and problems outside of work affect my stress levels at work. | 1.93 | Sometimes |
| 3. The fear of making mistakes or experiencing accidents causes stress in my job. | 2.33 | Sometimes |
| 4. The financial pressures and responsibilities impact my stress levels. | 2.13 | Sometimes |
| 5. The lack of social support or connection with colleagues contributes to my stress. | 1.77 | Sometimes |
| **Average Weighted Mean** | **2.19** | **Sometimes** |

While personal and professional aspects of life cannot be completely separated, certain actions should be taken to minimize the integration of stressors from the two aspects. Based on these findings, it was evident that work-life balance contributes to pilots' stress. However, personal stressors could be lessened with proper stress management and sense of responsibility.

Clearly, the respondents have been experiencing prevalent stress as pilots. The available data presented in Table 7 show that environmental and physical stressors contributed the most, with the highest mean value of 2.74. In fact, these stressors were often the most experienced buy them. Furthermore, both occupational and personal stressors fell under the same range of mean values from 1.75 – 2.49, interpreted as sometimes.

**Table 7: OVERALL SUMMARY MEAN DISTRIBUTION OF THE PARTICIPANTS' PREVALENT STRESSORS EXPERIENCED BY PAL EXPRESS PILOTS**

| Prevalent Stressor | Mean | Verbal Interpretation |
|---|---|---|
| Environmental / Physical Stressors | 2.74 | Often |
| Occupational Stressors | 2.44 | Sometimes |
| Personal Stressors | 2.19 | Sometimes |
| **Average Weighted Mean** | **2.45** | **Sometimes** |

The present dataset (Table 7) revealed the mean distribution of prevalent stressors experienced by PAL Express pilots, focusing on three distinct areas: environmental, physical, occupational, and personal stressors. The total number of participants (N) in this study was 60.

The data suggests that environmental or physical stressors are experienced 'often' by the participants, with a mean score of 2.74. Occupational stressors were sometimes experienced, with a mean score of 2.44. Similarly, personal stressors were sometimes experienced, with a mean score of 2.19.

The average weighted mean of 2.45 falls into the 'sometimes' category, indicating that, on average, the pilots experience these stressors at a moderate frequency.

The findings of this study have significant implications for PAL Express in terms of understanding their pilots' work-related stressors and developing strategies to manage them. Considering that environmental or physical stressors scored the highest, it is crucial for PAL Express to identify these specific factors (e.g., flight conditions and physical discomfort) and to minimize their impact on pilots.

Occupational and personal stressors, although marked as 'sometimes', should not be overlooked as they are also prominent sources of stress. Understanding these stressors can help the companies develop programs or policies to reducing job-related stress and support their personal well-being.

These findings might also contribute to the broader literature on occupational stress in the aviation industry, potentially informing interventions aimed at promoting pilot health and safety.

**3. The significant difference in the prevalent stressors experienced by PAL Express pilots when grouped according to the demographic profile**

**Table 8: KRUSKAL WALLIS H TEST RESULTS ON THE SIGNIFICANT DIFFERENCE IN THE PREVALENT STRESSORS EXPERIENCED BY PAL EXPRESS PILOTS WHEN GROUPED ACCORDING TO AGE**

| Prevalent Stressors | Kruskal Wallis H-Tab | Degrees of Freedom | P-value | Decision $H_0$ | Conclusion |
|---|---|---|---|---|---|
| Environmental / Physical Stressors | 1.624 | 2 | 0.444 | Accept | Not Significant |
| Occupational Stressors | 0.812 | 2 | 0.666 | Accept | Not Significant |
| Personal Stressors | 0.156 | 2 | 0.925 | Accept | Not Significant |

To gain in-depth knowledge of the prevalent stressors experienced by the respondent pilots, a test of significant difference was performed when the respondents were grouped according to their profiles. The three considered stressors were all tested for significant differences using non-parametric statistical tools.

Kruskal-Wallis Test was conducted to examine if there exist statistical differences in the prevalent stressors experienced by the respondents.

Table 8 shows the results of the Kruskal-Wallis H test performed to determine if there were significant differences in the prevalent stressors experienced by PAL Express pilots when grouped according to age.

The Kruskal-Wallis H test returned a high p-value (greater than 0.05) for each of these stressors. Specifically, the p-values were 0.444, 0.666, and 0.925 for environmental/physical, occupational, and personal stressors, respectively. Given these results, we would accept the null hypothesis (Ho) for each of the stressors, indicating that there is no statistically significant difference in the reported stressors across the age groups.

The statistical analysis suggests that the experience of prevalent stressors amongst PAL Express pilots is not significantly impacted by age. This is noteworthy as it implies that interventions to mitigate these stressors can be broadly applied to all pilots irrespective of their age cohort. Programs or strategies do not need to be age-specific but can be generalized across the workforce.

However, it is important to consider these findings within the limitations of the study. The results do not necessarily mean that age does not influence stressors in other ways or that age does not interact with other variables that might influence the experience of stress. Therefore, further research might be needed to better understand the complex interactions between age, occupational stressors, and their impact on pilot performance and well-being.

**Table 9: MANN-WHITNEY U TEST RESULTS ON THE SIGNIFICANT DIFFERENCE IN THE PREVALENT STRESSORS EXPERIENCED BY PAL EXPRESS PILOTS WHEN GROUPED ACCORDING TO SEX**

| Impact of Stress | Mann-Whitney U Test | P-Value | Decision $H_0$ | Conclusion |
|---|---|---|---|---|
| Environmental / Physical Stressors | 206 | 0.130 | Accept | Not Significant |
| Teamwork | 255 | 0.546 | Accept | Not Significant |
| Communication | 208 | 0.136 | Accept | Not Significant |

Table 9 presents the results of the Mann-Whitney U test conducted to determine if there exists a significant difference in the three prevalent stressors experienced by the respondents when they were grouped according to sex. As shown in the table, there were no significant differences found.

Particularly, there were no statistical mean differences in the prevalent stressors experienced by male and female respondent pilots in terms of environmental/physical stressors (U = 206, $p$ = 0.130), occupational stressors (U = 255, $p$ = 0.546), and personal stressors (U = 208, $p$ = 0.136). This will accept the null hypothesis: "There is no significant difference in the prevalent stressors experienced by PAL Express pilots when grouped according to sex.

This statistical analysis suggests that the prevalence of stressors amongst PAL Express pilots does not significantly differ based on sex.

This finding is significant as it implies that interventions designed to mitigate these stressors can be applied broadly across all pilots, irrespective of their sex. Hence, these stress reduction strategies do not need to be sex-specific and can be universally implemented across the workforce.

However, while interpreting these findings, it is crucial to acknowledge the limitations of the study. The results do not definitively indicate that sex does not influence stressors in other ways, or that sex does not interact with other variables which might affect the experience of stress. Therefore, future research could be necessary to understand the complex interactions more thoroughly between sex, prevalent occupational stressors, and their impact on pilot performance and well-being.

**Table 10: MANN-WHITNEY U TEST RESULTS ON THE SIGNIFICANT DIFFERENCE IN THE PREVALENT STRESSORS EXPERIENCED BY PAL EXPRESS PILOTS WHEN GROUPED ACCORDING TO AIRCRAFT EQUIPMENT**

| Impact of Stress | Mann-Whitney U Test | P-Value | Decision $H_0$ | Conclusion |
|---|---|---|---|---|
| Environmental / Physical Stressors | 374 | 0.262 | Accept | Not Significant |
| Occupational Stressors | 421 | 0.672 | Accept | Not Significant |
| Personal Stressors | 351 | 0.142 | Accept | Not Significant |

Table 10 discloses the outcomes of the Mann-Whitney U test that was conducted to determine whether there were considerable differences in the prevalent stressors experienced by PAL Express pilots when grouped by aircraft equipment.

For each of these stressors, the Mann-Whitney U test returned a p-value above the customary significance threshold of 0.05. Specifically, the p-values were 0.262, 0.672, and 0.142 for environmental/physical stressors, occupational stressors, and personal stressors, respectively. Based on these results, the null hypothesis (Ho) would be accepted for each of the stressors, implying that there is no statistically significant difference in the experience of these stressors when the pilots are grouped according to aircraft equipment.

This finding has a substantial implication for designing and implementing stress management strategies within PAL Express. It suggests that the development of interventions to mitigate prevalent stressors does not require segmentation or differentiation based on the type of aircraft equipment pilots operate. Consequently, stress reduction strategies and programs can be designed to address the pilot group as a whole, rather than creating equipment-specific interventions. This streamlines the development process and ensures consistency in the quality and accessibility of support provided to all pilots.

In the broader context of the aviation industry, these results could provide valuable insights for other airlines operating diverse fleets. The understanding that the type of aircraft does not significantly influence stressors among pilots they operate can guide the development of universal, organization-wide stress management programs, promoting overall well-being and performance among pilots.

**Table 11: KRUSKAL WALLIS H TEST RESULTS ON THE SIGNIFICANT DIFFERENCE IN THE PREVALENT STRESSORS EXPERIENCED BY PAL EXPRESS PILOTS WHEN GROUPED ACCORDING TO YEARS IN SERVICE**

| Prevalent Stressors | Kruskal Wallis H-Tab | Degrees of Freedom | P-value | Decision $H_0$ | Conclusion |
|---|---|---|---|---|---|
| Environmental / Physical Stressors | 2.90 | 3 | 0.407 | Accept | Not Significant |
| Occupational Stressors | 4.17 | 3 | 0.244 | Accept | Not Significant |
| Personal Stressors | 3.37 | 3 | 0.338 | Accept | Not Significant |

Table 11 shows the outcomes of the Kruskal-Wallis H test that was carried out to examine if there were significant differences in the prevalent stressors experienced by PAL Express pilots when they are categorized according to their years in service.

For each of these stressors, the Kruskal-Wallis H test resulted in a p-value greater than the conventional significance level of 0.05. Specifically, the p-values were 0.407 for environmental/physical stressors, 0.244 for occupational stressors, and 0.338 for personal stressors. These results lead us to accept the null hypothesis (Ho) for each of the stressors, indicating that there is no statistically significant difference in the experience of these stressors among the pilots when grouped according to their years in service.

The results of this statistical analysis point towards a critical revelation; the common stressors that PAL Express pilots experience do not appear to be significantly influenced by the length of their service. This insight has far-reaching implications. The core implication is that when designing interventions to mitigate these stressors, we can consider a universal approach for all pilots, regardless of their service years. It simplifies the process of strategizing, as it removes the need to create service-year-specific stress management programs. Instead, a comprehensive, company-wide strategy can be implemented, potentially leading to more cohesive and unified coping mechanisms within the pilot workforce.

Beyond the confines of PAL Express, these findings could also serve as a point of reference for other airlines and organizations in the aviation industry. Given that stress management is critical to ensuring safety and efficiency in aviation operations, understanding that years of service may not significantly impact stressor prevalence could guide industry-wide best practices in the development of stress management strategies.

However, it is crucial to approach these findings with a balanced view, recognizing the potential limitations of this study. For instance, the conclusion does not categorically rule out the possibility that years of service might interact with other factors that could influence the stress experience in ways not captured in this study. The complexity of human stress responses and the multiplicity of potential influencing factors necessitate ongoing research in this field.

It would be beneficial to delve deeper into other aspects such as the interplay between years of service, types of occupational stressors, and their cumulative impact on pilots' performance and psychological well-being. The results of such explorations could lead to an even more nuanced understanding of stress dynamics within the aviation profession, ultimately contributing to more effective stress management strategies and healthier, more resilient aviation personnel.

**4. Impact of stress on the job performance of PAL Express pilots in terms of:**

Given how the respondent-pilots have been experiencing stressors, the impact of these stressors on their job performance in terms of decision-making, teamwork, and communication was also determined. The results of statistical analyses and interpretations were presented in the following subsections.

**4.1. Decision – Making**

**Table 12: MEAN DISTRIBUTION OF THE PARTICIPANTS' IMPACT OF STRESS ON THE JOB PERFORMANCE OF PAL EXPRESS PILOTS IN TERMS OF DECISION – MAKING**

| Decision - Making | Mean | Verbal Interpretation |
|---|---|---|
| 1. Excessive stress disrupts my concentration. | 3.00 | Agree |
| 2. Stress increases the likelihood of making errors or mistakes while performing my pilot duties. | 3.02 | Agree |
| 3. Stress contributes to a decline in my job satisfaction as a PAL Express pilot. | 2.88 | Agree |
| 4. High levels of stress impair my decision-making abilities in critical situations. | 2.72 | Agree |
| 5. Stress causes me difficulties to adapt to change. | 2.28 | Disagree |
| **Average Weighted Mean** | **2.78** | **Agree** |

Table 12 presents the mean distribution of the participants' responses regarding the impact of stress on their job performance as PAL Express pilots, particularly concerning their decision-making abilities.

The participants' mean responses indicated general agreement with four out of five statements related to the negative effects of stress on their decision-making process. Participants agreed that excessive stress disrupts their concentration (mean=3.00), increases the likelihood of making errors or mistakes in their duties (mean=3.02), contributes to a decline in job satisfaction (mean=2.88), and impairs decision-making abilities in critical situations (mean=2.72). However, the pilots disagreed with the statement that stress causes difficulties in adapting to change (mean=2.28).

The average weighted mean of all responses was 2.78, which falls into the "Agree" category. This indicates that, on average, PAL Express pilots generally agree that stress adversely affects their decision-making abilities and, by extension, their job performance.

These findings underscore the significance of stress management in maintaining high job performance standards among PAL Express pilots. In particularly, they highlight the potential consequences of excessive stress on decision-making abilities, a critical aspect of a pilot's job performance.

As the pilots agreed that stress could cause concentration disruption, increase mistakes, diminish job satisfaction, and impair decision-making abilities in critical situations, these areas need to be considered when developing stress management strategies and interventions. Such interventions should aim to reduce the negative effects of stress on pilots' decision-making abilities, thereby enhancing their job performance and satisfaction.

However, the pilots disagreed that stress causes difficulties in adapting to the change. This can be seen as a positive indication of their resilience and adaptability despite stressful situations. However, continuous support should be provided to maintain and strengthen resilience.

Although these insights are valuable, they should be considered in conjunction with other factors that may also influence job performance. Furthermore, the need for future research is suggested to explore other aspects of job performance affected by stress and to design targeted interventions for better stress management among pilots.

### 4.2. Teamwork

**Table 13: MEAN DISTRIBUTION OF THE PARTICIPANTS' IMPACT OF STRESS ON THE JOB PERFORMANCE OF PAL EXPRESS PILOTS IN TERMS OF TEAMWORK**

| Teamwork | Mean | Verbal Interpretation |
|---|---|---|
| 1. Stress decreases my productivity. | 2.80 | Agree |
| 2. Stress affects my sleep quality, leading to fatigue and reduced alertness on duty. | 3.20 | Agree |
| 3. Stress causes me to be short-tempered that triggers issues with other colleagues. | 2.33 | Disagree |
| 4. Stress contributes to a decline in my motivation and enthusiasm for my work as a pilot. | 2.70 | Agree |
| 5. Stress causes me to become prone to reacting differently to work situations. | 2.47 | Disagree |
| **Average Weighted Mean** | **2.70** | **Agree** |

The impact of stress on teamwork was also examined, as presented in Table 13. The respondents agreed to the five shown indicators with an average weighted mean of 2.70. Among the indicators, the primary driver with the highest mean corresponds to how stress affects the respondents' sleep quality, leading to fatigue and reduced alertness on duty, with a mean of 3.20. This was followed by a decrease in productivity (2.80) and a decline in motivation and enthusiasm for their work as pilots (2.70).

Interestingly, the respondents disagreed with two statements about them becoming prone to reacting differently to work situations and being short-tempered, which triggered issues with other colleagues.

These findings suggest that stress hinders the respondent-pilots' professional growth. A decrease in motivation oftentimes decreases productivity, as revealed in this section. Because of this, companies like PAL Express shall invest in ensuring that their pilots have enough rest and quality sleep. Thus, stress management is easier in pilots. This might not be easier to decide by looking at financial aspects. However, weighing options for the companies are most likely encouraged to avoid compromising the company-client relationships.

### 4.3. Communication

**Table 14: MEAN DISTRIBUTION OF THE PARTICIPANTS' IMPACT OF STRESS ON THE JOB PERFORMANCE OF PAL EXPRESS PILOTS IN TERMS OF COMMUNICATION**

| Communication | Mean | SD |
|---|---|---|
| 1. Stress impacts my ability to calmly communicate. | 2.50 | Agree |
| 2. Stress causes me to be reclusive. | 2.42 | Disagree |
| 3. Stress hinders my effective communication skills leading to misunderstandings and/or disagreements. | 2.33 | Disagree |
| 4. Stress causes me to give off confusing non-verbal signals such as facial grimaces. | 2.52 | Agree |
| 5. Stress heightened my emotions that mostly leads to difficulty of expressing things in appropriate ways. | 2.47 | Disagree |
| **Average Weighted Mean** | 2.45 | Disagree |

The assessment of the impact of stress on the respondents' communication skills, as presented in Table 14, offers further insights into the multifaceted implications of stress on PAL Express pilots. Among the five stress impact indicators, the respondents agreed with two, both of which relate to the nonverbal components of communication. They acknowledged that stress affects their ability to communicate calmly and may inadvertently lead to transmitting confusing non-verbal signals such as facial expressions, both manifesting within the range of agreement (2.50-3.24).

Conversely, the respondents disagreed with the remaining three indicators. Interestingly, they refuted the idea that stress heightens their emotions to the extent that it hampers their ability to express themselves appropriately (mean of 2.47). They also denied that stress causes them to become reclusive (mean of 2.42) or hinders their effective communication skills to a point where misunderstandings or disagreements are more likely to occur (mean of 2.33).

Given these mixed responses, the overall influence of stress on the concept of communication among the pilots appears to be inconclusive, reflected by the calculated average weighted mean of 2.45.

Nevertheless, these findings provide an insightful glimpse into how the respondent pilots experience and manage stress. Remarkably, the absence of a significant impact of stress on effective communication was a positive indicator of the pilots' verbal and cognitive adaptability under stressful circumstances.

While other aspects like decision-making and teamwork can be susceptible to stress, effective communication serves as a powerful mitigating factor in overcoming these challenges. Through proficient communication, pilots can potentially alleviate stress by sharing their thoughts, expressing concerns, and engaging in active listening. Thus, despite the inherent stress of their profession, effective communication appears to act as a valuable tool in navigating both professional and personal stressors.

As illustrated in Table 15, the stress encountered by respondent pilots had a multifaceted influence on their professional lives. This shapes their decision-making and teamwork dynamics, but its impact on communication is minimal. This nuanced understanding of stress and its implications underlines the importance of multifaceted stress management interventions that can address these diverse aspects of stress and its impacts on pilots' professional performance and personal well-being.

**Table 15: OVERALL SUMMARY MEAN DISTRIBUTION OF THE PARTICIPANTS' PREVALENT STRESSORS EXPERIENCED BY PAL EXPRESS PILOTS**

| Prevalent Stressor | Mean | Verbal Interpretation |
|---|---|---|
| Decision - Making | 2.78 | Agree |
| Teamwork | 2.70 | Agree |
| Communication | 2.45 | Disagree |
| **Average Weighted Mean** | **2.45** | **Agree** |

The quantitative data presented in Table 15 provides a summarized view of the prevalent stressors experienced by PAL Express pilots in relation to their professional roles, namely, decision-making, teamwork, and communication.

The mean distribution suggests that pilots generally agree that stress significantly impacts their decision-making (mean = 2.78) and teamwork (mean = 2.70), indicating an acknowledgment of the adverse effects of stress in these aspects of their professional lives. These findings suggest that stressors may compromise pilots' cognitive functioning during critical decisions and their collaborative interactions within their professional circles. These dimensions are crucial for optimal functioning in aviation settings, and their perceived impact by stress highlights the importance of addressing these areas in future stress management interventions.

In contrast, the pilots do not agree that stress negatively affects their communication (mean = 2.45), suggesting that they maintain effective communication channels despite facing substantial stressors. This resilience may be attributable to the high level of training pilots received in communication skills, or it might reflect the coping mechanisms they employ to sustain effective communication under stress.

The computed overall average weighted mean of 2.64 paints a somewhat intricate scenario. It denotes that the pilots, on the whole, concur that stressors constitute a prevalent facet of their occupational life, having ramifications on various aspects of their professional roles.

These findings have several significant implications. In an organizational plane, such insights have the potential to guide the formulation and implementation of stress management schemes. These programs could be constructed with an emphasis on fortifying decision-making and teamwork capacities under stress, and capitalizing on the pilots' inherent resilience in communication.

For the pilots, acknowledging the toll that stressors can exact on their professional performance might kindle a proactive stance towards embracing stress management strategies. Such engagement can be instrumental in ameliorating their overall well-being and occupational performance.

Nevertheless, it is of paramount importance to interpret these findings considering the inherent limitations of the study. A holistic understanding of the interplay between prevalent occupational stressors and pilots' performance and wellness mandates further investigations. Future research could examine additional variables that could not incorporated in this study. These explorations could illuminate the complex nature of stress experiences among pilots from various angles, providing a more robust foundation for devising efficacious stress management initiatives.

Furthermore, considering the dynamic nature of stressors and their potential impact on various professional roles, continued assessment over time could offer valuable insights. Longitudinal studies, in particular, can shed light on the shifting nature of stress experiences among pilots, offering a more comprehensive understanding of these phenomena and aiding in the timely modification and enhancement of stress management strategies.

Finally, it is also crucial to consider the potential for individual variation in stress experiences and responses. While the study presents an average, individual pilots may exhibit differing stress experiences and coping mechanisms. Tailoring stress management initiatives to accommodate such individual differences can further bolster their effectiveness.

**5. On the significant difference exist in the impact of stress on the job performance based on the aforementioned variables**

**Table 16: MANN-WHITNEY U TEST RESULTS ON THE SIGNIFICANT DIFFERENCE EXIST IN THE IMPACT OF STRESS ON THE JOB PERFORMANCE**

| Impact of Stress | Mann-Whitney U Test | P-Value | Decision $H_0$ | Conclusion |
|---|---|---|---|---|
| Decision - Making | 403 | 0.485 | Accept | Not Significant |
| Teamwork | 401 | 0.471 | Accept | Not Significant |
| Communication | 390 | 0.372 | Accept | Not Significant |

The results of the Mann-Whitney U Test presented in Table 16 assessed the presence of significant differences in the impact of stress on job performance among PAL Express pilots across three key factors: decision-making, teamwork, and communication.

Under the domain of decision-making, the U-value was computed as 403, with a corresponding p-value of 0.485. The p-value exceeds the standard significance level of 0.05, which led to the acceptance of the null hypothesis (H0), thereby concluding that there is no significant difference in the impact of stress on decision-making performance among the pilots.

Similarly, the U-value was determined for teamwork as 401, with a corresponding p-value of 0.471. Given that this p-value also surpasses the threshold of 0.05, the null hypothesis (Ho) was again accepted, signifying no significant difference in the influence of stress on teamwork among the pilots.

Lastly, the U-value for communication was calculated as 390, with a p-value of 0.372. This result again calls for the acceptance of the null hypothesis (H0), concluding that there is no significant difference in the impact of stress on the

communication abilities of the pilots. These findings underscore that, irrespective of variations in individual experiences and potential differences in demographics or job-related factors, the impact of stress on the job performance of PAL Express pilots in terms of decision-making, teamwork, and communication does not significantly differ.

**Table 17: RECOMMENDATIONS TO SIGNIFICANTLY REDUCE THE STRESSORS AMONG PAL EXPRESS PILOTS**

| FINDINGS | RECOMMENDATIONS | DESCRIPTION | ANALYSIS |
|---|---|---|---|
| **1. Environmental or physical stressors are experienced 'often' by the pilots.** | Improve Working Conditions | PAL Express should work on improving the physical conditions pilots work in, such as ensuring comfortable seating and optimal cabin conditions. | By improving the physical conditions, the frequency of these stressors can be reduced, leading to less overall stress for pilots. |
| **2. Occupational and personal stressors are also significant.** | Develop Stress Management Programs | PAL Express should develop programs to help pilots manage these stressors, such as mindfulness training or stress management workshops. | These programs can provide pilots with tools to better manage their stress, potentially reducing its impact on their work. |
| **3. Stress affects pilots' sleep quality, leading to fatigue and reduced alertness on duty.** | Ensure Adequate Rest | PAL Express should ensure pilots have enough rest and quality sleep by implementing strict rest periods and providing facilities for rest. | Adequate rest can improve pilots' alertness and productivity, reducing the impact of stress on their performance. |
| **4. Effective communication can help alleviate stress.** | Enhance Communication | PAL Express should promote open communication among pilots and between pilots and management. This could include regular meetings, feedback sessions, or team-building activities. | Enhanced communication can help pilots express their concerns, share their thoughts, and feel more supported, potentially reducing stress. |
| **5. Stress can compromise pilots' cognitive functioning during critical decisions.** | Provide Cognitive Support | PAL Express should provide cognitive support, such as decision-making training or cognitive behavioral therapy. | Cognitive support can help pilots handle stress during critical decisions, potentially improving their performance and reducing stress. |

This broad applicability of the findings suggests that any strategies developed to mitigate the impact of stress on job performance can be uniformly applied across the pilot workforce. However, this does not rule out the potential for individual experiences of stress or the efficacy of stress mitigation strategies.

Given the limitations of the current study and the complexity of stress and its impacts, further research is needed to comprehensively understand these phenomena. Such studies could investigate other potential moderating or mediating factors and use more nuanced or individual-focused methodologies to fully grasp the intricate dynamics of stress and job performance among pilots.

**6. Based on the findings of the study, what recommendations can be made to significantly reduce the stressors among PAL Express pilots?**

In light of the findings from this study, several recommendations can be proposed to manage and significantly reduce stressors experienced by PAL Express pilots. These recommendations are based on the fact that the study found no significant differences in the impact of stress on job performance in terms of decision making, teamwork, and communication among the pilots.

Based on the findings of the study, the following recommendations can be made to significantly reduce the stressors among PAL Express pilots

The recommendations focus on addressing the main sources of stress identified in the study (environmental or physical stressors, occupational and personal stressors), mitigating the impacts of stress (on sleep quality, decision-making, and teamwork), and enhancing factors that can help alleviate stress (effective communication). By implementing these

recommendations, PAL Express can significantly reduce the stressors among its pilots, potentially improving their performance, well-being, and job satisfaction.

## V. SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

This chapter presents the summary of findings, conclusions, and recommendations of the study.

**Summary of Findings**

Based on the data collected, analyzed, and interpreted from the Survey Questionnaire, the following are the major findings of the study:

**1. The demographic profile of the participants**

The sample comprised 60 pilots, primarily within the 26-41 age bracket, encapsulating an overwhelming majority of 90% of the participants. The lack of representation from the younger demographic, the 18-25 age group, raises questions about the role age plays in this profession's stress experiences. In terms of gender, male pilots dominated the sample with an 80% representation, pointing towards a gender skew in the pilot profession. Further research could explore whether this imbalance extends to gender-specific stress experiences.

An equal distribution of pilots operating both Airbus and Dash 8 Q400 aircraft was noted, suggesting the likelihood of universal stress factors spanning different aircraft types. This assertion, however, requires further investigation to provide a definitive conclusion. The service years among the pilots presented a diversified picture, with the majority (46.67%) having served for 1-5 years, and a smaller fraction of pilots (1.67%) boasting a service period of 16 years and above. This distribution suggests that the influence of stressors may fluctuate throughout a pilot's career, potentially marked by varying challenges and stressors at different career stages. In sum, the demographic findings establish a meaningful context for comprehending the pervasiveness and diversity of stressors among PAL Express pilots.

**2. Prevalent stressors experienced by PAL Express pilots**

This study unraveled the key stressors experienced by PAL Express pilots, broadly categorized into environmental, occupational, and personal stressors. As per Table 4, the pilots frequently experienced environmental or physical stressors, evident from an average weighted mean of 2.74. Topping the list were the job's physical demands, such as long hours and irregular schedules (mean = 3.30), and lack of proper rest areas at work (mean = 3.23). Conversely, the ergonomic design of the cockpit was considered a less frequent stressor (mean = 1.90).

Table 5 highlighted occupational stressors, experienced intermittently with an average weighted mean of 2.44. Lack of control over work schedules and assignments emerged as a significant stressor (mean = 3.12), followed by high workload, complexity of tasks, need for vigilance, and managerial expectations (mean values ranging between 2.13 and 2.48).

Delving into personal stressors, Table 6 reflected a minimal influence with an average weighted mean of 2.19. Notably, the pressures of maintaining work-life balance surfaced as a recurring stressor (mean = 2.77), while fear of errors or accidents, financial pressures, personal issues, and lack of social support presented lesser, yet notable stressors (mean values from 1.77 to 2.33). Overall, these findings underscore the complex matrix of stressors within the aviation profession, warranting multi-faceted approaches to managing stress.

**3. On the significant difference in the prevalent stressors experienced by PAL Express pilots when grouped according to demographic profile**

This study has yielded several key findings regarding the significant difference in the prevalent stressors experienced by PAL Express pilots, as examined by demographic profile. The Kruskal-Wallis H test results revealed no statistically significant differences in reported stressors across different age groups, reflected in high p-values (greater than 0.05) for environmental/physical stressors ($p = 0.444$), occupational stressors ($p = 0.666$), and personal stressors ($p = 0.925$).

The study further revealed no statistical mean differences in these stressors between male and female pilots. The p-values for environmental/physical stressors ($U = 206$, $p = 0.130$), occupational stressors ($U = 255$, $p = 0.546$), and personal stressors ($U = 208$, $p = 0.136$) were all above the customary significance threshold of 0.05, leading to the acceptance of the null hypothesis for each category.

In addition, when pilots were grouped by the aircraft equipment type, the Mann-Whitney U test returned p-values of 0.262, 0.672, and 0.142 for environmental/physical stressors, occupational stressors, and personal stressors, respectively. This implied a lack of statistically significant difference in the experience of these stressors within the different equipment groups. These findings suggest a universality of stressor experiences across pilots, independent of their age, gender, or the type of aircraft they operate.

**4. Impact of stress on the job performance of PAL Express pilots**

The average weighted mean response for statements regarding stress's negative effects on decision-making was 2.78, indicating that pilots generally agree stress adversely influences their decision-making and overall job performance. Specifically, pilots concurred that excessive stress disrupts concentration (Mean=3.00), elevates the probability of errors in their duties (Mean=3.02), leads to a decline in job satisfaction (Mean=2.88), and impairs critical decision-making abilities (Mean=2.72). However, they disagreed with the notion that stress creates difficulties in adapting to change (Mean=2.28).

Among the impact indicators, pilots identified that stress predominantly affects sleep quality, which subsequently results in fatigue and diminished alertness on duty (Mean=3.20). Other reported impacts included a decrease in productivity (Mean=2.80) and a decline in motivation and enthusiasm for work (Mean=2.70).

In terms of communication, pilots agreed that stress impacts non-verbal communication elements, like communicating calmly and unintentionally transmitting confusing facial expressions. However, they disagreed with statements suggesting stress heightened emotions to a level that hinders appropriate self-expression, causes them to become reclusive, or results in communication mishaps due to misunderstandings or disagreements.

**5. The significant difference exists in the impact of stress on job performance based on the study variables**

The study findings suggest that stress does not significantly impact three key aspects of job performance among PAL Express pilots: decision-making, teamwork, and communication. Specifically, when considering decision-making, the analysis yielded a U-value of 403 and a p-value of 0.485, exceeding the standard significance threshold of 0.05. Consequently, the null hypothesis was accepted, suggesting no significant impact of stress on decision-making performance.

Similar results were obtained for teamwork, with a U-value of 401 and a p-value of 0.471, leading again to the acceptance of the null hypothesis and indicating no substantial influence of stress on teamwork. Communication was the final area examined, with a U-value of 390 and a p-value of 0.372, once more exceeding the significance threshold and prompting the acceptance of the null hypothesis, demonstrating no significant impact of stress on pilots' communication abilities.

In summary, despite individual differences and potential variance in demographic or job-related factors, stress does not significantly differentiate the job performance of PAL Express pilots in the realms of decision-making, teamwork, and communication.

**6. Recommendations that can be made to significantly reduce the stressors among PAL Express pilots**

The study's findings propose several recommendations to manage and decrease the stressors impacting PAL Express pilots' job performance. First, comprehensive stress management programs are advised, incorporating training workshops on stress recognition, coping strategies, mindfulness and relaxation techniques, and psychological support services such as counselling. Second, regular health and well-being check-ups, encompassing both physical and psychological assessments, are recommended for early detection and intervention of stress-related issues.

Next, the improvement of work conditions and schedules is crucial. This can be achieved by ensuring sufficient rest periods between flights, avoiding prolonged shifts, and establishing innovative scheduling for improved work-life balance. Fourth, enhancing team-building activities could facilitate stronger relationships and support among team members, improving overall team resilience to stress.

Fostering an organizational culture that encourages open dialogue about stress and its effects can help destigmatize these issues, ensuring pilots feel supported when they need assistance. This could involve regular meetings to discuss stress-related concerns and feedback systems for pilots to contribute to decisions about stress management initiatives. Lastly, additional research is recommended to delve deeper into individual stress experiences and explore potential moderating factors not covered in this study, which could inform more individualized stress management strategies.

**Conclusions**

In light of the findings of the study, the following conclusions were drawn:

1. The participants' demographic profile, primarily composed of male pilots aged 26-41 years, operating both Airbus and Dash 8 Q400 aircraft, underlines the universality of stress experiences in the aviation sector. Although the study does suggest potential variances in stress experiences across different career stages and raises questions regarding age and gender-specific stress experiences, these hypotheses necessitate further exploration.

2. The stressors faced by PAL Express pilots encompass environmental, occupational, and personal factors. The study highlights the prominent environmental stressors, such as the job's physical demands and lack of proper rest areas, and occupational stressors like lack of control over work schedules and complexity of tasks. Personal stressors, albeit less influential, included pressures of maintaining work-life balance. These findings underscore the multifaceted nature of stressors in the aviation profession, necessitating holistic approaches to stress management.

3. A noteworthy finding of this study is the absence of significant differences in stressor experiences among pilots, irrespective of their age, gender, or the type of aircraft they operate. The statistical analysis conducted across these demographic factors revealed high p-values, indicating a universality in stress experiences across pilots.

4. While pilots concur, that stress has potential adverse impacts on decision-making, the likelihood of errors, job satisfaction, and sleep quality, it did not significantly influence three key aspects of job performance: decision-making, teamwork, and communication. This affirms that, despite potential variances in individual and demographic factors, stress does not significantly differentiate the job performance of PAL Express pilots.

5. The findings suggest the implementation of comprehensive interventions to manage and decrease the stressors affecting the pilots' job performance. These interventions should incorporate stress management programs, regular health and well-being check-ups, improved work conditions and schedules, enhanced team-building activities, and an open organizational culture that encourages dialogue about stress. Further research is recommended to understand individual stress experiences and inform more personalized stress management strategies.

In conclusion, this study provides a valuable examination of the stressors and their impact on job performance among PAL Express pilots, offering actionable insights for the development of comprehensive stress management programs. Further research is necessary to delve deeper into the individual and demographic variance in stress experiences, thereby enabling more tailored interventions for stress management in aviation.

**Recommendations**

Based on this study's significant findings and conclusions, the following recommendations are offered:

**1. Development and Implementation of Comprehensive Stress Management Programs:** Considering the prevalence and universality of stress experiences among PAL Express pilots, creating and implementing comprehensive stress management programs is recommended. These could include workshops on stress recognition, coping strategies, and mindfulness practices, and provision for professional mental health services such as counselling.

**2. Regular Health and Well-being Assessments:** The study findings underscore the importance of proactive stress management through regular health and well-being check-ups. These assessments should cover both physical and psychological health aspects, enabling early detection and management of stress-related issues.

**3. Improvement of Work Conditions and Schedules:** Stressors related to the physical demands of the job, lack of proper rest areas, and control over work schedules were identified as significant in the study. Therefore, improvements in these areas should be prioritized. This could involve ensuring adequate rest periods between flights, reducing prolonged shifts, and adopting more flexible work schedules to facilitate a better work-life balance.

**4. Strengthening Team Dynamics:** As stress did not significantly influence teamwork, it is important to further enhance team dynamics and peer support among pilots. Regular team-building activities could be introduced to foster better understanding and camaraderie among team members, potentially helping to alleviate stress levels.

**5. Encouraging Open Dialogue about Stress:** Given the pervasiveness of stress in the aviation profession, creating an open organizational culture that allows discussion of stress-related issues is essential. Regular meetings to discuss stress-related concerns and establish systems for feedback can provide pilots with a platform to voice their concerns and suggestions, ultimately contributing to more effective stress management strategies.

**6. Further Research:** While the current study provides valuable insights into the nature of stressors experienced by PAL Express pilots, further research is warranted. More granular investigation into the potential variances in stress experiences based on individual characteristics and demographic factors could inform the development of more personalized stress management strategies.

These recommendations aim to address the identified stressors affecting PAL Express pilots, thus potentially enhancing job performance, personal well-being, and overall safety within the aviation profession.

**RESEARCH OUTPUT**

**A. Proposed Coping Mechanism / Strategies for Physical / Environmental Stressor**

| Proposed Strategies | Target Beneficiaries / Person involved | Target Time Frame | Resources /Needs | Proposed Budget |
|---|---|---|---|---|
| Ergonomic Seating: Design and procure pilot seats that provide excellent lumbar support, adjustable headrests, and armrests. | Aviation Experts, Ergonomists, Procurement Team | 4 Months (January - Apri | Ergonomic Seats, Expert Consultation | 5,000,000 |
| Cabin Environment: Invest in advanced cabin climate control systems. | Aviation Experts, Procurement Team | 4 Months (January - April) | Advanced Climate Control Systems | 7,000,000 |
| Rest Facilities: Establish dedicated rest facilities at main operating bases. | Facilities Management Team | 3 Months (May - July) | Rest Facilities, Scheduling System | 3,000,000 |
| Stress Management Programs: Offer stress management workshops and training sessions. | HR Team, Professional Counselors | Throughout the Year (January - December) | Workshops, Training Sessions | 2,000,000 |
| Communication Channels: Set up an anonymous reporting system. | IT Team, HR Team | 2 Months (January - February) | Anonymous Reporting System | 1,000,000 |
| Physical Wellness Initiatives: Introduce wellness programs. | HR Team, Wellness Coaches | Throughout the Year (January - December) | Wellness Programs, Healthy Food Options | 2,500,000 |
| Fatigue Management: Implement a comprehensive fatigue risk management system. | Flight Operations Team, HR Team | 4 Months (March - June) | Fatigue Risk Management System | 2,000,000 |
| Crew Resource Management (CRM): Reinforce CRM training for pilots. | HR Team, Training Team | Throughout the Year (January - December) | CRM Training | 1,500,000 |
| Regular Audits and Assessments: Conduct periodic audits and assessments of pilot working conditions. | HR Team, Flight Operations Team | Quarterly (Every 3 Months) | Audits, Assessments | 1,500,000 |

**B. Proposed Coping Mechanism / Strategies for Occupational Stressors**

| Proposed Strategies | Target Beneficiaries / Person involved | Target Time Frame | Resources /Needs | Proposed Budget |
|---|---|---|---|---|
| Implement flexible rostering system | PAL Express Pilots | 3 months | Rostering software, HR personnel | 500,000 |
| Ensure adequate staffing levels, sufficient breaks, reasonable | PAL Express Pilots | 6 months | Additional pilots, HR personnel, | 2,000,000 |

| | | | | |
|---|---|---|---|---|
| flight and duty periods | | | scheduling software | |
| Simplify tasks, provide clear guidelines, offer additional training | PAL Express Pilots | 4 months | Training materials, trainers, HR personnel | 1,000,000 |
| Provide adequate rest periods, implement fatigue management strategies, ergonomic cockpit environment | PAL Express Pilots | 6 months | Ergonomic equipment, fatigue management training | 1,500,000 |
| Clear communication of expectations, constructive feedback, reward good performance, supportive workplace culture | PAL Express Pilots, Management | 6 months | HR personnel, management training | 500,000 |
| Access to mental health resources, counselling, stress management programs | PAL Express Pilots | Ongoing | Mental health professionals, resources | 1,000,000 |
| Utilize data analytics to predict potential stressors, regular surveys | PAL Express Pilots, Data Analysts | Ongoing | Data analytics software, data analysts | 1,500,000 |

**C. Proposed Coping Mechanism / Strategies for Personal Stressors**

| Proposed Strategies | Target Beneficiaries / Person involved | Target Time Frame | Resources /Needs | Proposed Budget |
|---|---|---|---|---|
| Family and Friends Day | PAL Express Pilots | Monthly | HR personnel, Scheduling software | 50,000 |
| Work-Life Boundaries Training | PAL Express Pilots | Every 6 months | HR personnel, Training materials | 200,000 |
| Fitness Challenge | PAL Express Pilots | Quarterly | Fitness equipment, HR personnel | 100,000 |
| Regular Crew Meetings | PAL Express Pilots, Management | Monthly | Meeting space, Management personnel | 50,000 |
| Mindfulness Training Program | PAL Express Pilots | Every 6 months | Trained mindfulness instructors, Training materials | 300,000 |
| Crew Bonding Activities | PAL Express Pilots | Quarterly | Event planning, HR personnel | 500,000 |
| Mentorship Program | PAL Express Pilots, Experienced Pilots | Ongoing | HR personnel, Experienced pilots | 50,000 |
| Stress Coping Strategies Workshop | PAL Express Pilots | Every 6 months | Trained instructors, Training materials | 200,000 |
| Cognitive Behavioral Therapy (CBT) Training | PAL Express Pilots | Every 6 months | Trained CBT therapists, Training materials | 300,000 |
| Nutrition Seminars | PAL Express Pilots | Quarterly | Nutritionists, Seminar materials | 200,000 |
| Confidential Counseling Services | PAL Express Pilots | Weekly | Professional counselors, Confidential space for counseling | 500,000 |
| Wellness Workshops | PAL Express Pilots | Quarterly | Trained wellness instructors, Workshop materials | 300,000 |
| Anonymous Feedback System | PAL Express Pilots | Daily | Feedback system software, IT personnel | 100,000 |
| Regular Crew Meetings | PAL Express Pilots, Management | Monthly | Meeting space, Management personnel | 50,000 |

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