

**MODERATING ROLE OF PSYCHOLOGICAL RESILIENCE ON WORK-
RELATED STRESS AND MENTAL WELL-BEING AMONG AIRCRAFT
MAINTENANCE PERSONNEL AT WILSON AIRPORT, NAIROBI
COUNTY, KENYA**

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A THESIS SUBMITTED TO THE GRADUATE SCHOOL IN PARTIAL
FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE
OF MASTER OF ARTS IN MARRIAGE AND FAMILY THERAPY

PAN AFRICA CHRISTIAN UNIVERSITY

APRIL 2025

DECLARATION

This thesis is my original work and has not been presented for a degree or any other award at any other University. No part of this Research Proposal may be reproduced without the prior written permission of the author and/or PAC University.

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DEDICATION

I dedicate this research work to my dear husband and friend Steve and our sons Chris, Gaby, Noel, Elias, and Jason.

ACKNOWLEDGEMENTS

First of all, I would like to thank God for guiding me throughout this journey of developing the proposal because, without His grace and guidance, it would have been impossible to complete the work. Secondly, I am at a loss for words to address my lead supervisor Dr Amos Alumada for the time he has dedicated to make sure I emerge with excellent work. You made me see the higher level of learning differently and believe that I can do it too. May the Lord continually bless you for your dedication and time spent in supervising and mentoring me to be a better student. Thirdly, my special thanks go to Patricia Wanderi and Judith Kibue for supporting my academic work and for the many phone calls and consultations. You have kept me focused on my work and your regular feedback has been amazing. You have given authentic feedback which made me better and sharper. Finally, I would also like to express my gratitude to my dear friend and husband, Steve, for your guidance and support academically, spiritually, and morally throughout my academic journey. I thank God that you encouraged me to pursue a different career line where my passion and dedication lie. I am forever grateful. You have been a source of strength and inspiration and I look forward to reaching where you are, may God increase you in wisdom. To my awesome sons Chris, Gaby, Noel, Elias, and Jason, you have a special place in my heart, and pray that I will be an inspiration and a role model to emulate. Last but not least, to all the aircraft maintenance personnel at Wilson Airport whose cooperation made this research successful.

ABSTRACT

The aviation sector is known for vibrant operations with demands for aircraft operations to be better, quicker, and safer, which meant that the personnel working on the aircraft has to meet tight deadlines and sometimes unrealistic operational demands. This demand subsequently generate work-related stress, affecting the mental well-being of the engineers. The purpose of this study was to explore the impact of psychological resilience on mental well-being when an aircraft maintenance personnel is experiencing work related stress. In addition, the researcher aimed to understand whether the engineer's level of resilience in bouncing back has a moderating effect in maintaining a stable mental well-being. The study was guided by three specific objectives: to determine the level of work-related stress among aircraft maintenance personnel at Wilson Airport in Nairobi, Kenya; to establish the relationship between work-related stress and the mental well-being of aircraft maintenance personnel at Wilson Airport in Nairobi, Kenya; and to examine the moderating role of psychological resilience on the relationship between work-related stress and mental well-being among aircraft maintenance personnel at Wilson Airport in Nairobi, Kenya. Transactional theory, psychological well-being theory, and resilience theory served as the guiding frameworks for the study. The study employed a cross-sectional research design. A survey method was used to collect quantitative data, and a stratified sampling method was employed. The data was analyzed using a statistical software, SPSS version 23. The variables were measured using instruments that had been validated and declared reliable. The respondents filled three self-report questionnaire scales: the Warwick-Edinburgh Mental Well-being Scale, the Connor-Davidson Resilience Scale (CD-RISC-10), and the Work-related Stress Scale. The number of respondents participating in the study was 257, including aircraft engineers from different Approved Maintenance Organizations located at Wilson Airport. A majority of respondents (51.6%), reported experiencing fairly low levels of stress, which suggests that more than half of the personnel at Wilson Airport experienced low stress levels. The study established a significant negative correlation between work-related stress and mental well-being, $r=-0.634$, $p<0.01$. Work-related stress negatively predicted mental well-being, $\beta=-0.587$, $t=-13.257$, $p<0.01$. A significant positive correlation was found between mental well-being and psychological resilience ($r=0.549$, $p<0.01$). The correlation between work-related stress and psychological resilience was negative ($r=-0.444$, $p<0.01$). Conclusion was drawn that stress levels varied across the workforce, with the majority experiencing low to moderate stress. The obtained significant negative relationship between the work-related stress and mental wellbeing underscores the critical impact that workplace stress can have on employees' mental health. Employees with higher levels of resilience are better equipped to handle stress, which helps protect their mental well-being. The study recommended that counseling practitioners should focus on providing targeted interventions that address the specific stressors faced by aircraft maintenance personnel. Developing specialized counseling programs that incorporate resilience-building techniques can help employees better manage stress. Practitioners should also collaborate with airline companies to ensure that counseling services are accessible and tailored to the unique needs of the aviation workforce. A similar study should be conducted among other industry professionals such as pilots and cabin crew.

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LIST OF ABBREVIATIONS AND ACRONYMS

AMO	Approved Maintenance Organization
AMP	Aircraft Maintenance Personnel s licensed engineers and technicians
ICAO	International Civil Aviation Organization
NACOSTI	National Commission for Science, Innovation and Technology
SPSS	Statistical Package for the Social Sciences
WRS	Work-Related Stress

OPERATIONAL DEFINITIONS

Aircraft Maintenance Personnel: This term refers to personnel trained to maintain aircraft (Rybalkina & Enikeev, 2021). In this study, the term is used to refer specifically to aircraft maintenance personnel working at Wilson Airport in Nairobi, Kenya.

Approved Maintenance Organization: A maintenance facility that is certified by Kenya Civil Aviation Authority to carry out maintenance checks on various aircraft and is required to employ qualified personnel to carry out the stated work (2022). In this study it is referred to the working organization when aircraft maintenance personnel work.

Commercial Aviation refers to the transportation of passengers and cargo for hire and involves larger aircraft designed to carry many passengers and higher tonnage of cargo. The operations are mainly scheduled to specified destinations and use fixed timetables to transport passengers or cargo profitably and efficiently (Li et al., 2022). It is used in this study to differentiate it from general aviation as carried out at Wilson Airport.

Flight Safety Foundation: This is a non-profit organization whose mandate is research, advocacy, and communication concerning safety matters in aviation (Flight Safety foundation, 2022). In this study, it refers to the body that brings together experts working in the various areas of aviation such as pilots, aircraft engineers, dispatchers and flight attendants in Kenya.

General Aviation: This involves private and non-scheduled operations. Most of the aviation companies have small private aircraft and operate when clients book. Additionally, the aircraft do not have specific destinations and fly for personal or business purposes (Li et al., 2022). In this research it is used in reference to the aircraft operations undertaken at Wilson Airport.

Mental Well-being: This refers to a person's state of emotional, psychological as well as social which moderates how they handle life issues and adapt to life challenges (Cahill et al., 2021). **Psychological Resilience:** This is an individual's ability to maintain or regain mental health despite experiencing adversity (Li et al., 2022). In this study, it is an umbrella term for positive outlook, productivity and engagement, emotional wellbeing, adaptive coping, and social connection.

Work-Related Stress: It is the physical, emotional, and psychological strain experienced by an individual in response to pressure and demands of a work environment. The stress comes from an imbalance between the pressure generated by work and a person's ability to cope with that pressure (Sime et al., 2022). In this study, work-related stress was measured by experience of unpleasant working conditions, work overload, work-life imbalance, inadequate recognition, lack of job-control, fear of self-expression, skills underutilization, and negative wellbeing.

CHAPTER 1: INTRODUCTION AND BACKGROUND TO THE STUDY

Introduction

The research seeks to elucidate the moderating role of psychological resilience on work-related stress (WRS) and mental well-being among aircraft engineers in Nairobi County, Kenya. Chapter one addresses the background of the study, the statement of the problem, the research objectives, research questions, justification and significance of the study, scope of the study, limitations, and delimitations of the study.

Background to the Study

Work is important to most individuals since it gives a person economic independence, identity, and social interaction which greatly influences who they are and how they define ourselves (Djurdjevic et al., 2017). In addition, work is not only a function but provides the individuals with the following six benefits: i) creation of a steady source of income, ii) predictable daily routine, iii) opportunity for personal development, iv) expansion of a social capital and experience, v) the ability to contribute to the society, and finally vi) personal identity and status (Gagnano et al., 2020). In fact, a budding body of empirical studies suggests that there are multiple and positive life outcomes that tend to be associated with work and the overall mental well-being of most people (Lu et al., 2023; Lu & Zhuang, 2023; Wang et al., 2022). It has also been suggested that the work context provides people with new acquaintances whom they spend more time with compared to their families or loved ones (Kremer et al., 2021). Hence, having a job is every graduate's wish (Yiu et al., 2022).

The significance of meaningful work cannot be underrated since it influences an employee's motivation, mental well-being, and life commitment (Martela et al., 2021). Study outcomes suggest that work is a part of human life and a significant

moderator of an individual's health (Cahill et al., 2020). On the contrary, unemployment is linked to negative consequences on individuals' overall well-being (Bell & Blanchflower, 2019). Contemporary research shows that unemployment contributes to poverty and social inequity among individuals from diverse cultural backgrounds (Buttler, 2022). Thus the experience of unemployment is often associated with the deterioration of both the physical and mental well-being of the unemployed and their families progressively (Kamerāde et al., 2019).

Despite the significant and diverse benefits that are often associated with work experience (Drdjevic et al., 2017; Gragnano et al., 2020; Lu et al., 2023; Lu & Zhuang, 2023; Wang et al., 2022), current evidence shows that some types of occupations tend to predispose employees to stress (Black & Britt, 2023; Nathani & Bendre, 2022). A typical example is when there is dissatisfaction with an employee's achievement or progress (Bendixen & Scheel, 2023). Work-related stress emanates from the daily duties of a person's work life. This may also stem from their interaction with people, machines, or software (Sucharitha & Amzad Basha, 2020). For instance, the American Institute of Stress which measures attitudes and perceptions of stress among the general public reported that 63% of American workers are willing to quit their jobs due to work-related stress (Boyd, 2022). Thus, the experience of stress tends to impact negatively on the employees' overall performance and overall wellbeing (Kinay et al., 2021).

Current studies indicate that aircraft maintenance personnel are among a cadre of employees who are prone to experiencing stress with excessive workload, tight deadlines, technological challenges as well as poor planning (Nathani & Bendre, 2022). Aircraft maintenance has several interrelated activities that form the backbone of an airline (Naweed & Kourousis, 2020). This means the engineering department must

hand over an airworthy aircraft for passenger use or cargo operations (Pimapunsri et al., 2022). Evidence shows that activities of aircraft maintenance repair and overhaul (MRO) are essential to guarantee the safe operations of the aircraft (Dias et al., 2019). For instance, between 2012 and 2021, the National Transport Safety Board in the USA reported that there were above 12,000 accidents. This report continues to demonstrate that a total of 9506 accidents were reported to have been due to person-related errors and issues (NTSB, 2021). Therefore, aircraft maintenance personnel, just like pilots, are aviators who are accountable for the safety of thousands of individuals working at the airport and traveling daily and they must maintain both their physical and mental fitness to manage their roles effectively (Kelly & Efthymiou, 2019).

The study outcomes indicate that the consequence of meeting tight deadlines with a greater requirement to observe regulatory as well as laid down procedures tends to give rise to recurrent emotional distress to an aircraft engineer (Santos & Melicio, 2019). It has also been reported that engineers who develop and emerge stronger after work-related pressure has a positive well-being compared with their colleagues who work under similar conditions devoid of psychological resilience (Elfeddali et al., 2022). Thus, stress being a condition that has an impact on people's actions, professional performance, and interactions with coworkers is not to be underrated but to be understood with the aim of working within acceptable parameters (Kinay et al., 2021). In addition, it is worth noting that all stress is not negative and cannot be completely eliminated from work (Martela et al., 2021). However, how one handles work-related stress is of importance in meeting deadlines, achieving expected goals, handling workloads, and having a balanced life (Cahill et al., 2021).

Aircraft Maintenance Personnel (AMPs) are aviation professionals who have worked in the aviation industry for a period of not less than 5 years (Rybalkina & Enikeev, 2021). The responsibilities of the AMPs typically involves repairing, inspection, and assembling of aircraft parts and systems (Santos & Melicio, 2019). The work of an engineer requires concentration as well as high level of soberness which may lead to one being disposed to high levels of stress (Ślęzyk-Sobol et al., 2021). The duties of an aircraft engineer are complex that demand among other responsibilities, prolonged coordination, communication and interaction with different teams such as flight operations and the ability to cope well with stress (Cahill et al., 2021). Hence, the overall psychological well-being of the AMPs is crucial for safety of the passengers, the crew, and the overall function of the aircraft (Santos & Melicio, 2019). Similarly, the nature of work in aviation can increase the level of work related stress that include emotional burnout and fatigue (Kim et al., 2022; Santos & Melicio, 2019) which are often associated with judgmental errors (Illankoon & Tretten, 2019). In turn, the judgmental errors may compromise safety concerns, hazards, and risks which lead to accidents (Dias et al., 2019).

As noted in the previous paragraph, stress is generated from work related activities which affect personal well-being of an individual (Cahill et al., 2023). Mental well-being is defined as the overall quality of an individual's life and the extent to which the person will experience positive emotions, satisfaction and physical, mental, social and emotional fulfilment (Cullen et al., 2021). In addition, the determinants of personal well-being are classified as physical, psychological and social factors such as family relationship, social support, working conditions and working environment (Cahill et al., 2023). This study seeks to look into how mental wellbeing (i.e., family relationship,

social support, working conditions, and work environment) are influenced by work related stress and the role of psychological resilience as a moderating factor.

One of the key resources that is often associated with the overall wellbeing of the AMPs is psychological resilience (Wut and Stephanie-Wing, 2022). Psychological resilience is defined as the enablement of a person to bounce back to normalcy following a setback or a stressful situation (Douglas & Pittenger, 2020). In addition, psychological resilience is a trait that can be learned, developed, and improved over a period of time (El-Sayed, 2022). This trait enables one to cope well with the adversity (Küçük Kiliç, 2020). For instance, one is said to be resilient when they go through trauma or adversity, or stress but can come out stronger and ready to face the situation again without breaking (Van Breda, 2018). An engineer's job requires someone who is able to bounce back after a discouraging situation (Cahill et al., 2021). In addition, they carry out their tasks with an eye on details without compromising on safety (Santos and Melicio, 2019). Similarly, it has also been posited that resilience acts as a protective factor against stress and debilitating mental conditions such as depression and anxiety, etc. (El-Sayed, 2022; Song et al., 2021).

The growing demands and complexities of aircraft maintenance expose engineers to intense work-related stress (WRS), which poses significant risks to their mental well-being and, by extension, aviation safety. While meaningful work is known to enhance mental health and personal identity, high-stakes environments such as aircraft maintenance often result in emotional burnout, fatigue, and judgmental errors. This study sought to investigate the moderating role of psychological resilience – an adaptive trait that enables individuals to recover from adversity – on the relationship between WRS and mental well-being among aircraft engineers in Nairobi County.

Understanding this dynamic is essential for safeguarding both personnel welfare and operational integrity in aviation.

Problem Statement

The research sought to find out what would happen to the mental health of aircraft maintenance personnel when psychological resilience is introduced to personnel who are exposed to work related stress. Work-related stressors tend to predispose aircraft maintenance personnel to various negative impacts (Sucharitha & Amzad Basha, 2020) which are associated with deleterious consequences on air safety and personal well-being (Li et al., 2022). In fact, current study, show that work-related stress has positively attracted the attention of the aviation stakeholders since prolonged exposure to stressors tends to negatively impact safety (Anggarini & Indrayanti, 2021). In addition, work-related stress gives rise to a range of health issues and disturbances (Lukan et al., 2022). Thus, a deliberate effort to explore the role of psychological resilience in managing work-related stress and mental well-being is key to the aviation industry as a service provider and more so among maintenance personnel (Cahill et al., 2020).

Empirical findings suggest a connection between work-related stress, mental well-being, and psychological resilience of AMPs (Chua et al., 2022). In addition, empirical findings suggest that psychological resilience influences how the AMPs perform their tasks and how well they pick up their pieces when the workload is stressful and beyond their expectations (Kumari & Aithal, 2020; Owen et al., 2017). For instance, following the Germanwings 9525 incident in 2015, there has been a growing focus on the management and support of the mental health of aviators as well as an attempt to address how stress is related to their work (Cahill et al., 2021). In

addition, the Flight Safety Foundation (FSF) has introduced the “Building Resilience Program” which aims at creating awareness on the importance of developing resilience among aircraft crew members to mitigate risks and foster safety. However, this program does not factor in AMPs (Flight Safety Foundation, 2022). In the aviation industry, maintenance and inspection tasks are integral to a multifaceted system where individuals carry out diverse responsibilities within an environment characterized by time pressure, limited feedback, and sometimes challenging surroundings with exposures to high injury rates (Asadi et al., 2019, Santos & Melicio, 2019).

Current findings show that aircraft accidents have significantly increased in Kenya. For instance, the number of accidents rose by over 100 percent from 6 in 2017 to 13 by the year 2021 (Kenya Civil Aviation Authority, 2022). Whereas safety investigations attribute most accidents to human causes, psychological resilience has rarely been examined in the scholarly literature (Mathavara et al., 2022). In particular, a study by Kaburu (2020) investigated the association between workload and psychological resilience among cabin crews of Kenya Airways utilizing a descriptive study design, revealed that workload levels was only significantly related to some aspects of psychological resilience such as interpersonal control but not others such as self-esteem. It is against this backdrop that the present study extended research on resiliency, work-related stress, and mental well-being of aircraft maintenance personnel in Kenya.

Purpose of the Study

The purpose of this study was to explore the impact of psychological resilience on mental well-being when an aircraft maintenance personnel is experiencing work related stress. In addition, the researcher aimed to understand whether the engineer’s

level of resilience in bouncing back has a moderating effect in maintaining a stable mental well-being.

Objectives of the Study

1. To determine the level of work-related stress among aircraft maintenance personnel at Wilson Airport, Nairobi County, Kenya.
2. To establish the relationship between work-related stress and the mental well-being of aircraft maintenance personnel at Wilson Airport, Nairobi County, Kenya.
3. To examine the moderating role of psychological resilience on the relationship between work-related stress and mental well-being among aircraft maintenance personnel at Wilson Airport, Nairobi County, Kenya
4. To recommend strategies for mitigating work-related stress among aircraft maintenance personnel at Wilson Airport, Nairobi County, Kenya.

Research Questions

The research questions whose answers were sought are:

1. What is the level of work-related stress among aircraft maintenance personnel at Wilson Airport, Nairobi County, Kenya?
2. What is the relationship between work-related stress and the mental well-being of aircraft maintenance personnel at Wilson Airport, Nairobi County, Kenya?
3. In what ways does psychological resilience moderate the relationship between work-related stress and mental well-being among aircraft maintenance personnel at Wilson Airport, Nairobi County, Kenya?
4. What strategies can be put in place to mitigate work-related stress among aircraft maintenance personnel at Wilson Airport, Nairobi County, Kenya?

Assumptions of the Study

The study was conducted at Wilson Airport where a majority of aircraft engineers are located and the assumption is that, Wilson has different kinds of operators in general aviation as compared to other airports in Kenya whose work is commercial operations. This means that in commercial operations the roster for engineers is generated in advance unlike in general aviation where a request to fly may come in late making the engineer who has been working the whole day to extend their time of operations. This study assumes that psychological resilience is a relevant factor that influences understanding and mitigating work-related stress among aircraft engineers. Furthermore, altering psychological resilience will have a significant impact on how a person perceives, copes with, and experiences work-related stress (Ditchburn & Koh, 2023). Although aircraft maintenance personnel are a homogenous group that possesses similar characteristics, experiences, and stressors, the researchers assume that work-related stress is a prevalent occurrence among aircraft maintenance personnel. However, the researcher acknowledges that there is individual diversity among them which significantly influences psychological resilience and work-related stress levels (Kumari & Aithal, 2020a).

It is also assumed that this study measured psychological resilience accurately based on the available tools that have already been validated (Qing et al., 2022). This assumption is supported by the fact that, although the existing scales have been used mainly in Western culture, these instruments gave reliable, valid, and accurate results to support the conclusions and the findings in the Kenyan setting (Cajada et al., 2023). The study also assumed that there were no significant external shocks or events that may confound the findings and that the results were representative of a broader

population of aircraft engineers in Kenya. Additionally, the study also assumed that the Aircraft Engineers provided informed consent and ethical guidelines were followed throughout the research process including protecting respondents' privacy and data and ensuring that there is no harm to respondents directly or indirectly.

Justification of the Study

The purpose of the present study is first, to explore the role of psychological resilience and work-related stress on personal well-being from an engineer's perspective. The role of an engineer is crucial considering that aircraft engineers play a critical role in ensuring that the aircraft is airworthy and safe to be used for air transportation (Flight Safety foundation, 2022). Moreover, the demanding nature of an engineer's work predisposes them to unique stressors and challenges that will ultimately affect their well-being (Bendixen & Scheel, 2023). This study hence aimed to gain more insight into the role psychological resilience plays when one is stressed yet has to balance their well-being.

Secondly, this study aims to add to the existing body of knowledge on the issues of work-related stress, psychological resilience, and personal well-being, particularly among aircraft engineers. Various studies (Cahill et al., 2020; Cullen et al., 2021; Douglas & Pittenger, 2020) have been done among pilots and flight attendants in the airline industry whereas few could be traced for aircraft engineers and more so in the Kenyan setting. This knowledge will further be available to the field of aviation psychology and employers and will also sensitize the Civil Aviation Authority on the importance of psychological assessment among engineers which is expected for the flight crew. In addition, the findings can inform the development of policies and programs that have interventions aimed at improving the well-being of the engineers.

Furthermore, these policies may contribute to creating a healthier and more productive workforce in the aviation industry. Thirdly, studying the impact of work-related stress on personal well-being is crucial in identifying areas of intervention and what support can be provided to aircraft engineers to cope well with work-related stress without significantly affecting aircraft safety.

Significance of the Study

This study aims to increase the knowledge in the aviation industry and psychology in Kenya. The study would influence the policymakers in the aviation industry to add more resources to psychological assessment and expand it to Aircraft engineers who contribute massively to Air safety. The study would shed light on the coping mechanisms that AMPs and their employees can use to reduce work-related stress which could reduce costs associated with WRS and reduce downtime or time spent away on sick leave. The few studies looked into address the effects of stress on flight crew and few on AMPs, this study addressed the gap and since none had been carried in Kenya, this study filled this gap.

Scope of Study

The scope of the research denotes the constraints surrounding the study (Mugenda & Mugenda, 1999). The study was carried out within Nairobi County to cover Wilson Airport because most of the Aircraft Engineers can be found in these areas. The researcher used cluster sampling to recruit respondents from a population with the inclusion criteria of must be an Aircraft personnel, and employed in an approved maintenance Organization at Wilson Airport. Approved Maintenance organization (AMO) is a company which is certificated by Kenya Civil Aviation Authority to maintain aircraft. There are various AMOs within Wilson airport and they

were therefore form the various clusters. A sample size of 257 aircraft maintenance personnel was used. Both male and female gender were represented in the sample. The study involved all aircraft maintenance personnel irrespective of age range or marital status.

Limitations and Delimitations of the Study

A research limitation is an imposed constraint that may affect the research design, results, and consequently the findings of a study. The research is limited to Aircraft Engineers only within Kenya. It is also limited to the positive side of psychological resilience though there are studies that have suggested that psychological resilience could have a dark side (Mahdiani & Ungar, 2021). The use of a cross-sectional design established the association of the variables but not the causation and how the variables change over a period of time. Studying the target population of aircraft engineers whose work is also dependent on other departments such as flight operations which could be a source of work pressure means that we study fails to factor the influence of the other target population. The target population is located at Wilson airport tend to work during the day and therefore this study did not factor in shift work of maintenance personnel who may have stress brought about by varied working hours this study was therefore limited to only general aviation operations as compared to where commercial aviation takes place.

Although all aircraft maintenance personnel carry out the same responsibilities across all approved maintenance organization. This study would have been carried out across all the airports in Kenya to explore the experiences of the AMPS into their various organization. However, the researcher limited it to Wilson Airport. This scope might in some ways limit the generalizability of the findings to other AMPs working in

other airports across Kenya. Additionally, there is a population delimitation since the respondents was aircraft maintenance personnel excluding all other airline and airport employees whose duties and responsibilities directly impact the AMPs. The third delimitation is in relation to the two weeks' timeframe of collecting data which excludes the one week for the pilot study. This period might miss to capture some scenarios that might influence the overall research outcome. There are several assessment tools to collect data however, this study is limited to collecting quantitative data which excludes the individual lived experiences of the AMPs. Finally, the researcher used a cross-sectional research design which limits this study to one point in time instead of studying the causalities and temporal relationships.

Chapter Summary

This chapter began by providing a foundation on the history behind the study and stated the problem at hand and the purpose which the researcher aims to study. The researcher has also outlined the objective of the study and looked into the guiding research questions without undermining the assumptions that have been made. Lastly, the chapter concludes with an account of the scope, limitations, and delimitations of the study. Consequently, the next chapter lays a literature foundation of what has been studied and already known.

CHAPTER 2: LITERATURE REVIEW

Introduction

This chapter reviews the literature relevant to the study of psychological resilience in relation to work-related stress and mental well-being as an anchor to the present research into the context of aircraft maintenance. The chapter begins with a critical examination of empirical literature organized around the study's objectives. Following the empirical literature review, the chapter then shifts its focus to the theoretical framework. Subsequently, the conceptual framework is presented and discussed

General Literature

Mental well-being entails one's experience of life satisfaction and emotional fulfillment, is influenced by personal, social, and workplace factors such as family support and work environment (Cullen et al., 2021; Cahill et al., 2023). Aircraft Maintenance Personnel operate in high-pressure environments characterized by rigorous procedures, strict deadlines, and the responsibility of ensuring aviation safety (Naweed & Kourousis, 2020; Pimapunsri et al., 2022). These professionals face stressors that can affect their cognitive performance and emotional stability (Ślęzyk-Sobol et al., 2021). The physical and mental demands of tasks like inspections, repairs, and coordination with flight operations elevate their risk for emotional fatigue and burnout (Santos & Melicio, 2019; Kim et al., 2022). Evidence from the U.S. National Transport Safety Board shows that human error accounts for the majority of aviation accidents, highlighting the importance of mental alertness and psychological fitness in this field (NTSB, 2021; Dias et al., 2019; Kelly & Efthymiou, 2019).

Psychological resilience – the capacity to recover from stress and maintain performance – is emerging as a critical protective factor for AMPs (Wut & Stephanie-Wing, 2022; Douglas & Pittenger, 2020). This resilience can be cultivated and enables individuals to endure adversity, reducing susceptibility to anxiety, depression, and burnout (El-Sayed, 2022; Song et al., 2021; Küçük Kiliç, 2020). In aviation settings, where precision and composure are vital, resilience not only sustains personal well-being but also upholds operational safety standards (Van Breda, 2018; Cahill et al., 2021; Santos & Melicio, 2019). This study, therefore, focused on examining how psychological resilience can buffer the impact of work-related stress on the mental well-being of aircraft maintenance personnel at Wilson Airport.

Empirical Literature Review

The researcher used several databases and to find specific journals and articles relevant to each section, variables, themes, and headers, the researcher used the following key terms in random: Work-Related Stress, Stress, Stress Aircraft Engineers, Work-life Balance, Wellbeing Aircraft Engineers, Psychological Resilience, Psychological Resilience Work-related Stress, Transactional Model, Transactional Model Stress, Psychological Wellbeing Theory, Cross-sectional Design, Target Population, Sample Size, and Sampling Method.

The Level of Work-Related Stress among Aircraft Engineers

Work-related stress among aircraft maintenance personnel is a significant concern as their responsibilities are critical to ensuring the safety and reliability of aircraft (Pfeffer, 2018). Accordingly, the subject of work-related stress among aircraft engineers has been the subject of ongoing scientific inquiry (Santos & Melicio, 2019). Reis et al. (2021) in their study among the aircraft maintenance personnel in Portugal,

aimed at determining the prevalence of stress and concluded that there is a high level of stress among the aircraft engineers. The study included 348 maintenance staff recruited through a convenience sampling technique, with 96.3% of the respondents identified as male. Additionally, the study revealed that the educational level of aircraft engineers predicted the stress level within the same job group, with those holding higher levels of education experiencing lower stress. However, Resi and colleagues (2021) found no significant relationship between working in a specific shift and the level of stress. It is worth noting that the study was conducted in Europe and employed a convenience sampling method, therefore, introducing both a contextual and methodological gap.

Zimmermann et al. (2022) carried out a study that examined the prevalence of mental stress resulting from physical fatigue among maintenance trainees undertaking attachments at various airports across the United States. The impetus for the research stemmed from the alarming statistic that 20% of aviation maintenance personnel in the USA experienced stress. The study involved 72 aircraft maintenance students undergoing attachments. Notably, it revealed that 40% of these trainees lacked adequate sleep inevitably serving as a key indicator of heightened stress levels. Stress was identified as stemming from both workload issues and personal challenges such as maintaining a healthy work-life balance. Despite this, the majority of respondents claimed to lead a well-balanced lifestyle. An interesting finding of the study was the acknowledgment that personal matters, including relationships outside the workplace, contributed significantly to stress levels among maintenance trainees. The contextual gap emerged as the study focused specifically on students undergoing attachments, potentially limiting the generalizability of the findings to the broader aviation

maintenance workforce. Moreover, the study went beyond investigating work-related stress, introducing a conceptual gap by addressing a broader spectrum of stressors.

Shin and others (2021) sought to decipher the nuances of stress that aviation workers encountered during the COVID-19 pandemic. Their research aimed to evaluate the impact of stress on the functioning of organizations. Employing simple random sampling techniques, the researchers recruited 343 Korean aviation employees employed by airlines operating in Korea. The study's conclusions demonstrated a link between high levels of job stress, increased job burnout, and a higher propensity for workers to think about quitting. Notably, the study identified that the introduction of temporary positions was associated with reduced anxiety levels while organizational changes exhibited a positive impact on job stress.

Furthermore, this implies that such changes might contribute to heightened stress levels in the workplace. Additionally, the results suggested that, among individuals with high anxiety levels, both temporary positions and layoffs were correlated with heightened job stress while outsourcing was linked to diminished job stress. Shin et al. (2021) also demonstrated that, in comparison to people with low anxiety levels, those with high anxiety levels exhibit a stronger and more significant correlation between job stress and job burnout. In addressing the impact of stress on organizational performance, the study uncovered a conceptual gap, particularly within the context of aviation workers during the COVID-19 pandemic, thus emphasizing the need for further exploration in this specific area.

Durmaz et al. (2021), guided by academic literature, explored the effect of psychological stress experienced by ground handling employees at airports and its repercussions on organizational performance. Workload, the study concluded, was the

main source of stress among ground workers, which was carried out in Turkey, and found that human resources factors were significant contributors to inefficiencies. Additionally, Durmaz et al. (2021), highlighted the role of mental attitude in contributing to stress as individuals may struggle to approach tasks with an open mind. The condition of equipment and the state of the ground were also identified as predictors of stress among staff. Lastly, Durmaz et al. (2021), found that the lack of appropriate qualifications and insufficient skillsets in employees acted as sources of stress within the aviation ground workforce. Moreover, the research aimed to examine the influence of ergonomic factors on stress and their subsequent impact on corporate performance, revealing a conceptual gap in understanding this relationship. Consequently, it is important to note that Durmaz et al. (2021), relied on published articles and journals, thereby introducing a methodological gap that may warrant consideration in future research endeavors (Durmaz et al., 2021).

In order to determine the causes of stress among pilots working for PAL Express Airlines in the Philippines, Monreal and Estrada (2023) carried out a study. The study utilized a descriptive research design and involved conducting interviews with one hundred captains and first officers who were chosen using stratified sampling methods. The results showed that human resources problems, such as long work hours, inadequate rest areas, complex and demanding jobs, and trouble separating work-related issues from personal and family matters, were the main causes of stress among the pilots surveyed. Interestingly, Monreal and Estrada (2023) reported that demographic factors such as age or gender, as well as the type of airline, were not found to be significant contributors to pilot stress. However, the study revealed several gaps, to begin with, this study focused exclusively on pilots, which may limit the

generalizability of its findings to other aviation personnel, thus opening a contextual gap. Furthermore, Monreal and Estrada (2023) demonstrated that the adoption of a stratified sampling method may not fully represent the diverse experiences of all pilots, thus opening another contextual gap in the study.

Work-Life Imbalance among Aircraft Maintenance Personnel. A study conducted in Indonesia by Anggarini and Indrayanti, (2021) determined the significance of work-life balance in reducing stress levels among aircraft maintenance workers. The quantitative study involved 92 aircraft maintenance personnel with 85.87% of them being male. Anggarini and Indrayanti, (2021) established that work-life balance, specifically in terms of Work Interference with Personal Life (WIPL) and Personal Life Interference with Work (PLIW) have a notable impact on reducing work stress. A substantial portion (56.5%) of the variation in work stress can be attributed to these factors collectively. Individually, WIPL and PLIW contribute significantly, with 40.7% and 12.19%, respectively, emphasizing their importance in influencing work stress. However, the Work Pressure in Personal Life (WPPL) does not appear to have a significant influence on work stress in this study. This was a quantitative study design, therefore raising a conceptual gap.

The impact of emotional labor on occupational satisfaction was the main focus of Chuaychoo and Tunjoy's, (2022) study on stress related to job demands among flight personnel in Thailand.. With 461 respondents, the study found that job stress is directly impacted by how workers manage their emotions at work, especially when it comes to deep and surface acting. Surface acting, which is defined as expressing emotions without genuinely feeling them, has been linked to higher levels of job stress, whereas deep acting, which entails real emotional expression, has been linked to lower levels of

job stress. This implies that genuine emotional expression serves as a coping mechanism. Anggarini and Indrayanti, (2021) also shed light on the divergent effects of emotional labor strategies on job satisfaction. Surface acting was found to be correlated with decreased job satisfaction, indicating that the misalignment between expressed and felt emotions negatively affects overall job satisfaction. Conversely, deep acting was associated with increased job satisfaction, suggesting that authentic emotional expression positively contributes to employees' overall contentment with their work. It is important to note that the study specifically focused on flight attendants and centered on emotional labor, introducing both a contextual and conceptual gap.

Ghanjal and Yarandi (2021) undertook a study to investigate the relationship between the workload and associated stress in the aviation industry and its impact on the physical health of aviation workers engaged in physical tasks. Carried out in Iran, the study involved 316 respondents. Findings revealed a prevalence rate of 31.65% of respondents without evidence of muscular problems, while 68.35% reported muscular problems in at least one part of their body. According to Ghanjal and Yarandi, (2021), musculoskeletal health was predicted by factors such as the length of time employees had been working in the aviation industry, their age, gender, weight, and educational background.. The identified association between occupational stress and mental workload suggests that these work-related aspects may contribute to the occurrence of musculoskeletal disorders. The fact that Ghanjal and Yarandi, (2021) concentrated exclusively on aviation security officers the study draws attention to a contextual gap

Ekore et al. (2020) investigated the prevalence of work-related stress in Saudi Arabia's aviation industry. Ekore et al, (2020) recruited 1051 Riyadh-based aviation workers using a purposive sampling technique. The inclusive selection criteria

intentionally took into account variables like age, marital status, educational background, and departmental or functional area. The result showed an overall work-related stress prevalence of 41.7% across various age groups and employee cadres. Notably, Ekore et al, (2020) highlighted a correlation between age and occupational stress, with stress levels increasing as individuals grew older. Moreover, Ekore et al, (2020) revealed variations in stress levels based on departmental and functional areas, with employees in customer service and operational roles experiencing higher stress levels. This investigation aimed to address stress levels among aviation personnel, revealing both contextual and conceptual gaps. Additionally, Ekore et al, (2020) utilized a purposive sampling method for recruitment of respondents, highlighting a methodological gap in the research approach.

In their investigation, Kumari and Aithal, (2020) examined the frequency of stress among aviation workers, focusing on an airport in India over a three-year period ending in 2020. The study involved 100 respondents recruited from flight crew performing varying roles within the aviation sector. The findings indicated that both pilots and cabin crew members experienced significant stress levels, directly impacting their health. Notably, the study underscored the prevalence of sleep-related stress among cabin crew members, particularly those working in long-haul flights. It was observed that female crew members were more susceptible to sleep-related problems compared to their male counterparts. Additionally, the study revealed that younger crew members exhibited greater adaptability to shift work compared to their older counterparts. However, the study had a contextual gap as it exclusively focused on cabin crew and pilots, limiting the generalizability of the findings to other aviation personnel. Furthermore, a methodological gap emerged as this was a longitudinal study

which employed a descriptive data analysis method, which may have implications in the depth of insights gained from the research.

Fatigue and Psychological Stress. Basaria (2023) explored the occurrence of fatigue and psychological stress among airline maintenance personnel in Indonesia. The focus was on measuring the impact of shift adjustments and work-hour reductions on psychological stress. A total of 303 aviation maintenance personnel participated in the study. The findings revealed that 78% of the employees reported experiencing fatigue with a score of 6 out of 10. Despite efforts to adjust working hours and shifts, the aircraft maintenance staff continued to experience fatigue, indicating a high prevalence of psychological stress among the research respondents. This suggests that there might be other underlying issues in the maintenance processes affecting the psychological well-being of the personnel. The study was designed to investigate whether reducing work hours and adjusting shifts would decrease instances of fatigue and, consequently, stress among maintenance personnel, thus highlighting a conceptual gap. Additionally, Basaria, (2023) carried out their study during the COVID-19 pandemic, introducing a contextual gap that may have influenced the dynamics of fatigue and stress among the maintenance personnel.

Akinlade and Ayodele (2021) did a comparative study to analyze two airports in Nigeria to elucidate the connection between work conditions, physical environments, and job satisfaction among their employees. The primary objective was to demystify whether the distinct work settings and physical attributes of these airports had a discernible impact on the overall job satisfaction levels of their respective staff. The study employed a purposive sampling technique, utilizing a stratified sampling method to carefully select airports and respondents. A total of 604 employees were involved in

the research, with 51.8% hailing from Murtala Mohammed International Airport and the remaining workforce from Victor Attah International Airport. The convergent study design, situated within the domain of mixed methods research, provided a holistic approach to exploring the intricate relationships between the physical environment, work-life balance, and job satisfaction. The findings of the study unveiled a noteworthy revelation – airport employees, across both airports, were grappling with stress that manifested in repercussions for both their professional performance and personal lives.

Significantly, the research established a clear association between the physical environment, work-life balance, and job satisfaction. Interestingly, the data showcased a distinctive pattern for example, employees stationed at Victor Attah International Airport, characterized by superior facilities and more streamlined operations, exhibited a lower incidence of stress when compared to their counterparts at Murtala Mohammed International Airport. This observation emphasized the pivotal role that the physical attributes and operational efficiency of an airport play in influencing the well-being and job satisfaction of its workforce. As a comparative study, the research aimed at bridging contextual and conceptual gaps by establishing a nexus between the physical environment, work-life balance, and job satisfaction within the specific context of airport settings.

Work-related Stress and Mental Well-Being of Aircraft Maintenance Personnel

Cullen et al. (2021) carried an explorative study to investigate the relationship between occupational stress and the mental health of pilots operating commercial aircraft in the USA. Cullen, among others (2021) employed a quota sampling technique and a convenient sampling method to select 33 respondents. Data collection involved three workshops and in-depth interviews with the respondents. The study revealed a

range of personal factors, such as lack of sleep, dehydration, an unbalanced diet, and limited time for socializing, contributing to occupational stress among pilots. Additionally, changing employment practices, a disconnect between their values and airline policies, increased job load, and extended working hours were identified as significant factors affecting the mental well-being of pilots. From a family perspective, the study found that strained social and marital lives, along with insufficient time during critical periods like school holidays, contributed to stress. While the study provided valuable insights into the factors influencing occupational stress and mental well-being among pilots, it introduces a contextual gap as it specifically focused on the U.S. commercial aviation sector. Furthermore, the qualitative nature of the study, relying on workshops and in-depth interviews for data collection, raises a methodological gap.

Cahill et al. (2021) looked into the connection between pilots' psychological health and occupational stress by conducting a long-term study among pilots in Ireland. Cahill et al. (2021) also sought to investigate the coping strategies pilots use to reduce stress. Spanning from 2018 to 2020, the study attracted 1059 pilots who were invited to participate through social media platforms. The findings of the study indicated that the participating pilots generally had good mental health. Specifically, just over half of the respondents experienced mild depression. Moreover, the research revealed that 60% of the pilots actively employed coping strategies to manage stress and mental health. Notably, those who engaged in physical exercises and those who carefully monitored their diet reported lower levels of depression. Despite these valuable insights, the study introduces a conceptual gap as it specifically focuses on pilots, and the findings may not be universally applicable to other occupational groups. Additionally, the use of a

convenience sampling method raises a methodological gap, as it may limit the generalizability of the results to the broader population of pilots.

Cahill et al. (2023) at the height of the COVID-19 pandemic, carried out a study on the psychological health of aviation employees. Cahill et al. (2023) specifically investigated the impact of the working environment on mental health, mental well-being, safety measures implemented, and people's attitudes toward these safety measures. The study took place in Ireland, although it included aviation companies operating throughout Europe. A survey was administered to 3000 workers, with data collected twice—first in 2020 and then in 2021. The findings of the study revealed that aviation workers faced challenges with mental health problems during the COVID-19 pandemic. Despite this, the study indicated that aviation companies had adequately addressed these issues, suggesting that mental health problems might persist as a significant concern. It's noteworthy that Cahill et al. (2023) conducted the research among aviation workers during the COVID-19 period, raising both conceptual and contextual gaps in understanding the broader implications of the findings.

Roderick, (2023) delved into the mental well-being of aviation workers through an exploratory study conducted in the USA. Utilizing published articles and journals, Roderick, (2023) sought to uncover the prevalent mental and psychological issues among cabin crew members. While the study acknowledged existing efforts to address these problems, it revealed that cabin crew workers remained vulnerable to a spectrum of mental and psychological challenges that, if left unchecked, could lead to severe consequences. According to Roderick, (2023) job overload and irregular or long work hours are the main causes of these problems... Additionally, it highlighted the dynamic nature of psychological problems and mental health concerns, which were found to vary

with age and emerging issues within the aviation industry. Notably, Roderick, (2023) focused specifically on cabin crew members, introducing a contextual gap. The exploratory nature of the study, relying on journals and articles to draw conclusions, contributed to a methodological gap.

Prasad and Raveendran, (2024) explored the human issues affecting aviation maintenance workers, focusing specifically on the Indian context. Prasad and Raveendran, (2024) utilized information gathered from journals, articles, and aviation-related documents to explore the multifaceted challenges faced by these workers in their professional environment. Prasad and Raveendran, (2024) brought attention to the fact that aircraft maintenance personnel are susceptible to various mental health issues arising from their workplace conditions. One significant factor identified was the impact of unfriendly human resource management policies, such as extended working hours, on the mental well-being of aviation maintenance personnel. Additionally, Prasad and Raveendran, (2024) underscored the role of technology in hindering creativity, efficiency, and productivity among these workers. Furthermore, Prasad and Raveendran (2024) shed light on how mental health issues can escalate when inadequate equipment is utilized, forcing airport maintenance personnel to exert more physical effort in performing their duties, potentially leading to physical discomfort. A noteworthy aspect of the study was its exploration of how personal factors contribute to the challenges faced by aviation maintenance personnel, unveiling a conceptual and contextual gap in existing knowledge. However, it is important to note that the study relied on secondary sources for data, introducing a methodological gap that may impact the robustness of the findings (Prasad & Raveendran, 2024).

Widodo et al. (2021) interrogated the repercussions of occupational stress among engineering staff on the financial outcomes of players in the aviation industry. This research was conducted in Malaysia amid the COVID-19 pandemic and involved a cohort of 65 aviation engineers. The findings indicated that aviation engineers experienced heightened stress levels, particularly during the COVID-19 pandemic, and this stress had an adverse impact on the productivity of airline companies. Widodo et al. (2021) revealed a simultaneous and negative influence of job stress and COVID-19 issues on the productivity of engineering employees in the aviation sector. This implies that as both job stress and challenges related to COVID-19 increased, employee productivity witnessed a corresponding decline. Notably, Widodo et al. (2021) observed that the impact of the COVID-19 stress parameter was more pronounced than that of the job stress factor in diminishing employee productivity. This underscores the unique challenges posed by the pandemic. It is worth noting that the study was conducted during the COVID-19 pandemic, introducing a contextual gap that adds significance to the findings in the context of the specific challenges faced by the aviation industry during this period.

Ozturk, (2021) in a study done in Turkey delved into the topic of stress among aviation personnel. The qualitative research method employed allowed the researcher to assess the diverse stressors affecting employees in the aviation sector. The findings revealed that burnout was notably more prevalent among individuals engaged in intense human interaction roles, such as customer service personnel. Additionally, Ozturk, (2021) highlighted elevated stress levels among airport maintenance staff responsible for ensuring aircraft maintenance. The investigation identified key issues faced by aviation employees, including a sense of personal underachievement, emotional

fatigue, and challenges in maintaining positive workplace relationships. Noteworthy sources of stress were attributed to work overload, pressure, and extended working hours, collectively diminishing the overall productivity of individual workers. It is crucial to note that the study concentrated on general aviation employees, thus creating a contextual gap in understanding specific challenges within different job roles. Furthermore, the exploratory nature of the study, relying on a synthesis of various literature, raised a methodological gap in the research approach.

Psychological Resilience in Relation to Work-Related Stress and Mental Well-Being among Aircraft Maintenance Personnel

Mindfulness. Mindfulness, defined as a mental state achieved by focusing one's awareness on the present moment while calmly acknowledging and accepting one's feelings and thoughts, plays a pivotal role in reducing occupational stress. Guo et al. (2021), in a quantitative study conducted among 319 commercial airline pilots in China, used mediation analysis to explore the relationship between mindfulness, fatigue, and burnout. The study found that mindfulness indirectly reduced burnout through the dual mediators of fatigue and proactive coping, suggesting that greater mindfulness leads to lower exhaustion and better stress management. These findings underscore the potential benefits of mindfulness-based interventions in high-stress aviation roles. While the study focused on pilots, its implications extend to aircraft maintenance personnel who also experience high cognitive load and require sustained attention, making mindfulness a relevant tool for stress mitigation. However, there was a research gap in examining how structured mindfulness programs specifically impact the mental wellbeing of aircraft maintenance personnel, who may have different stress triggers and work environments than pilots.

Self-efficacy. Self-efficacy refers to an individual's belief in their capacity to execute behaviors necessary to produce specific performance attainments, acting as a buffer against stress. Makara-Studzińska et al. (2021), through a cross-sectional survey of 609 Polish air traffic controllers, examined how self-efficacy and psychological state mediated the relationship between stress and burnout. The results revealed that higher self-efficacy was associated with lower occupational burnout, though psychological comfort did not moderate this relationship as expected. Similarly, Luciani et al. (2022), in a study of 80 Italian pilots recruited via social media, found that emotional regulation and flight experience influenced risk attitudes and self-confidence, with experienced pilots demonstrating greater self-belief. These findings highlight the protective function of self-confidence and perceived competence in aviation roles. Yet, there is a lack of empirical research exploring how self-efficacy specifically operates among aircraft maintenance personnel, particularly in high-pressure or emergency maintenance situations where confidence can critically affect mental wellbeing and performance.

Shift Schedule. Shift schedules, particularly those involving irregular hours and inadequate breaks, have been shown to influence stress levels and mental wellbeing. Kumari and Aithal (2020) conducted a systematic literature review of 70 empirical studies in India to evaluate strategies for stress management in the aviation sector. Their analysis emphasized that time-appropriate shift scheduling and breaks within shifts are crucial for reducing stress among aviation employees, especially those handling intricate machinery. The study also highlighted technology as both a stressor and a tool, necessitating heightened alertness among aviation workers. Though centered on pilots and engineers in India, the findings are directly applicable to aircraft maintenance personnel who often work under time-sensitive and physically demanding conditions.

Nevertheless, there remains a research gap in studies that specifically investigate how rotating or night shift schedules affect the cumulative stress and long-term mental health outcomes of aircraft maintenance personnel.

Error Management. Error management refers to the strategies and systems in place to detect, mitigate, and learn from mistakes in the workplace, especially critical in high-risk industries like aviation. Ashraf et al. (2022) examined this dynamic in the context of Pakistan's aviation manufacturing sector, surveying 250 respondents including operational personnel, supervisors, and engineers. The study found that effective error reduction strategies were inversely related to work-related stress and that psychological capital variables like self-efficacy and optimism moderated this relationship. Although hope and resilience did not reach statistical significance, the findings suggest that supportive error management practices can alleviate psychological strain. These insights are particularly relevant for aircraft maintenance personnel, who face high-stakes environments where errors can have severe consequences. However, there is a research gap in evaluating how the integration of human factors training and error management systems directly influences stress reduction and mental wellbeing in aircraft maintenance teams.

Mental-wellbeing of Aircraft Maintenance Personnel

Mental well-being is concerned with psychological and emotional state, encompassing the ability to cope with job-related stress, maintain focus and resilience, and function effectively in a high-stakes, safety-critical environment (Cahill et al., 2020). It involves a balance of cognitive health, emotional stability, and social functioning, all of which are essential for ensuring accuracy, safety, and efficiency in

their duties (Luciani et al., 2022). Given the demanding nature of aircraft maintenance work – characterized by irregular hours, tight deadlines, and high responsibility – safeguarding their mental well-being is vital for both individual health and overall aviation safety (Santos & Melicio, 2019). A safeguarded mental wellbeing is characterized by positive outlook, productivity and engagement, emotional wellbeing, adaptive coping, and social connection (Melendez-Torres et al., 2019).

Positive Outlook. A positive outlook is essential for aircraft maintenance personnel, who operate in high-pressure environments where precision and safety are paramount (Velzeboer, 2023). Maintaining a hopeful and optimistic mindset helps individuals manage stress and approach challenges with resilience, especially when dealing with demanding schedules, unexpected technical issues, or tight turnaround times (Fredes-Collarte et al., 2024). A positive mental framework can enhance motivation, promote perseverance, and reduce the risk of burnout, enabling technicians to stay focused and solution-oriented even under duress (Deato et al., 2022). This is supported by empirical research by Laranjeira and Querido (2022) whose research on positive outlook – mental wellbeing nexus in Portugal presented the argument that fostering positive outlook can lead to better mental and physical well-being. This led them to advocate for integrating hope and optimism into mental health promotion strategies, particularly through mental health nursing and literacy programs. The study concludes by calling for further research to evaluate the effectiveness of interventions centered on these constructs.

Productivity and Engagement. Productivity and engagement are vital indicators of mental wellbeing in aircraft maintenance personnel. Engaged workers are more likely to take initiative, adhere to safety protocols, and collaborate effectively, all

of which are critical in ensuring aircraft readiness and operational safety (Baidzawi & Mohd Nur, 2021). When mental health is prioritized, personnel are more alert, efficient, and committed to their tasks (Venus Holtforth, 2021). Conversely, mental fatigue or disengagement can lead to errors or oversights, which have serious implications in the aviation industry (Muthuswamy & Li, 2023). For instance, De Oliveira et al. (2023) conducted a critical review - drawing from UK and Canadian institutions- examining the connection between productivity and mental health. The review, which analyzed 38 studies, found strong evidence linking poor mental health, particularly depression and anxiety, to reduced productivity through absenteeism and presenteeism. However, the authors noted methodological limitations in most studies, such as reliance on cross-sectional data and narrow focus on common disorders. They concluded that more rigorous, longitudinal research is needed to better understand causal relationships and inform effective workplace mental health policies.

Emotional Wellbeing. Emotional wellbeing supports the capacity of aircraft maintenance personnel to regulate stress, remain calm under pressure, and sustain morale amidst demanding shifts or emotionally charged situations such as dealing with urgent repairs or post-incident evaluations (Cahill et al., 2020). A healthy emotional state helps technicians remain composed and thoughtful in their decision-making processes, which is critical in environments where split-second decisions can affect passenger safety and operational integrity (Eryılmaz et al., 2024). This understanding provided the anchor upon which the present study explored the nexus between work-related stress and mental wellbeing dimension of the state of mental health of aircraft maintenance personnel.

Adaptive Coping. Adaptive coping strategies, such as problem-solving, time management, and seeking support, are essential for aircraft maintenance personnel who regularly encounter unpredictable technical and operational challenges (Cahill et al., 2021). The ability to manage stress constructively and recover from setbacks not only preserves mental wellbeing but also ensures that personnel can maintain their performance and composure in critical situations. Training in stress management and emotional regulation can help cultivate these coping mechanisms (Eryilmaz et al., 2024). There was need to empirically investigate how specific adaptive coping strategies intersect with the relationship between job stressors and mental wellbeing among aircraft maintenance personnel.

Social Connection. Strong social connections among aircraft maintenance personnel foster a supportive work environment that buffers against the isolating effects of shift work and high job demands (Hammer et al., 2024). Positive relationships with colleagues encourage collaboration, open communication, and shared responsibility, which are crucial in high-stakes maintenance operations (Lomax et al., 2022). A sense of camaraderie and belonging contributes to emotional security, reduces stress levels, and enhances overall mental wellbeing, ultimately promoting a culture of safety and mutual accountability (Cortina et al., 2022). These insights necessitated an empirical studies to examine how the quality and structure of social connections within aircraft maintenance teams relate to their mental wellbeing.

Strategies for Mitigating Stress

Kim et al. (2022) considered stress resilience measures implemented to address psychological challenges faced by airline cabin crew members. Conducted in Korea and involving participants from Korea Airlines, Kim et al. (2022) enrolled 200 airline

crew members. The findings revealed that deployment based on competence, fostering self-belief among staff, and implementing a mentoring program directly and positively influenced cultivating a positive staff attitude. This, in turn, contributed to positive mental health and enhanced staff performance. The results suggest that these specific strategies were more effective in promoting positive job attitudes, mental well-being, and job performance compared to managerial coaching. This underscores the importance for organizations to carefully evaluate and customize coaching approaches to mitigate potential negative consequences. It also highlights the need to explore alternative or complementary methods to achieve positive outcomes for employees. It is noteworthy that the study focused on airline cabin crew, introducing a contextual gap that should be considered in the interpretation of the findings.

Makara-Studzińska et al. (2021) explored the mental well-being of Polish air traffic controllers, employing self-efficacy and psychological state as mediation variables. The study involved 609 participants. Makara-Studzińska et al. (2021) indicated that Polish air traffic controllers with higher self-efficacy, reflecting confidence in their capabilities, exhibited greater resilience to perceived stress and occupational burnout compared to those with lower self-efficacy. The findings suggested a connection between stress, lower self-efficacy, and higher occupational burnout, indicating that self-efficacy plays a partial mediating role in this relationship. Contrary to expectations, Makara-Studzińska et al. (2021) did not find support for the notion that the level of psychological comfort moderates the connection between perceived stress and general self-efficacy. Makara-Studzińska et al. (2021) revealed that, when confronting stress, workers with lower or moderate psychological comfort levels drew on their belief in their ability to control and achieve goals, acting as a

protective factor for their health. The introduction of self-efficacy and psychological state as mediation variables in the study highlighted a conceptual gap, suggesting further exploration and understanding are needed in this aspect.

Luciani et al. (2022) examined how psychological resilience moderates the risk of accidents, utilizing sociodemographic factors such as age, emotional regulation, and type of piloting activity. The study, conducted in Italy with 80 recruited pilots reached through social media platforms, revealed that age, emotional regulation, type of piloting activity, and flight experience are influential factors shaping pilots' risk attitudes and self-confidence. Specifically, older age was associated with heightened risk attitudes, while emotional dysregulation was linked to increased risk attitudes and decreased self-confidence. Luciani et al. (2022) also noted a positive relationship between flight experience and self-confidence, highlighting that more experienced pilots tend to exhibit greater confidence in their abilities. Notably, Luciani et al. (2022) aimed to understand how psychological coping style and emotional regulation contribute to pilots' concentration, introducing a conceptual gap. Luciani et al. (2022) focus on pilots introduces a contextual gap, and the use of convenience sampling raises a methodological gap.

Kumari and Aithal (2020) engaged in a study to examine the strategies employed by aviation industry players in India to overcome stress. Kumari and Aithal (2020) involved an analysis of 70 empirical studies from various literature sources. The findings of Kumari and Aithal (2020) highlighted technology as a significant source of stress among aviation employees, particularly pilots and engineers. Kumari and Aithal (2020) underscored the need for these workers to maintain a high level of alertness while operating intricate gadgets with precision, as errors could have severe

consequences. Moreover, Kumari and Aithal (2020) delved into the Critical Incidence Stress Management program, designed to reduce accidents, injuries, and restore and heal trauma within the aviation sector.

Additionally, Kumari and Aithal (2020) emphasized the importance of human resource programs, such as the development of time-appropriate shift schedules and breaks within shifts, as effective measures to manage stress among aviation sector employees. However, Kumari and Aithal (2020) also acknowledged certain gaps. Contextually, the study focused on the aviation sector in India, which may limit the generalizability of its findings to the Kenyan setting considering that the aviation stressors are different these being two different continents. The research also focused on a large airline dealing with commercial operations whereas the researcher intends to carry the research in general aviation. Conceptually, there is a gap in understanding how stress management strategies may differ across diverse cultures within the aviation sector and having major studies carried out of the African and Kenyan context, there is an assumption that culture does not play any factor in influencing the results of a research. Furthermore, the study was qualitative, relying on published journals for data, which introduces a methodological gap.

Ashraf et al. (2022) investigated several manufacturers in Pakistan to determine if error reduction played a role in moderating psychological problems among aircraft aviation manufacturing workers. Ashraf et al. (2022) involved 250 participants, where 74.5% were lower operational personnel, 23% were supervisors, and the remainder were engineers. Ashraf et al. (2022) revealed a direct correlation between error management and work-related stress, with the variables exhibiting an inverse relationship. Moreover, Ashraf et al. (2022) found that levels of self-efficacy and

optimism collectively moderated the relationship between error reduction and stress. However, the dimensions of hope and resilience, while showing a moderating influence in the expected direction, did not reach statistical significance. Ashraf et al. (2022) raised a contextual gap since they specifically focused on the aviation manufacturing industry in Pakistan and the percentage of engineers interviewed is smaller which limits the generalization of the findings. Additionally, by introducing psychological capital dimensions as moderating variables, Ashraf et al. (2022) introduced a conceptual gap, providing insights into the potential influence of psychological factors in the relationship between error reduction and stress among aviation manufacturing workers. Kaburu, (2020) pursued a study to explore the role of psychological resilience in coping with a high workload, prompted by the escalating psychological stress levels and concerns about the overall wellbeing of cabin crew members. Kaburu, (2020) specifically focused on cabin crew members affiliated with Kenya Airways. Utilizing a stratified sampling technique, Kaburu, (2020) recruited 98 cabin crew members from diverse staff cadres. The findings of Kaburu, (2020) revealed that cabin crew members encountered varying levels of occupational stress. Apart from interpersonal control, Kaburu, (2020) identified a direct and significant relationship between workload and other elements of psychological resilience, specifically individuals' competence levels and self-esteem among cabin crew members. While shedding light on the connection between workload and psychological resilience among cabin crew members, the study also highlighted conceptual and contextual gaps.

Theoretical Framework

This study integrated three theories whose role were to create a holistic framework that considers the interplay between mental well-being, resilience, and

work-related stress. The theories bring to light how resilient individuals overcome work-related stress to have stable mental health. The use of the three theories as discussed in the following sections help to emphasize the role of psychological resilience in influencing the effect of work-related stress and mental well-being among aircraft maintenance personnel.

The Transactional Model of Stress

The transactional model of stress, formulated by Richard Lazarus and Susan Folkman in 1984, serves as a psychological framework to elucidate how individuals perceive and respond to stressors, as noted by Yan et al. (2021). This model characterizes stress as a dynamic process, involving continuous transactions between an individual and their environment, influencing emotional and physiological responses to stressors, as highlighted by Horan et al. (2020). The model underscores the significance of recognizing individual differences in perception and coping strategies when studying stress and its effects. Yan et al. (2021) emphasize that individuals' cognitive appraisals act as the driving force behind their stress reactions within the transactional model. When individuals are confronted with potential stressors, they initiate a sequence of cognitive appraisals to assess the stressor's significance and potential impact on their well-being. This appraisal process encompasses evaluating the personal relevance of the stressor, the perceived threat it poses, and the available coping resources, as discussed by Horan et al. (2020).

The adoption of the transactional model in the study of stress factors affecting the performance of airline maintenance personnel at Wilson Airport is driven by its comprehensive framework. This model allows researchers to systematically investigate the cognitive processes, perceptions, and coping mechanisms employed by

maintenance personnel in response to stressors in their work environment. By employing the transactional model, the researcher gained insights into the intricate dynamics of stress and its implications for performance within the specific context of aviation maintenance at Wilson Airport.

Psychological Wellbeing Theory

The psychological well-being theory, often attributed to psychologists Ryff and Keyes (1995), presents a framework for comprehending and evaluating individuals' overall mental health and fulfillment (Davis & Hadwin, 2021). In contrast to the conventional focus on mental illness and pathology, this theory places a spotlight on the positive dimensions of psychological functioning (Shah et al., 2020). Shah et al. (2020) elaborates on the theory, emphasizing the importance of maintaining a positive self-attitude by accepting personal strengths and weaknesses. The theory also underscores the significance of fostering positive and meaningful relationships with others, characterized by qualities such as empathy, warmth, and a sense of connection (Davis & Hadwin, 2021). Additionally, it examines an individual's sense of control over their life, the capacity to make choices aligned with personal values, effective management and adaptation to the external environment, and the demonstration of competence and problem-solving skills. Lastly, the theory highlights the importance of having clear goals and a sense of direction, contributing to an individual's perception that their life is meaningful and purposeful.

Psychological well-being encompasses various dimensions of an individual's mental health, emphasizing not just the absence of issues but also the cultivation of positive aspects and the development of resilience in challenging circumstances (Davis & Hadwin, 2021). Central to this theory is the notion that an individual's psychological

health is intricately tied to how effectively they function in different areas of life (Shah et al., 2020). In the context of aircraft maintenance personnel, the application of psychological well-being theory, particularly with a focus on the moderating role of psychological resilience, offers a comprehensive framework for assessing mental well-being. This approach facilitates a nuanced exploration of the factors influencing the psychological health of individuals in this occupational setting. By understanding the interplay between psychological well-being and resilience, interventions can be informed and tailored to enhance overall well-being in the unique context of aircraft maintenance (Rusmana & Rahman, 2019).

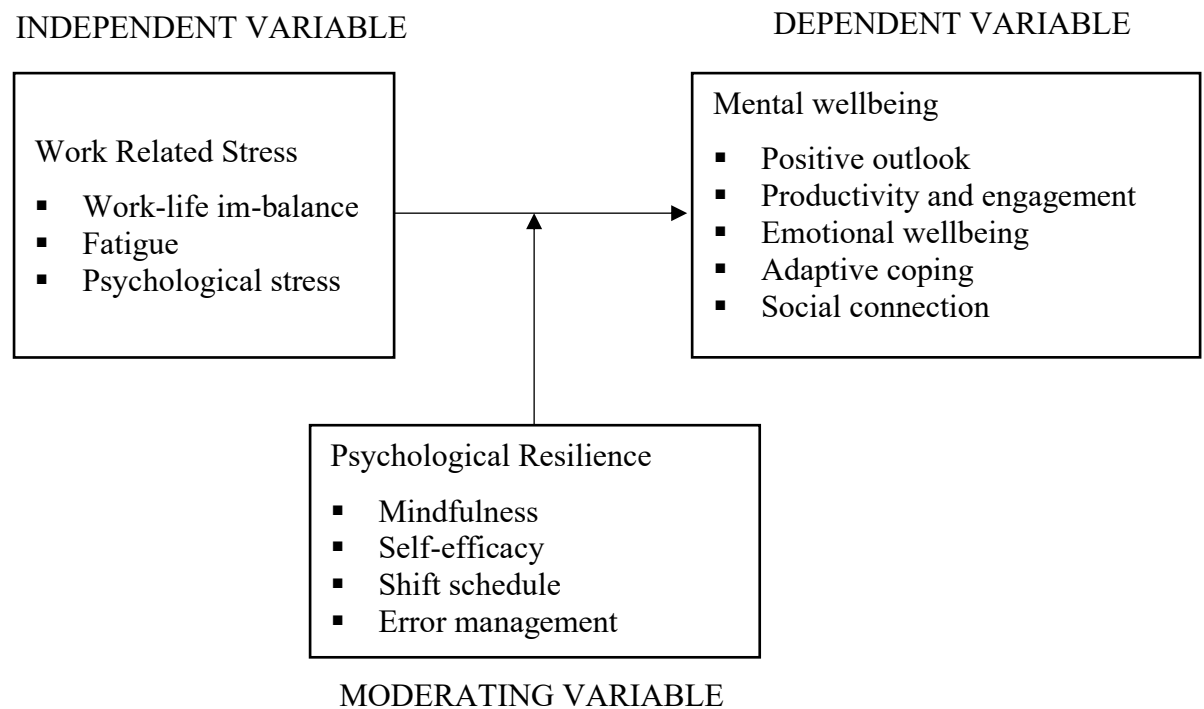
Resilience Theory

Resilience theory, as a comprehensive framework explored by Bertsia & Poulou, (2023) and Juncos and Joseph, (2020), delves into the adaptive capacities of individuals, communities, and systems when confronted with adversity or significant stressors. In the context of aircraft maintenance personnel, this theory served as a lens to elucidate how these professionals can navigate the dynamic challenges within their workplace. The central tenet of resilience, focused on the capacity to endure challenges, recover from setbacks, and restore a positive functional state, were applied to understand how aircraft maintenance personnel can adapt to evolving circumstances (Bertsia & Poulou, 2019). This involves a consideration of flexibility in response to adversity, allowing for the adjustment of strategies to effectively cope with challenges. Furthermore, the theory shed light on the resourcefulness demonstrated by airport maintenance personnel (Juncos & Joseph, 2020). This resourcefulness entails the adept utilization of internal and external resources, including personal strengths, social support networks, and available services, to navigate and overcome challenges in their

professional environment (Métais et al., 2022). The study also utilized resilience theory to explain how positive coping strategies are employed by airport maintenance staff. These strategies encompass problem-solving, seeking social support, maintaining a positive outlook, and developing emotional regulation skills (Bertsia & Poulou, 2019). Understanding the application of these coping mechanisms is crucial in assessing how maintenance personnel manage and overcome workplace stressors. Additionally, the study explored whether airport maintenance staff utilize risk and protective factors in their roles. Risk factors are identified as elements that increase vulnerability, while protective factors enhance the ability to overcome adversity (Métais et al. 2022). Recognizing and reinforcing these protective factors emerge as integral components of resilience-building within the context of aircraft maintenance.

Conceptual Framework

The interconnection among the three variables is depicted in Figure 1 below. As illustrated, work-related stress is anticipated to apply pressure on the mental well-being of airport maintenance personnel at Wilson Airport. Work-related stress was represented by unpleasant working conditions, work overload, work-life imbalance, inadequate recognition, lack of job control, fear of self-expression, and skills underutilization. The conceptual framework depicts the indicators of mental wellbeing as comprising of positive outlook, productivity and engagement, emotional wellbeing, adaptive coping, and social connection. The association between work-related stress and mental well-being was envisioned to be influenced by psychological resilience as manifest in sense of control over life, resilience and coping, as well as positive relationships.

Figure 1 *Conceptual Framework*

Source: Author (2025)

Chapter Summary

The chapter has provided a comprehensive literature review, beginning with an empirical review aligned with its objectives. The first section delved into existing empirical studies to establish a foundation for the research. Subsequently, the second section explored the theoretical framework that underpins its foundations, offering a theoretical perspective to guide the investigation. Finally, the conceptual framework was outlined, providing a clear depiction of the study's conceptual underpinnings and guiding principles. The next chapter presents the methodology that was used to execute the study.

CHAPTER 3: RESEARCH METHODOLOGY

Introduction

This chapter includes the research methodology that underpins the investigation. The initial section delves into the research design, followed by an exploration of the target population, naturally leading to a discussion on determining the appropriate sample size. This leads to a detailed examination of the sampling method employed. Subsequently, the chapter transitions to discussing the type of data as well as outlining the approach to data collection. The chapter then scrutinizes the instruments that is, the validity and reliability, followed by an exploration of the study's plan for conducting a pilot study. The chapter proceeds to discuss research procedures, the data analysis plan and ethical considerations guiding the study. Finally, the chapter concludes by summarizing the key points discussed.

Research Design

Research design serves as a detailed plan that establishes the link between the research problem and the empirical research study (Asenahabi, 2019). In simpler terms, it functions as a blueprint for fieldwork, aiding in the determination of the type of data employed in a study and subsequently guiding the data analysis plan (Abutabenjeh & Jaradat, 2018). Research design is consequently categorized into the following domains: quantitative research designs, qualitative research designs, mixed research designs, and cross-sectional research designs (Asenahabi, 2019). Quantitative research designs involve the utilization of numerical data, while qualitative research designs exploit non-numerical data. Mixed method design combines both numerical and non-numerical data (Abutabenjeh & Jaradat, 2018) while cross-sectional design utilizes

surveys, observations, and measurements (Maier et al., 2023). This study employed a cross-sectional research design and used a survey method of research to collect data.

In the framework of a cross-sectional study, researchers refrain from intervening or manipulating variables. Instead, they observe and gather data from a population at a specific moment or over a brief period (Zangirolami-Raimundo et al., 2018) which also makes it easy to conduct (Wang & Cheng, 2020). Additionally, cross-sectional studies are primarily used in establishing preliminary evidence to pave way for future research or studies (Wang & Cheng, 2020). The methodology entails analyzing collected data to scrutinize associations between variables with the aim of ascertaining the existence of a relationship, although the design does not permit the inference of causation (Cvetković Vega et al., 2021). This design facilitates the evaluation of the prevalence of specific characteristics or conditions within a population for example their belief (Bjertnaes et al., 2020). The selection of this study design is motivated by its utility in estimating the prevalence of a condition or behavior in a population and in exploring associations among various variables (Cvetković Vega et al., 2021).

The selection of a cross-sectional research design is warranted due to its capacity to offer prompt and cost-effective insights (Taris et al., 2021). This study specifically concentrates on examining the prevailing conditions of work-related stress, mental well-being, and psychological resilience within the population of aircraft maintenance personnel. Moreover, the chosen research design enables an in-depth exploration of moderating effects, allowing for a nuanced understanding of the interplay among these crucial factors (Maier et al., 2023).

Target Population

The population, as defined by Thacker (2020), encompasses the entirety of subjects sharing common characteristics, forming the basis from which a study is derived. In this context, the target population, consists of the specific group from which the sample was selected (Etikan, 2019). The target population for this study is the Aircraft Maintenance Personnel (AMP) actively working at Wilson Airport in Nairobi, Kenya. The population of the airline maintenance staff is presented in Table 1.

Table 1 *Population Distribution*

No	Company	Population
1	Airworks	56
2	ALS	69
3	Kasas	22
4	DLCO	20
5	AIM Air	17
6	Youth Aviation	18
7	Air Kenya	28
8	KWS	25
9	East Africa Express	18
10	Skyward	23
11	Renegade	29
12	Advantage	15
13	Safarilink	32
14	Helint	12
15	Freedom	16
16	Bosckovic	22
17	Aberdare	18
18	Air Traffic	15
19	Bush Air	8
20	Phoenix	22
21	Hawk	43
22	Police Airwing	12
23	Everret Aviation	16
24	MAF	29
25	Blue Bird	27
26	748 Air services	21
27	Propulsion	14
28	Lady Lori	11
29	Tailwind	9
30	NDT services	6
31	Avionicare	6

32	Aircare	9
33	Instrumentation	5
34	I-fly Limited	15
	Total	715

As depicted in Table1, there are currently 34 companies in operation at Wilson Airport. The table provides an overview of the total number of maintenance engineers employed across these airlines, totaling 715.

Sample Size

Thacker (2020) defines the sample size as the proportion of the entire population selected to serve as a representative subset in a study. This is particularly crucial as studying the entire population is often impractical due to its size, consisting of numerous individuals. According to Etikan and Babatope (2019), the determination of an appropriate sample size is vital for the feasibility of a research project. In this study, the sample size was calculated using the Slovin formula as follows:

$$n = N / (1 + Ne^2)$$

n is the sample size.

Where N is the population=715.

e is the error which is .05.

Applying the above formula:

$$n = 715 / (1 + 715 * .05^2)$$

$$n = 257$$

Sampling Method

The study adopted a cluster sampling method. The rationale behind opting for the cluster sampling method lies in its ability to divide the population into distinct

cluster or subgroups based on specific characteristics (Howell et al., 2020). The study utilized a simple random sampling technique to select the respondents in the research, adhering to the allocated sample size per company. This approach ensures that all maintenance personnel have equal opportunity for selection, in line with the principles outlined by Taherdoost, (2016).

Table 2 *Sample Size Distribution*

No	Company	Population	Sample
1	Airworks	56	20
2	ALS	69	25
3	Kasas	22	8
4	DLCO	20	7
5	AIM Air	17	6
6	Youth Aviation	18	6
7	Air Kenya	28	10
8	KWS	25	9
9	East Africa Express	18	6
10	Skyward	23	8
11	Renegade	29	10
12	Advantage	15	5
13	Safarilink	32	12
14	Helint	12	4
15	Freedom	16	6
16	Bosckovic	22	8
17	Aberdare	18	6
18	Air Traffic	15	13
19	Bush Air	8	3
20	Phoenix	22	8
21	Hawk	43	15
22	Police Airwing	12	4
23	Everret Aviation	16	6
24	MAF	29	10
25	Blue Bird	27	8
26	748 Air services	21	7
27	Propulsion	14	5
28	Lady Lori	11	4
29	Tailwind	9	3
30	NDT services	6	2
31	Avionicare	6	2
32	Aircare	9	3

No	Company	Population	Sample
33	Instrumentation	5	2
34	I-fly Limited	15	5
	Total	715	256

Type of Data

Research data is defined by Schoonenboom (2023) as constituting a collection of values or subjects, encompassing both numerical and non-numerical information that requires organization or synthesis for meaningful interpretation. According to Dettori and Norvell, (2018), data can be categorized as either primary or secondary data. For instance, primary data is originally gathered from the field for the first time (Cerar et al., 2021), while secondary data refers to information that was previously collected and stored for subsequent use (Ajayi, 2023). Secondary data has several concerns raised which include data fitness, data quality, and lack of clarity surrounding the entire data collection process (Cheong et al., 2023). For this study, primary data was employed, and it was collected directly from Aircraft Maintenance Personnel (AMPs) at Wilson Airport in Nairobi. The decision to use primary data is driven by the need to obtain fresh findings that can be readily applied (Wickham et al., 2019). Given the dynamic nature of technology, evolving life circumstances, and the continuously changing and complex sources of stress, utilizing primary data ensures the relevance and applicability of the study's findings, as emphasized by Bondanini et al. (2020).

Data Collection Method

A structured questionnaire was used. Section one of the questionnaire encompasses demographic information about the respondents. Moving to section two, the focus is on assessing the level of work-related stress among aircraft maintenance personnel at Wilson Airport. The measurement of work-related stress was conducted

using the Workplace Stress Scale (Appendix A section 1) developed by the American Institute of stress and the Marlin company whose aim to measure how much stress employee encounter as they work in an organization (Sharma & Tripathi, 2023). In a study carried out by (Torvisco et al., 2022) the commonalities values ranged between 0.26 and 0.61 which was a satisfactory indication. (2011 [Appendix A section 1).

In section three, the questionnaire delves into details about mental health. The assessment of mental health was carried out using the Warwick-Edinburgh mental well-being scale (WEMWBS) developed by Warwick and Edinburgh universities and validated on students above 16 years and general adult population (Tennant et al., 2007). Notably, Tennant et al, (2007) obtained Cronbach scores ranging from 0.51 as the lowest to 0.75 as the highest making the correlations to fall within the desired limits. Furthermore, a study carried out by Melendez-Torres et al. (2019) concluded that the scale is a valid and reliable tool that can be used to measure mental well-being. Section four of the questionnaire is dedicated to examining psychological resilience. The scale employed for measuring psychological resilience is the Connor- Davidson resilience scale (CD-RISC 10) developed by Drs. Campbel and Stein (Nartova-Bochaver et al., 2021) Appendix A section 4. The Cronbach measurement for the CD-RISC-10 is 0.84 with a 95% confidence interval for this section demonstrating consistency, ranging from 0.845 to 0.867. These reliability scores affirm the robustness and internal consistency of the instrument used for assessing psychological resilience (Nartova-Bochaver et al., 2021).

All questions from section 2 to section 4 are structured with a five-point Likert scale. Aircraft Maintenance Personnel (AMPs) participating in the study were asked to select their responses from this Likert scale, offering a range of options to express their

perspectives on the questions posed in these sections. The Likert scale is a valuable tool for gauging the intensity of respondents' opinions or experiences, allowing for nuanced and graded responses across the spectrum of the provided scale (Heo et al., 2022).

Instrument Validity

According to Sürücü and Maslakçı, (2020), validity refers to the capability of an instrument to function as intended. Consequently, its purpose is to determine whether the scales within the measuring instrument effectively serve the objectives of the study (Sudaryono et al., 2023). The authors highlight that various types of validity are crucial and commonly employed, with a focus on content validity and construct validity. Content validity ensures that a test accurately and comprehensively measures its intended target (Sudaryono et al., 2023). As described by Sürücü and Maslakçı (2020), content validity involves a qualitative assessment of the questions in the measuring instrument, ensuring that the expressions within it precisely capture the phenomenon under examination. On the other hand, construct validity is a statistical measure that ensures respondents are differentiated based on the scores they achieve (Sürücü and Maslakçı, 2020). Consequently, the scores obtained are indicative of their performance in the conducted study. Given the quantitative nature of this study, concurrent validity was measured. The establishment of concurrent validity in this study was facilitated using SPSS version 23.

Instrument Reliability

Reliability, as defined by Sürücü and Maslakçı (2020), is the capability of an instrument to produce consistent results when subjected to testing under different conditions. This assessment aims to establish the uniformity across all components of the measuring instrument. According to Taherdoost (2016), the Cronbach Alpha

coefficient is a reliable measure for assessing the reliability of a measuring instrument. Taherdoost suggests that a reliability test score of at least 0.7 is considered sufficient for a study. Given the close relationship between reliability and validity, as noted by Sürücü and Maslakçı (2020), the study employed a Cronbach measurement of 0.7 on a scale of 10 for reliability assessment. The Cronbach score was obtained using SPSS version 23, ensuring a robust evaluation of the reliability of the measuring instrument in this study. Table 3 shows the reliability statistics.

Table 3 *Reliability Statistics*

Variable	Cronbach's Alpha	N of Items
Work-related stress	.954	8
Mental wellbeing	.978	14
Psychological resilience	.978	10

As shown in Table 3, the Cronbach's alpha for the work-related stress scale was .954 (8 items), indicating excellent internal consistency. Similarly, the psychological wellbeing scale had a Cronbach's alpha of .978 (14 items), and the psychological resilience scale also demonstrated excellent reliability with a Cronbach's alpha of .978 (10 items). These results suggest that all scales have high internal consistency and are reliable measures for the constructs they assess.

Research Procedures

The research process commenced by seeking clearance from Pan African Christian University (Appendix C), followed by obtaining a relevant NACOSTI permit (Appendix D). Upon securing these approvals, the researcher then composed a formal letter addressed to the maintenance organizations operating in Wilson Airport

(Appendix E). This letter served to articulate the primary purpose of the research, elucidate the rights and privileges of the respondents, and emphasize the ethical considerations guiding the study. Accompanying this formal letter were copies of the university clearance letter and the NACOSTI permit, providing official documentation of the research's ethical approval. The researcher endeavored to personally deliver the letter and seek an appointment with the airline management. This meeting aims to address any queries or concerns, ensuring clarity on the research's objectives and processes. Additionally, the researcher used this opportunity to finalize logistical details, such as scheduling the study and resolving any outstanding issues.

Prior to initiating the study, the researcher gave the consent forms to the Aircraft Maintenance Personnel [Appendix B attached]), taking the opportunity to provide a thorough explanation of the research. During this interaction, the researcher welcomed and addressed any questions or concerns that the respondents may have about the study. At this stage, the researcher requested the Aircraft Maintenance Personnel to sign the consent form if they willingly agree to participate in the study. Individuals who choose not to sign the consent letter were respectfully asked to leave the room. This practice ensures that participation is entirely voluntary and that each respondents provides explicit and informed consent before engaging in the research.

To ensure comprehensive assistance, competent and trained research assistants were deployed to clarify any difficulties in understanding the study or its components. Additionally, the study made provision for a counselor who was readily available on standby in case a respondent may want some psychological support. This counselor was accessible to any respondent who may require counseling support during or after their involvement in the study. The study concluded with a debriefing session, during which

the researcher provided any additional information requested by the respondents and clarification about the research. As part of ethical practice, the researcher shared contact information for competent therapists and counselors. This allowed aircraft maintenance personnel the option to seek further assistance or support if they wish to pursue further help regarding the issues they face at work place or in any area of their life.

Pilot Testing

Pilot testing is a small-scale study that mirrors the main research endeavor, aiming to assess the readiness of the researchers to conduct the primary study (Williams-McBean, 2019). Its primary purpose is to scrutinize the research instruments, with a focus on making necessary adjustments if the Cronbach scores fall below the minimum threshold (Smith, 2019). Additionally, a pilot study aids in the evaluation of the adequacy of the methods and procedures outlined in the research methodology section of a research proposal (Smith, 2019). Furthermore, the pilot study serves as a valuable tool for identifying potential challenges that may arise during the main study, enabling the researcher to take preemptive measures for a smoother fieldwork experience (Williams-McBean, 2019). This proactive approach helps in troubleshooting and refining methodologies before the main study commences. The researcher carried out a pilot study and targeted 15 respondents which is about 5% of the study sample size. These respondents were drawn from Jomo Kenyatta International Airport (JKIA) Nairobi to ascertain the instruments are valid and reliable on the target population.

Data Analysis Plan

The data analysis plan serves as a comprehensive guide for outlining the researcher's strategy for analyzing data, a strategy shaped by the study's objectives, and

the nature of the collected data (Bhatia, 2017). The researcher's approach is tailored to the specific goals set forth in each objective. For Objective 1, where the aim was to determine the level of work-related stress among aircraft maintenance personnel, the analysis primarily employed descriptive statistics. Measures such as mean and standard deviation were computed to offer a detailed summary of the central tendency and variability within the work-related stress scores.

In addressing Objectives 2 and 3, the study adopted a two-pronged data analysis strategy. Firstly, correlation was applied to establish the relationship between work-related stress and mental well-being (Objective 2). Simple linear regression analysis was then performed to estimate effect sizes using the following regression formula:

$$MW = \beta_0 + \beta_1 WrS + \varepsilon$$

Where MW=Mental Wellbeing

WrS = Work-related Stress

β_0 = Constant

ε = Error term

Secondly, the extent of moderation between psychological resilience, work-related stress, and mental well-being (Objective 3) were explored using moderated regression modelling technique. A 3-step approach was applied as demonstrated by the following analytical models:

$$\text{Step 1: } MW = \beta_0 + \beta_1 WrS + \varepsilon$$

$$\text{Step 2: } MW = \beta_0 + \beta_1 WrS + \beta_2 PsyR + \varepsilon$$

$$\text{Step 3: } MW = \beta_0 + \beta_1 WrS + \beta_2 PsyR + \beta_3 WrS * PsyR + \varepsilon$$

Where;

MW=Mental Wellbeing

WrS = Work-related Stress

PsyR = Psychological Resilience

WrS*PsyR = Interaction term

β_0 = Constant

ε = Error term

$B_1 \beta_2 \beta_3$ =Regression Coefficients

The study also used graphical representation facilitated by scatterplot to visually illustrate linearity of the relationship between the study variables. The analysis of data was performed utilizing SPSS version 23.

Ethical Consideration

Research endeavors are obligated to adhere to established ethical standards outlined by governmental bodies, research organizations, and universities to ensure responsible conduct (Tessier & Bonnemains, 2018). The primary aim of ethical considerations is to safeguard the rights and dignity of human research participants (Kushwaha & Dube, 2023). In line with this commitment, this study pledges to comply with the ethical guidelines set forth by the Pan African Christian University, as well as those outlined in the guidelines provided by the National Commission for Science, Technology, and Innovation (NACOSTI). This adherence to ethical principles ensures the protection and well-being of respondents and upholds the integrity of the research process (See Appendices A).

In adherence to ethical standards, the study initiated the process by seeking ethical clearance from Pan African Christian University (Appendix C). Following the approval from the university's ethical review board, the researcher then proceeded to apply for official permission to conduct the research from the Kenyan government's

research regulatory body, NACOSTI (Appendix D). Special attention was dedicated to the rights of the respondents. The consent letter (Appendix A) issued played a crucial role in outlining the study's purpose and the researcher's commitment to maintaining confidentiality and anonymity throughout the reporting period. The consent form also explicitly specified the respondents' rights to engage in the study and their prerogative to withdraw at any stage. This ethical commitment ensures that respondents are well-informed and protected throughout their involvement in the study.

After data collection, the study then ensured the safety of the collected questionnaires, safely transporting them and thereafter locking them in a safe house where the researcher is the only one with access, additionally the researcher intends to destroy permanently this data after 5 years by shredding which ensures that no one can access the information. The researcher also ensured that the computer and/ laptop from where the analysis was conducted is encrypted so that no one is able to access the data. In upholding ethical standards, the researcher ensured that during the data analysis phase, the reporting of findings was conducted objectively and truthfully. The researcher destroyed the questionnaires after the conclusion of the study. Similarly, the dataset in the computer or laptop from where the study was undertaken was expunged from the database at the conclusion of the study.

During report writing stage, the researcher ensured originality of the content by duly acknowledging borrowed ideas in accordance to the seventh edition of APA guidelines. Plans were made to disseminate the findings through conference presentation and journal publications.

Chapter Summary

The chapter has outlined the methodology for the study. It commenced by elucidating the chosen research design, followed by a detailed description of the population and determination of the sample size. Subsequently, the sampling method and type of data were expounded then transitioned to elucidate the data collection method. Ensuring the validity and reliability of the data collection instrument was then addressed. Further, the chapter provided insight into the research procedures followed by data analysis plan and lastly, ethical considerations were conscientiously discussed.

CHAPTER 4: RESULTS AND DISCUSSIONS

Introduction

The purpose of the study was to explore the moderating role of psychological resilience on work-related stress and mental well-being among aircraft maintenance personnel at Wilson Airport in Nairobi, Kenya. This chapter presents the results and discussions of the study. The chapter is divided into four sections. The first section entails the analysis of response rate and respondents' demographic profile. The rest of the results and discussions are presented in line with the specific objectives, which were: to determine the level of work-related stress among aircraft maintenance personnel at Wilson Airport in Nairobi, Kenya; to establish the relationship between work-related stress and the mental well-being of aircraft maintenance personnel at Wilson Airport in Nairobi, Kenya; and to examine the moderating role of psychological resilience on the relationship between work-related stress and mental well-being among aircraft maintenance personnel at Wilson Airport in Nairobi, Kenya

Response Rate and Demographic Analysis

This section analyses and discusses the response rate, along with demographic characteristics of the respondents such as gender, education, marital status, and years of employment.

Response Rate

In survey research, the response rate is crucial as it reflects the level of participation and the potential generalizability of the findings. Table 4 presents the response rate for the study, which was conducted among aircraft maintenance personnel at Wilson Airport in Nairobi, Kenya.

Table 4 *Response Rate*

Respondent category	Frequency	Percent
Responded	257	100%
Non-respondents	0	0%
Total	257	100%

As shown in the table, all 257 targeted respondents completed the survey, resulting in a response rate of 100%. This high response rate indicates robust engagement from the respondents and enhances the reliability of the study findings, suggesting that the results are likely representative of the population under study. This is consistent with Holtom et al. (2022) who suggested that any response rate beyond 70% is excellent.

Gender Distribution

Gender breakdown provides valuable insights into the diversity of the workforce and ensures that the study findings reflect the experiences and perspectives of both male and female personnel. Table 5 illustrates the gender distribution of the respondents in the study.

Table 5 *Gender Distribution*

Gender of respondents	Frequency	Percent
Male	141	55%
Female	116	45%
Total	257	100%

Out of the total 257 respondents, 141 were male, accounting for 55% of the respondents, while 116 were female, representing 45%. This distribution demonstrates a relatively balanced gender representation among the aircraft maintenance personnel at Wilson Airport in Nairobi, Kenya. This means that there was adequate representation of respondents by gender. The finding mirrors the results of a previous study among airline staff members at Wilson Airport undertaken by Nambuya (2021) in which gender distribution comprised 53% male respondents and 47% female respondents.

Level of Education

The educational composition of the sample provides context for understanding the professional background of the respondents. Table 6 presents the distribution of respondents' level of education.

Table 6 *Respondents' Level of Education*

Education level	Frequency	Percent
Diploma	174	67.8%
Undergraduate	53	20.5%
Masters	26	10.1%
PhD	4	1.6%
Total	257	100.0%

Among the 257 respondents, the majority, 174 respondents (67.8%), held a diploma, followed by 53 respondents (20.5%) with an undergraduate degree. A smaller proportion of the respondents had a master's degree (26, 10.1%) or a PhD (4, 1.6%). This distribution highlights that most aircraft maintenance personnel at Wilson Airport possess a diploma-level education, with fewer individuals holding advanced degrees.

This finding is in contrast to the study by Nambuya (2021) which found that majority of the respondents (60.7%) had attained university level of education. This may be explained by the fact that unlike in the current study which limited its scope to aircraft maintenance personnel, the study by Nambuya (2021) comprised a diversity of personnel that included specializations in business management, flight operation, cabin crew, and flight operation, some of which might have required advanced degrees.

Respondents' Marital Status

Understanding the marital status of the respondents helps provide context for analyzing how personal life factors might influence work-related stress and mental well-being among the respondents. Table 7 shows the distribution of respondents by marital status.

Table 7 *Distribution of Respondents by Marital Status*

Marital status	Frequency	Percent
Single	61	23.6%
Married	135	52.7%
Separated	42	16.3%
Divorced	19	7.4%
Total	257	100.0%

Out of the 257 respondents, 135 were married, accounting for 52.7%, followed by 61 respondents (23.6%) who were single. Additionally, 42 respondents (16.3%) were separated, while 19 (7.4%) were divorced. This distribution reveals that the majority of aircraft maintenance personnel at Wilson Airport were married, although a substantial proportion were either single or separated. This has potential implication on

perception of work-related stress and mental wellbeing of respondents. Marriage can offer emotional support, stability, and a sense of purpose, which might buffer against workplace stress. However, balancing the demands of a high-stakes job like aircraft maintenance with family responsibilities can also contribute to increased stress levels. The need to manage both professional and personal roles could lead to mental fatigue, particularly when work demands are high or irregular.

Years of Employment

Table 8 presents the distribution of respondents by years of employment.

Table 8 *Distribution of Respondents by Years of Employment*

Years employed	Frequency	Percent
Less than 5 years	48	18.6%
6 to 10 years	71	27.5%
11 to 15 years	57	22.5%
16 to 20 years	52	20.2%
Over 20 years	29	11.2%
Total	257	100.0%

Table 8 shows that 27.5% of the respondents had been employed for 6 to 10 years, followed by 22.5% with 11 to 15 years of experience. A substantial proportion had been employed for less than 5 years (18.6%) or between 16 to 20 years (20.2%), while 11.2% had more than 20 years of employment. This distribution suggests a relatively balanced spread of years of employment among the respondents. However, collectively, a slight majority (53.9%) of the respondents had been employed for more than 10 years. This suggests a seasoned workforce within the aircraft maintenance

personnel at Wilson Airport. Long-term employment has distinct implications for workplace stress and mental wellbeing,

Level of Work-Related Stress among Aircraft Maintenance Personnel

The first objective of the study was to determine the level of work-related stress among aircraft maintenance personnel at Wilson Airport in Nairobi, Kenya. This section presents descriptive analysis of work-related stress and evaluates the level of work-related stress based on aggregated scores.

Descriptive Analysis of Work-Related Stress Items

The mean and standard deviation scores are essential for understanding the central tendency and variability of respondents' responses, which provide insights into the level of work-related stress experienced by the respondents. Table 9 presents these scores for various work-related stress items among aircraft maintenance personnel at Wilson Airport.

Table 9 *Mean and Standard Deviation Scores of Work-Related Stress Items*

Work-related stress items	Mean	Std. Deviation
I receive inadequate recognition or rewards for good performance.	2.11	.880
I have too much work to do and/or too many unreasonable deadlines	2.06	.872
I find it difficult to express my opinions or feelings about my job conditions to my superiors	2.19	.882
I feel that my job is negatively affecting my physical or emotional well-being.	2.17	.778
I feel that job pressures interfere with my family or personal life.	2.13	.904
I feel that I have inadequate control or input over my work duties	2.21	.911
I am unable to fully utilize my skills and talents at work	2.10	.817

Conditions at work are unpleasant or sometimes even unsafe.	2.02	.808
Work-related stress composite score	2.12	.856

The first item, "I receive inadequate recognition or rewards for good performance," has a mean score of 2.11 (SD = 0.880). This suggests that, on average, respondents feel they rarely received inadequate recognition or rewards for good performance. This finding is in contrast with Reis et al. (2021), who highlighted high levels of stress among aircraft engineers due to lack of recognition. It suggests that inadequate recognition, as a key contributor to stress, is an aspect that was not frequently manifest at Wilson airport.

The second item, "I have too much work to do and/or too many unreasonable deadlines," yielded a mean score of 2.06 (SD = 0.872). This indicates that respondents, on average, rarely felt overwhelmed by excessive work or unrealistic deadlines. This finding suggests that work overload and unrealistic expectations may not be widespread but still contribute to work-related stress for some personnel. This result in part agrees with Zimmermann et al. (2022), who found workload issues as a significant stressor. It indicates that while excessive workloads are a concern, they may not be as pervasive in this context, highlighting the importance of workload management.

For the third item, "I find it difficult to express my opinions or feelings about my job conditions to my superiors," the mean score was 2.19 (SD = 0.882). This indicates that respondents generally felt that expressing their opinions about job conditions is rarely difficult. This finding disagrees with Santos and Melicio (2019), who emphasized significant stress due to communication challenges. It implies that

while communication issues exist, they might not be as severe in this context, suggesting some level of openness in the organizational culture.

The fourth item, "I feel that my job is negatively affecting my physical or emotional well-being," had a mean score of 2.17 ($SD = 0.778$). This suggests that on average, respondents rarely felt that their job negatively impacted their physical or emotional health. This finding highlights that while job-related stress affecting well-being is a concern for some, it is not a predominant issue for the majority. This result contrasts with Shin et al. (2021), who linked high job stress with significant health impacts. It suggests that while physical and emotional well-being concerns exist, they may not be as pressing in this context, emphasizing the need for targeted wellness programs. Employers should focus on preventative health measures to ensure the well-being of their workforce.

For the item "I feel that job pressures interfere with my family or personal life," the mean score is 2.13 ($SD = 0.904$). This indicates that, on average, respondents rarely experienced interference between job pressures and their personal life. This implies that work-related stress in terms of family impact is an issue for certain individuals, but not a widespread problem. This finding agrees with Anggarini and Indrayanti (2021), who noted the significance of work-life balance in reducing stress. It highlights the importance of managing job pressures to prevent work-life conflicts, especially for those significantly affected.

The mean score for "I feel that I have inadequate control or input over my work duties" was 2.21 ($SD = 0.911$). This indicates that, on average, respondents rarely feel they lack control over their work duties. This finding reflects the importance of autonomy in mitigating work-related stress, with implications for job design and

managerial practices. This result agrees with Durmaz et al. (2021), who identified autonomy as a crucial factor in stress management. It suggests that enhancing employee control over work duties can significantly reduce stress, emphasizing the role of empowerment.

The item "I am unable to fully utilize my skills and talents at work" showed a mean score of 2.10 (SD = 0.817). This result suggests that, on average, respondents rarely felt unable to use their skills and talents. This implies that while many employees feel they are able to utilize their abilities, there may be occasional frustration for those who feel underutilized, contributing to stress. This finding agrees with Monreal and Estrada (2023), who noted that underutilization of skills contributes to stress. It implies that ensuring employees can fully utilize their skills is crucial for stress reduction, highlighting the need for appropriate role allocation.

The item "Conditions at work are unpleasant or sometimes even unsafe" had a mean score of 2.02 (SD = 0.808). This suggests that respondents, on average, rarely perceive their work conditions as unpleasant or unsafe. This finding indicates that work environment factors, though not universally problematic, can still contribute to stress for those affected. This result agrees with Ghanjal and Yarandi (2021), who found work conditions a stressor. It implies that ensuring safe and pleasant work environments is essential for reducing stress, highlighting the importance of continuous safety improvements.

Descriptive Analysis of Work-Related Stress Aggregate Score

The descriptive statistics for the work-related stress aggregate score are presented in the table 10.

Table 10 *Descriptive Analysis of Work-Related Stress Aggregate Score*

			Statistic	Std. Error
Work-related Stress Aggregate Score	Mean		16.9924	.37060
	95% Confidence	Lower Bound	16.2627	
	Interval for Mean	Upper Bound	17.7221	
	5% Trimmed Mean		16.6237	
	Median		16.0000	
	Variance		36.258	
	Std. Deviation		6.02150	
	Minimum		8.00	
	Maximum		40.00	
	Range		32.00	
	Interquartile Range		5.00	
	Skewness		.816	.150
	Kurtosis		1.555	.299

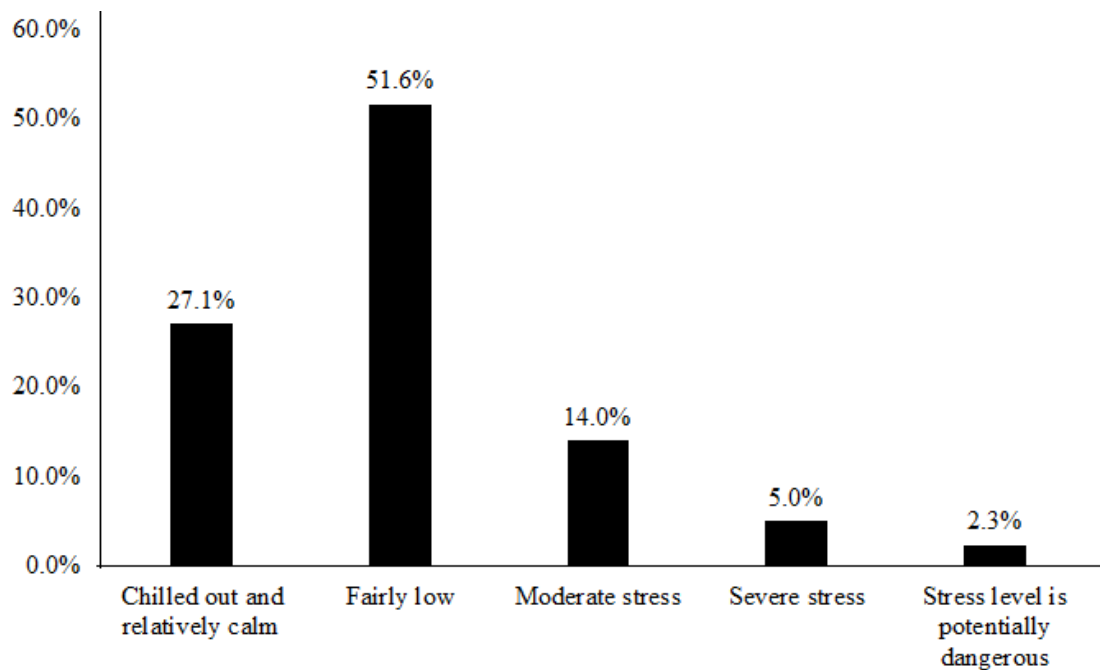
The mean score for work-related stress was 16.99 (SE = 0.37), indicating the average level of stress reported by respondents. The median score was 16.00, showing that half of the respondents reported a work-related stress score below 16, while half reported a score above this value. The variance was 36.26, and the standard deviation was 6.02, reflecting moderate variability in work-related stress levels across respondents. The range of scores was 32, with a minimum of 8.00 and a maximum of 40.00, suggesting a wide distribution of stress levels among the respondents. The interquartile range was 5.00, indicating that the middle 50% of respondents reported work-related stress scores between 13.00 and 18.00. The skewness value of 0.82 (SE = 0.15) indicates a moderate positive skew, meaning that most respondents reported lower levels of work-related stress, with a few reporting higher levels. This finding contrasts

with the literature by Reis et al. (2021), who identified high levels of stress among aircraft maintenance personnel. The moderate variability and positive skewness however suggest that while most respondents experience manageable stress levels, a notable portion endures higher stress, reflecting diverse work conditions and individual coping mechanisms.

Level of Work-related Stress

Figure 2 presents the distribution of respondents by their level of workplace stress.

Figure 2 *Level of Work-Related Stress*



According to Figure 2, 27.1% of the respondents reported feeling "chilled out and relatively calm," indicating that nearly a third of respondents experience minimal stress at work. A majority of respondents (51.6%), reported experiencing "fairly low" levels of stress, which suggests that more than half of the personnel at Wilson Airport

experienced low stress levels. This finding contrasts with Ekore et al. (2020), who reported higher stress levels in the aviation industry. It implies that stress levels may vary significantly by context, underscoring the importance of tailored stress management strategies. In contrast, 14.0% indicated they experience "moderate stress," highlighting that a smaller portion of the workforce feels a moderate degree of stress. Additionally, 5.0% of the respondents reported experiencing "severe stress," and 2 respondents experienced stress levels that were potentially dangerous, suggesting that a small proportion of respondents may be facing significant stress-related challenges that could impact their well-being.

Relationship between Work-Related Stress and Mental Well-being

The second objective of the study was to establish the relationship between work-related stress and the mental well-being of aircraft maintenance personnel at Wilson Airport in Nairobi, Kenya. In this section, the descriptive analysis of mental wellbeing items is first presented, followed by inferential analysis of the relationship between work-related stress and mental wellbeing.

Descriptive Analysis of Mental Wellbeing Items

The Warwick-Edinburgh mental well-being scale required respondents to rate various mental well-being items on a 5-point scale from 1=None of the time, 2=Rarely, 3=Some of the time, 4= Often, and 5= All the time. Table 11 presents the descriptive statistics for various mental well-being items rated by respondents at Wilson Airport.

Table 11 *Mean and standard Deviation Scores for Mental Well-being Items*

Mental well-being items	Mean	Std. Deviation
I have been feeling useful	4.07	.749
I have been able to make up my own mind about things	4.06	.724

Mental well-being items	Mean	Std. Deviation
I have been interested in new things	4.06	.743
I have been feeling confident	4.05	.759
I have been feeling good about myself	4.03	.777
I have been thinking clearly	4.01	.755
I have been feeling optimistic about the future	4.00	.763
I have been feeling loved	3.98	.755
I have been feeling cheerful.	3.98	.777
I have been feeling close to other people	3.93	.815
I have been dealing with problems well	3.92	.830
I have been feeling interested in other people	3.91	.841
I have been feeling relaxed	3.90	.837
I have had energy to spare	3.81	.914
Mental-wellbeing composite score	3.98	.789

For the item "I have been feeling useful," the mean score was 4.07 (SD = 0.749). This indicated that, on average, respondents often felt useful. This indicates that feeling useful was a common experience among the respondents, contributing positively to their overall well-being. This result agrees with the literature by Djurdjevic et al. (2017), which highlights the role of work in providing identity and social interaction. It suggests that feeling useful at work significantly contributes to an individual's mental well-being by reinforcing their sense of purpose. This implies that fostering a sense of usefulness in the workplace can enhance employee well-being and overall job satisfaction.

The item "I have been able to make up my own mind about things" had a mean score of 4.06 (SD = 0.724), suggesting that respondents often felt capable of making decisions independently. This result implied a strong sense of autonomy among the respondents, which was an essential component of mental well-being and resilience.

This finding agrees with Gragnano et al. (2020), who noted that work provides opportunities for personal development, including autonomy. It emphasizes the importance of decision-making capabilities in enhancing psychological resilience and mental health. This implies that encouraging autonomy in the workplace can be a strategy to boost employees' mental well-being.

The statement, "I have been interested in new things" also had a mean score of 4.06 (SD = 0.743), indicating that respondents often expressed curiosity and interest in new activities or ideas. This means that exploring new interests was a common behavior which was significant for maintaining mental stimulation and well-being. This finding aligns with Lu et al. (2023), who associated work with positive life outcomes such as continuous learning and mental stimulation. It highlights the role of curiosity in promoting mental well-being and preventing mental stagnation. This implies that creating a work environment that encourages innovation and exploration can positively impact employee mental health.

For the item "I have been feeling confident," the mean score was 4.05 (SD = 0.759), showing that respondents generally felt confident. This means that confidence was a crucial element of mental well-being, suggesting that the respondents had a positive self-view, which supported their ability to cope with challenges. This finding supports Martela et al. (2021), who emphasized the significance of meaningful work in influencing employees' motivation and confidence. It underscores the importance of confidence in fostering resilience and effective coping strategies in stressful work environments. This implies that building a supportive work culture can help boost employee confidence and, consequently, their mental well-being.

The item "I have been feeling good about myself" had a mean score of 4.03 (SD = 0.777), indicating that respondents often felt good about themselves. This finding underscored the importance of self-esteem in mental well-being. This agrees with Cahill et al. (2020), who stated that work contributes to personal identity and status, which are critical for self-esteem. It suggests that a positive self-view is essential for maintaining overall mental health. This implies that workplaces should focus on strategies that enhance self-esteem to support employees' mental well-being.

For "I have been thinking clearly," the mean score was 4.01 (SD = 0.755), showing that respondents often felt mentally clear. This means that most respondents shared this experience, highlighting cognitive clarity as a vital aspect of mental well-being. This finding is consistent with Lu & Zhuang (2023), who found that work positively impacts cognitive functioning. It emphasizes the role of mental clarity in ensuring effective decision-making and productivity. This implies that ensuring manageable workloads and clear expectations can help maintain cognitive clarity among employees.

The item "I have been feeling optimistic about the future" had a mean score of 4.00 (SD = 0.763), suggesting that respondents generally felt hopeful about their future. The consistency in responses pointed to a positive outlook, which was an essential factor in maintaining resilience and mental health. This finding supports Kremer et al. (2021), who noted that work can provide a sense of purpose and hope for the future. It highlights the importance of optimism in building resilience and coping with challenges. This implies that organizations should foster a positive work environment to nurture employees' optimism and resilience.

The statement, "I have been feeling loved" had a mean score of 3.98 (SD = 0.755), indicating that respondents frequently felt loved. It means that feeling loved was crucial for social support, which was a key component of mental well-being. This finding aligns with Yiu et al. (2022), who highlighted the importance of social interactions at work in providing emotional support. It suggests that strong social bonds at work are vital for emotional well-being and stress management. This implies that promoting a culture of support and camaraderie in the workplace can enhance employees' sense of being loved and valued.

For "I have been feeling cheerful," the mean score was 3.98 (SD = 0.777), showing that respondents often felt cheerful. It means that cheerfulness was a positive emotional state that contributed to overall well-being. This agrees with Wang et al. (2022), who linked positive emotions at work to improved mental health. It underscores the importance of positive emotions in maintaining mental resilience and job satisfaction. This implies that fostering a cheerful and positive work environment can enhance employees' emotional well-being and productivity.

The item "I have been feeling close to other people" had a mean score of 3.93 (SD = 0.815), suggesting that respondents generally felt connected to others. The result highlights the importance of social relationships in mental well-being. This finding supports Martela et al. (2021), who emphasized the role of social interactions in enhancing mental health. It highlights the significance of social connectedness in fostering a supportive and inclusive work environment.

The statement, "I have been dealing with problems well" had a mean score of 3.92 (SD = 0.830), indicating that respondents often felt capable of managing their problems. This finding aligns with Bendixen and Scheel (2023), who noted that

dissatisfaction with work progress can lead to stress. It emphasizes the need for resilience training and problem-solving support in the workplace. This implies that providing resources and support for stress management can enhance employees' problem-solving abilities and resilience.

The item "I have been feeling interested in other people" had a mean score of 3.91 (SD = 0.841), showing that respondents were generally interested in others. The higher variability reflected differences in how engaged respondents felt in their social interactions, which was important for maintaining social connections. This finding supports Black & Britt (2023), who associated meaningful social interactions at work with improved mental well-being. It suggests that fostering an environment that encourages social engagement can benefit employees' mental health. This implies that creating opportunities for social interaction at work can help build a supportive community and enhance overall well-being.

For "I have been feeling relaxed," the mean score was 3.90 (SD = 0.837), indicating that respondents often felt relaxed. The variability in responses suggested that while relaxation was common, some respondents may have experienced tension more frequently, pointing to the need for stress management strategies. This finding aligns with Nathani & Bendre (2022), who identified work-related stress as a significant issue in certain occupations. It emphasizes the importance of relaxation and stress management in maintaining mental well-being. This implies that implementing stress reduction programs can help employees manage tension and improve their overall health.

The item "I have had energy to spare" had a mean score of 3.81 (SD = 0.914), indicating that respondents generally felt they had energy to spare. The higher

variability reflected differences in energy levels among respondents, suggesting that while many felt energetic, others may have experienced fatigue, which could impact their well-being. This finding agrees with Boyd (2022), who reported high levels of stress and fatigue among American workers. It highlights the importance of energy management in preventing burnout and maintaining productivity. This implies that promoting work-life balance and providing adequate rest opportunities can help sustain employees' energy levels and well-being.

The mental well-being composite score was 3.98 (SD = 0.789), indicating that, on average, respondents experienced positive mental well-being most of the time. The moderate standard deviation suggested variability in overall mental well-being, highlighting areas for potential support to enhance resilience and well-being among the aircraft maintenance personnel. This finding aligns with Kelly and Efthymiou (2019), who emphasized the importance of mental fitness for aviation personnel. It underscores the need for targeted interventions to support mental health in high-stress occupations. This implies that continuous monitoring and support for mental well-being are essential for maintaining a healthy and resilient workforce in the aviation industry.

Correlation between Work-related Stress and Mental Wellbeing

Table 12 presents the results of the correlation analysis between work-related stress and mental well-being among aircraft maintenance personnel at Wilson Airport.

Table 12 *Correlation Analysis between Work-related Stress and Mental Wellbeing*

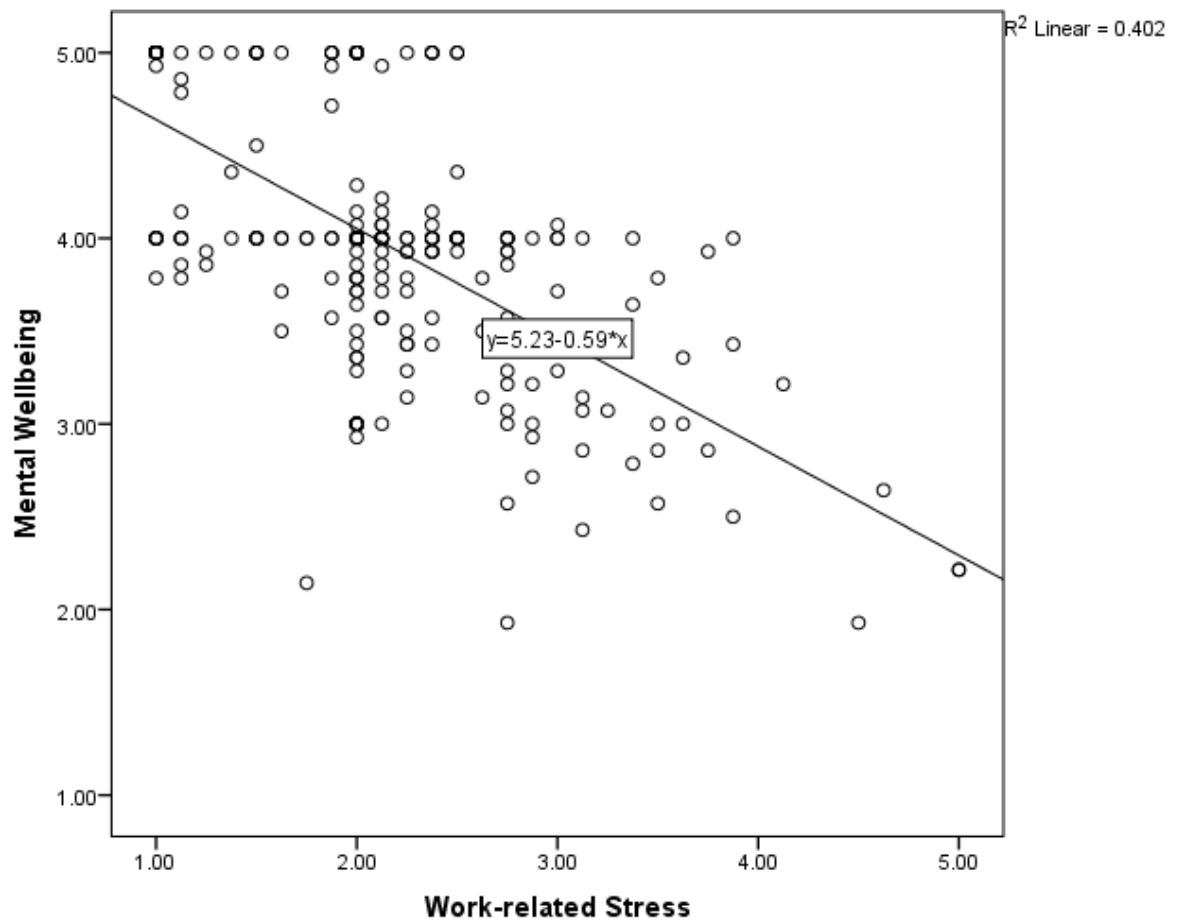
		Work-related	
		stress	Mental Wellbeing
Work-related Stress	Pearson	1	-.634**
	Correlation		
	Sig. (2-tailed)		
			.000

	N	257	257
Mental Wellbeing	Pearson		
	Correlation	-.634**	1
	Sig. (2-tailed)	.000	
	N	257	257

** . Correlation is significant at the 0.01 level (2-tailed).

Table 12 reveals a significant negative correlation between work-related stress and mental well-being, $r=-0.634$, $p<0.01$. This strong negative correlation indicates that higher levels of work-related stress are associated with lower levels of mental well-being. The significance of this correlation suggests a substantial inverse relationship, highlighting the importance of addressing work-related stress to enhance the mental well-being of the personnel. This finding agrees with Cullen et al. (2021), who identified various stressors affecting the mental well-being of pilots. This finding emphasizes the pervasive impact of occupational stress across different professional settings, not just aviation. It implies that targeted interventions to reduce work-related stress could be pivotal in improving mental well-being universally. A visual illustration of relationship is presented in figure 3.

Figure 3 *Work-related Stress and Mental Wellbeing Scatterplot*



The plot depicted a negative linear relationship, where higher levels of work-related stress were associated with lower levels of mental well-being. The points on the scatterplot clustered along a downward trend line, consistent with the significant negative correlation and regression results. This visualization further supports the conclusion that work-related stress has a detrimental impact on mental well-being.

Regression of Mental Wellbeing on Work-related Stress

In order to test effect size, mental wellbeing was regressed on work-related stress using a simple linear regression model of the form:

$$MW = \beta_0 + \beta_1 WrS + \epsilon$$

Table 13 presents the regression analysis of mental well-being on work-related stress among aircraft maintenance personnel at Wilson Airport.

Table 13 *Regression Analysis of Mental Wellbeing on Work-related Stress*

Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.634 ^a	.402	.399	.54003		
a. Predictors: (Constant), Work-related Stress						
ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	51.306	1	51.306	175.927	.000 ^b
	Residual	76.408	255	.292		
	Total	127.715	256			
a. Dependent Variable: Mental Wellbeing						
b. Predictors: (Constant), Work-related Stress						
Coefficients ^a						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	5.226	.100		52.429	.000
	Work-related Stress	-.587	.044	-.634	-13.257	.000
a. Dependent Variable: Mental Wellbeing						

The model summary shows that work-related stress significantly predicted mental well-being, $R^2=0.402$, indicating that approximately 40.2% of the variance in mental well-being can be explained by work-related stress. The ANOVA results confirm the overall significance of the model, $F(1,255)=175.927$, $p<0.01$. The coefficients table reveals that work-related stress negatively predicted mental well-

being, $\beta = -0.587$, $t = -13.257$, $p < 0.01$, suggesting that an increase in work-related stress is associated with a decrease in mental well-being. These findings underscore the impact of work-related stress on the mental well-being of the personnel, emphasizing the need for interventions to mitigate stress levels. This aligns with Cahill et al. (2023), who reported similar challenges in aviation during the COVID-19 pandemic. This finding suggests that the negative impact of stress on mental well-being is consistent across various settings, particularly in potentially high-stress environments like aviation.

The regression equation was as follows:

$$MW = 5.226 - .587 * WrS + \epsilon$$

Work-Related Stress, Psychological Resilience, and Mental Wellbeing

The third objective of the study was to examine the moderating role of psychological resilience on the relationship between work-related stress and mental well-being among aircraft maintenance personnel at Wilson Airport in Nairobi, Kenya. In this section, descriptive analysis of psychological resilience items is presented and discussed, followed by inferential test of the relationship between work-related stress, psychological resilience, and mental wellbeing of the respondents.

Descriptive Analysis of Psychological Resilience Items

Respondents were asked to rate various psychological resilience items on a 5-point scale where 1=strongly disagree, 2=disagree, 3=neutral, 4=agree, and 5=strongly agree. Table 14 presents the mean and standard deviation scores for each item.

Table 14 *Mean and Standard Deviation Scores for Psychological Resilience Items*

Psychological Resilience items	Mean	Std. Deviation
I think of myself as a strong person	4.26	.648
I can deal with whatever comes.	4.22	.677
I am able to adapt to change	4.21	.691
I tend to bounce back after illness or hard ship	4.19	.688
I can achieve goals despite obstacles	4.17	.692
I am not easily discouraged by failure	4.17	.685
I can handle unpleasant feelings.	4.16	.701
Coping with stress can strengthen me.	4.15	.758
I can stay focused under pressure	4.15	.673
I try to see the humorous side of problems.	4.09	.786
Psychological resilience composite score	4.18	.700

The item "I think of myself as a strong person" had a mean score of 4.26 (SD = 0.648), indicating that most respondents agreed or strongly agreed with this statement. This suggests that the personnel generally perceive themselves as strong individuals, which is an essential component of resilience. The high mean score implies that self-perceived strength may contribute positively to their ability to manage stress and maintain mental well-being. This finding aligns with Makara-Studzińska et al. (2021), who also found that self-efficacy and perceived competence were linked to resilience.

For the statement "I can deal with whatever comes," the mean score was 4.22 (SD = 0.677). This reflects a strong agreement among respondents about their ability to handle unexpected challenges, suggesting a high level of resilience. This capacity to manage unforeseen events can be crucial in mitigating the adverse effects of work-

related stress. The finding agrees with the transactional model of stress, which emphasizes how individuals' cognitive appraisals and coping mechanisms influence their response to stressors (Yan et al., 2021). The result indicates that personnel's cognitive evaluations and coping strategies are key to their resilience. This implies that fostering adaptive coping skills through training or interventions can enhance individuals' ability to handle stress effectively.

The item "I am able to adapt to change" yielded a mean of 4.21 (SD = 0.691). This indicates that respondents generally feel capable of adapting to changes, which is a critical aspect of resilience. The ability to adapt is especially important in dynamic work environments, helping to reduce the negative impact of stress. This finding agrees with Luciani et al. (2022), who highlighted the importance of adaptability in mitigating the effects of stress, especially in high-stakes environments like aviation. The results suggest that adaptability plays a significant role in maintaining psychological resilience

Respondents rated "I tend to bounce back after illness or hardship" with a mean of 4.19 (SD = 0.688), showing a strong agreement. This suggests that most personnel feel confident in their ability to recover from difficulties, which is a key characteristic of resilience. This ability to recover is likely to enhance their overall mental well-being. This finding aligns with resilience theory, which emphasizes recovery and the restoration of a positive functional state (Bertsia & Poulou, 2023). It underscores the idea that bouncing back from adversity is essential for maintaining well-being.

The statement "I can achieve goals despite obstacles" had a mean score of 4.17 (SD = 0.692), reflecting agreement among respondents. This demonstrates that the personnel believe in their capacity to overcome barriers and achieve their objectives, which supports their psychological resilience and helps buffer the impact of stress. This

finding agrees with the literature on resilience by Shah et al. (2020), which suggests that having a sense of agency and control over one's goals is central to mental well-being. It highlights the importance of goal-oriented behavior in fostering resilience. This implies that fostering a strong sense of purpose and goal clarity can help individuals persist in the face of adversity.

For "I am not easily discouraged by failure," the mean was 4.17 (SD = 0.685), indicating that respondents generally feel resilient in the face of failure. This suggests a robust capacity to persist despite setbacks, which is crucial for maintaining motivation and well-being. This finding agrees with Guo et al. (2021), who found that proactive coping and the ability to manage fatigue contributed to reduced burnout and greater resilience. The ability to persist despite failure is key to overcoming challenges.

The item "I can handle unpleasant feelings" had a mean score of 4.16 (SD = 0.701), indicating agreement among respondents. This suggests that the personnel are generally capable of managing negative emotions, an important factor in maintaining resilience and reducing stress. This finding is consistent with the psychological well-being theory, which emphasizes emotional regulation as a key component of mental health (Davis & Hadwin, 2021). It highlights that emotional regulation plays a significant role in managing stress and maintaining resilience.

Respondents rated "Coping with stress can strengthen me" with a mean of 4.15 (SD = 0.758). This reflects a positive attitude towards stress, seeing it as an opportunity for growth, which is a significant aspect of resilience. This perspective can help reduce the detrimental effects of stress. This finding aligns with the psychological well-being theory, which emphasizes the importance of viewing challenges as opportunities for

growth (Shah et al., 2020). The positive reappraisal of stress as a growth opportunity can buffer its negative effects.

For "I can stay focused under pressure," the mean score was 4.15 (SD = 0.673), indicating that respondents feel capable of maintaining focus in stressful situations. This ability to concentrate under pressure is crucial for effective job performance and resilience. This finding agrees with the transactional model of stress, which highlights the role of cognitive appraisals in managing stress (Yan et al., 2021). The capacity to stay focused under pressure is a key resilience trait that facilitates effective performance in high-stress environments.

Lastly, the item "I try to see the humorous side of problems" had a mean of 4.09 (SD = 0.786), showing that respondents generally use humor as a coping mechanism. This approach can help alleviate stress and contribute to overall resilience. This finding aligns with Guo et al. (2021), who found that humor and positive coping mechanisms help reduce burnout and enhance resilience. It demonstrates the value of humor in managing stress and maintaining mental well-being. This implies that fostering a culture where humor is encouraged could improve resilience and stress management among personnel.

The composite score for psychological resilience was 4.18 (SD = 0.700), suggesting that the respondents generally possess a high level of resilience. This high level of resilience is likely to play a crucial role in mitigating the effects of work-related stress and enhancing mental well-being. This finding is consistent with the resilience theory, which emphasizes the role of resilience in overcoming adversity (Bertsia & Poulou, 2023). The high composite score reflects an overall strong capacity to cope

with stress. This implies that building resilience can serve as an effective intervention for improving mental well-being and mitigating stress in the workplace.

Inter-correlation between Work-related Stress, Psychological Resilience, and Mental Wellbeing

Table 15 presents the Spearman's rho correlation analysis between mental well-being, work-related stress, psychological resilience, and the interaction term in the study.

Table 15 *Correlation between Work-related Stress, Psychological Resilience, and Mental Wellbeing*

Spearman's rho		Mental Wellbeing	Work-related Stress	Psychological Resilience	Interaction Term
Mental Wellbeing	Correlation Coefficient	1.000	-.572**	.549**	-.337**
	Sig. (2-tailed)	.	.000	.000	.000
	N	257	257	257	257
Work-related Stress	Correlation Coefficient	-.572**	1.000	-.444**	.851**
	Sig. (2-tailed)	.000	.	.000	.000
	N	257	257	257	257
Psychological Resilience	Correlation Coefficient	.549**	-.444**	1.000	-.003
	Sig. (2-tailed)	.000	.000	.	.966
	N	257	257	257	257
Interaction Term	Correlation Coefficient	-.337**	.851**	-.003	1.000

Sig. (2-tailed)	.000	.000	.966	.
N	257	257	257	257

**. Correlation is significant at the 0.01 level (2-tailed).

The results show a significant negative correlation between mental well-being and work-related stress ($r=-0.572$, $p<0.01$), indicating that higher work-related stress is associated with lower mental well-being. A significant positive correlation was found between mental well-being and psychological resilience ($r=0.549$, $p<0.01$), suggesting that higher psychological resilience is associated with better mental well-being. The correlation between work-related stress and psychological resilience is negative ($r=-0.444$, $p<0.01$), indicating that greater psychological resilience is associated with lower levels of work-related stress. Notably, the interaction term's negative correlation with mental well-being ($r=-0.337$, $p<0.01$) is weaker than the main effect of work-related stress on mental well-being, suggesting that psychological resilience may reduce the negative impact of work-related stress on mental well-being, potentially acting as a moderator by buffering the detrimental effects of work-related stress on mental well-being. This finding aligns with the findings of Cahill et al. (2020), who also found that resilience acts as a buffer against stress, contributing to better mental well-being. The results indicate that psychological resilience plays a crucial role in mitigating the negative effects of work-related stress on well-being. This implies that fostering resilience can be a key strategy for enhancing mental health and reducing stress-related issues in the workplace.

Moderated Regression Analysis

To test both the main effect and moderating effect of psychological resilience on the relationship between work-related stress and mental wellbeing, a three step approach was used as follows:

Step 1: $MW = \beta_0 + \beta_1WrS + \varepsilon$

Step 2: $MW = \beta_0 + \beta_1WrS + \beta_2PsyR + \varepsilon$

Step 3: $MW = \beta_0 + \beta_1WrS + \beta_2PsyR + \beta_3WrS*PsyR + \varepsilon$

Table 16 displays the output.

Table 16 *Moderated Regression Analysis*

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.634 ^a	.402	.399	.54003
2	.710 ^b	.504	.500	.49277
3	.711 ^c	.505	.499	.49307

a. Predictors: (Constant), Work-related Stress

b. Predictors: (Constant), Work-related Stress, Psychological Resilience

c. Predictors: (Constant), Work-related Stress, Psychological Resilience, Interaction Term

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	51.306	1	51.306	175.927	.000 ^b
	Residual	76.408	255	.292		
	Total	127.715	256			
2	Regression	64.339	2	32.169	132.482	.000 ^c
	Residual	63.376	253	.243		
	Total	127.715	255			
3	Regression	64.505	3	21.502	88.443	.000 ^d
	Residual	63.210	251	.243		
	Total	127.715	254			

a. Dependent Variable: Mental Wellbeing

b. Predictors: (Constant), Work-related Stress

c. Predictors: (Constant), Work-related Stress, Psychological Resilience

d. Predictors: (Constant), Work-related Stress, Psychological Resilience, Interaction Term

Coefficients ^a				
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Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	5.226	.100		52.429	.000
Work-related Stress	-.587	.044	-.634	-13.257	.000
2 (Constant)	3.095	.305		10.157	.000
Work-related Stress	-.396	.048	-.428	-8.252	.000
Psychological Resilience	.413	.056	.380	7.326	.000
3 (Constant)	2.763	.504		5.480	.000
Work-related Stress	-.259	.173	-.280	-1.501	.135
Psychological Resilience	.495	.114	.456	4.340	.000
Interaction Term	-.035	.042	-.130	-.828	.408

a. Dependent Variable: Mental Wellbeing

In Model 1, where only work-related stress is included, the main effect of work-related stress is significant and negative ($\beta = -0.587$, $p < 0.001$), indicating that higher work-related stress is strongly associated with lower mental well-being. In Model 2, when psychological resilience is introduced, the main effect of work-related stress remains significant ($\beta = -0.396$, $p < 0.01$), though its magnitude decreases, suggesting that psychological resilience accounts for some of the variance in mental well-being. However, in Model 3, after adding the interaction term, the main effect of work-related stress becomes insignificant ($\beta = -0.259$, $p > 0.5$), indicating that the relationship between work-related stress and mental well-being may be partially explained by the interaction between work-related stress and psychological resilience. While the interaction term itself is not statistically significant ($\beta = -0.035$, $p > 0.5$), the fact that the main effect becomes insignificant after its inclusion signifies a potential moderating effect of psychological resilience, although the evidence is not compelling.

The findings agree with Kim et al. (2022) and Makara-Studzińska et al. (2021), who emphasize the role of psychological resilience and self-efficacy in mitigating stress and enhancing well-being. The decrease in the magnitude of the effect of work-related

stress after introducing psychological resilience suggests that resilience acts as a buffer, aligning with the idea that resilience can partially shield individuals from the adverse effects of stress. These results underscore the importance of fostering psychological resilience in work environments to help reduce the negative impact of stress on mental well-being. Additionally, the findings suggest that interventions aimed at enhancing resilience could be effective in promoting overall psychological health in the workplace.

Chapter Summary

This chapter has presented and discussed the results and findings of the study. This comprised descriptive analysis such as mean and standard deviation scores as well as percentage distribution that summarized the data and revealed trends with respect to work-related stress and mental wellbeing. Inferential techniques such as correlation and regression modelling were used. The results were discussed in light of extant empirical and theoretical literature. In the next chapter, the key findings are summarized and their implications discussed.

CHAPTER 5: SUMMARY OF FINDINGS, IMPLICATIONS, CONCLUSIONS, RECOMMENDATIONS, AND AREAS FOR FURTHER RESEARCH

Introduction

This concluding chapter provides a summary of the study's key findings, focusing on the impact of psychological resilience on the relationship between work-related stress and mental well-being among aircraft maintenance personnel at Wilson Airport in Nairobi, Kenya. It discusses the implications of these findings for the aviation industry, emphasizing the importance of resilience in managing stress and enhancing mental health. The chapter also outlines the study's contributions to existing knowledge, and offers practical recommendations. Finally, it suggests areas for further research to deepen understanding and address gaps identified in the study.

Summary of Findings

The first objective of the study was to determine the level of work-related stress among aircraft maintenance personnel at Wilson Airport in Nairobi, Kenya. The mean score for work-related stress was 16.99 (SE = 0.37), indicating the average level of stress reported by respondents. The median score was 16.00, showing that half of the respondents reported a work-related stress score below 16, while half reported a score above this value. The variance was 36.26, and the standard deviation was 6.02, reflecting moderate variability in work-related stress levels across respondents. The range of scores was 32, with a minimum of 8.00 and a maximum of 40.00, suggesting a wide distribution of stress levels among the respondents. The interquartile range was 5.00, indicating that the middle 50% of respondents reported work-related stress scores between 13.00 and 18.00. The skewness value of 0.82 (SE = 0.15) indicates a moderate positive skew, meaning that most respondents reported lower levels of work-related

stress, with a few reporting higher levels. . A majority of respondents (51.6%), reported experiencing "fairly low" levels of stress, which suggests that more than half of the personnel at Wilson Airport experienced low stress levels.

The second objective of the study was to establish the relationship between work-related stress and the mental well-being of aircraft maintenance personnel at Wilson Airport in Nairobi, Kenya. The mental well-being composite score was 3.98 (SD = 0.789), indicating that, on average, respondents experienced positive mental well-being most of the time. The study established a significant negative correlation between work-related stress and mental well-being, $r=-0.634$, $p<0.01$. This strong negative correlation indicates that higher levels of work-related stress are associated with lower levels of mental well-being. Regression analysis showed that work-related stress significantly predicted mental well-being, $R^2=0.402$, indicating that approximately 40.2% of the variance in mental well-being can be explained by work-related stress. The ANOVA results confirm the overall significance of the model, $F(1,255)=175.927$, $p<0.01$. Work-related stress negatively predicted mental well-being, $\beta=-0.587$, $t=-13.257$, $p<0.01$, suggesting that an increase in work-related stress is associated with a decrease in mental well-being.

The third objective of the study was to examine the moderating role of psychological resilience on the relationship between work-related stress and mental well-being among aircraft maintenance personnel at Wilson Airport in Nairobi, Kenya. The composite score for psychological resilience was 4.18 (SD = 0.700), suggesting that the respondents generally possess a high level of resilience. Correlation results showed a significant negative correlation between mental well-being and work-related stress ($r=-0.572$, $p<0.01$), indicating that higher work-related stress is associated with

lower mental well-being. A significant positive correlation was found between mental well-being and psychological resilience ($r=0.549$, $p<0.01$), suggesting that higher psychological resilience is associated with better mental well-being. The correlation between work-related stress and psychological resilience is negative ($r=-0.444$, $p<0.01$), indicating that greater psychological resilience is associated with lower levels of work-related stress. Notably, the interaction term's negative correlation with mental well-being ($r=-0.337$, $p<0.01$) is weaker than the main effect of work-related stress on mental well-being, suggesting that psychological resilience may reduce the negative impact of work-related stress on mental well-being, potentially acting as a moderator by buffering the detrimental effects of work-related stress on mental well-being. Moderated regression analysis revealed that where only work-related stress is included, the main effect of work-related stress is significant and negative ($\beta = -0.587$, $p < 0.001$), indicating that higher work-related stress is strongly associated with lower mental well-being. In Model 2, when psychological resilience is introduced, the main effect of work-related stress remains significant ($\beta = -0.396$, $p < 0.01$), though its magnitude decreases, suggesting that psychological resilience accounts for some of the variance in mental well-being. However, in Model 3, after adding the interaction term, the main effect of work-related stress becomes insignificant ($\beta = -0.259$, $p > 0.5$), indicating that the relationship between work-related stress and mental well-being may be partially explained by the interaction between work-related stress and psychological resilience. While the interaction term itself is not statistically significant ($\beta = -0.035$, $p > 0.5$), the fact that the main effect becomes insignificant after its inclusion signifies a potential moderating effect of psychological resilience, although the evidence is not compelling.

Implications

The empirical evidence presented align with key psychological frameworks and offer deeper insights into the dynamics of stress and mental well-being among aircraft maintenance personnel. The transactional model of stress by Lazarus and Folkman (1984) provides a foundational understanding of how these personnel perceive and respond to stressors. The study's findings, which show a wide distribution in stress levels and a moderate positive skew, suggest that individual differences in cognitive appraisal and coping mechanisms potentially play a critical role in managing work-related stress. This reinforces the perspectives advanced by Yan et al. (2021) and Horan et al. (2020), who highlight the importance of cognitive appraisals in stress responses. The variability in stress levels among the respondents underscores the necessity for personalized interventions that consider these individual differences in coping strategies and stress perceptions.

The psychological well-being theory, as proposed by Ryff and Keyes (1995), offers a robust framework for interpreting the significant negative correlation between work-related stress and mental well-being. The findings of a strong negative correlation and the predictive power of work-related stress on mental well-being underscore the critical impact of work-related stress on various dimensions of psychological health. Shah et al. (2020) and Davis & Hadwin (2021) emphasize the importance of fostering positive self-attitude and meaningful relationships, which can be disrupted by high stress levels. These theoretical perspectives support the study's conclusion that mitigating work-related stress is essential for maintaining and enhancing mental well-being, particularly in high-stress occupations like aircraft maintenance.

The study has demonstrated that resilience theory, advanced by Bertson and Poulou (2023) and Juncos & Joseph (2020), offers a valuable lens to understand the moderating role of psychological resilience. The positive correlation between psychological resilience and mental well-being and its negative correlation with work-related stress highlight resilience as a potentially crucial buffer against stress. The findings suggest that resilience enables aircraft maintenance personnel to recover from setbacks and maintain functional stability. This aligns with the central tenets of resilience theory, which focus on adaptive capacities and the utilization of internal and external resources to navigate adversity (Métais et al., 2022). The study's moderated regression analysis, though showing a less compelling moderating effect, still points to the importance of fostering resilience to mitigate the adverse effects of stress on mental well-being.

The study contributes to the theoretical discourse by integrating the transactional model of stress, psychological well-being theory, and resilience theory to provide a comprehensive understanding of the complex interplay between stress, resilience, and mental health in a high-stress occupational setting. It emphasizes the need for aviation industry stakeholders to adopt holistic approaches that enhance resilience and mental well-being, informed by these theoretical frameworks. This integration supports the development of targeted interventions and policies that can improve the safety and efficiency of aircraft maintenance personnel by addressing their psychological need.

Conclusions

Stress levels varied across the workforce, with the majority experiencing low to moderate stress. This is a positive indication that most employees are managing their

stress effectively. However, a notable portion of the staff reported higher levels of stress, which points to potential areas of concern. This variation in stress levels highlights the need for targeted interventions to support those individuals who may be struggling. By identifying employees with higher stress levels, the organization can implement stress management programs and provide resources to help them cope.

The obtained significant negative relationship between the work-related stress and mental wellbeing underscores the critical impact that workplace stress can have on employees' mental health. When stress is not managed effectively, it can lead to decreased job satisfaction, burnout, and even mental health issues. Therefore, it is essential for organizations to prioritize stress reduction strategies, such as improving work conditions, offering counseling services, and promoting a healthy work-life balance. By doing so, they can foster a more supportive work environment that enhances employees' mental well-being and productivity.

Employees with higher levels of resilience are better equipped to handle stress, which helps protect their mental well-being. While resilience did not completely eliminate the negative effects of stress, it did play a role in mitigating them. This highlights the importance of resilience as a valuable trait that can buffer the impact of stress. Organizations can benefit from implementing resilience-building programs, such as workshops on coping strategies, mindfulness training, and peer support groups. By fostering resilience among employees, companies can help them navigate challenges more effectively and maintain a stable mental state, even in high-stress situations.

Contribution of the Study to Knowledge

This study contributes to conceptual knowledge by highlighting the buffering effect of psychological resilience in managing work-related stress among aircraft

maintenance personnel. It provides empirical evidence that resilience can act as a protective factor, mitigating the negative impact of stress on mental well-being. The findings suggest that employees who possess higher levels of psychological resilience are better able to cope with work-related stress, some of which may be inevitable given the nature of work. This knowledge can guide organizations in designing interventions that not only address stress management but also focus on enhancing resilience as a key component of employee well-being.

The study contributes to theoretical knowledge by expanding the transactional model of stress and coping. While this model traditionally emphasizes the role of cognitive appraisal and coping strategies, the findings underscore the importance of psychological resilience as an additional coping resource. By demonstrating that resilience partially moderates the relationship between work-related stress and mental well-being, the study calls for a broader conceptualization of coping resources in the transactional model. It suggests that resilience should be integrated into future research on stress and coping, as it plays a crucial role in helping individuals adapt to and recover from stressful work environments.

The study also contributes to contextual knowledge by extending the body of research on the relationship between workplace stress and mental well-being into the aviation sector, particularly among aircraft maintenance personnel. Previous studies on workplace stress have largely focused on other industries, with limited research in aircraft maintenance. By exploring this sector, the study sheds light on the unique stressors faced by maintenance personnel and how they impact their mental health. This extension provides valuable insights for the aviation industry, encouraging the

development of tailored psychosocial services and well-being programs that address the specific challenges of this relatively high-stress profession.

Recommendations

The following practical recommendations are made:

- i) Given the significant relationship between work-related stress and mental well-being, management should prioritize initiatives that reduce stress among aircraft maintenance personnel. Implementing regular stress assessments, fostering a supportive work environment, and ensuring adequate staffing levels can help mitigate stress levels. Offering stress management workshops and resilience-building programs can equip employees with better coping mechanisms, leading to improved mental well-being and overall job performance.
- ii) Human resource practitioners should develop comprehensive wellness programs that include mental health support, resilience training, and stress reduction strategies. Providing access to mental health resources, such as counseling services and employee assistance programs, is essential.
- iii) Supervisors of aircraft maintenance personnel should be trained to identify early signs of stress and mental health issues and to provide support or refer employees to appropriate resources. Regular check-ins with staff, promoting a healthy work-life balance, and creating a positive, inclusive work environment can help reduce stress and enhance resilience among maintenance personnel.
- iv) Employees should be encouraged to participate in resilience and stress management training to enhance their coping skills. They should also be

made aware of the importance of self-care practices, such as maintaining a healthy lifestyle, seeking social support, and utilizing available mental health resources. Encouraging a proactive approach to managing stress can help aircraft maintenance employees nurture better mental well-being.

- v) Counseling practitioners should focus on providing targeted interventions that address the specific stressors faced by aircraft maintenance personnel. Developing specialized counseling programs that incorporate resilience-building techniques can help employees better manage stress. Practitioners should also collaborate with airline companies to ensure that counseling services are accessible and tailored to the unique needs of the aviation workforce.
- vi) Policy makers should consider establishing industry-wide standards for mental health and well-being in the aviation sector. This could include mandatory mental health screenings, stress management training, and resilience-building programs for all aviation personnel. Policies should also promote a safe and supportive work environment, ensuring that airline companies prioritize the mental health of their employees as a key aspect of occupational safety and performance.

Areas for Further Research

While the study objectives have been achieved, there are a number of limitations that, retrospectively, provide impetus for future scholarly exploration as follows:

- i. The present study established that psychological resilience has a buffering effect against the detrimental impact work-related stress on mental wellbeing of aircraft personnel but did not explain the underlying mechanism. Future

research should thus clarify what factors mediate the relationship between work-related stress, psychological resilience, and mental wellbeing of aircraft maintenance personnel.

- ii. While the utilization of quantitative methods led to the determination of effect sizes and statistical significance of the relationship between the study variables, a purely quantitative study does not account for the nuances that characterize psychological resilience and mental wellbeing. For this reason, the adoption of a mixed-methods research design is recommended in future similar studies for a more comprehensive account of the gamut of factors at the intersection between work-related stress, psychological resilience, and mental wellbeing.
- iii. The focus of this research among aircraft maintenance personnel limits the generalizability of the findings to the broader aviation sector. Therefore, a similar study should be conducted among other industry professionals such as pilots and cabin crew, among others.

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Appendix A: Questionnaire

SECTION 1: PARTICIPANTS DEMOGRAPHIC INFORMATION

1. kindly indicate your gender Male ☐ Female ☐ Other ☐
2. Indicate your current employer (Name of AMO):
3. Marital status Single ☐ Married ☐
 Separated ☐ Divorced ☐
4. How long have you been in employment? Less than 5 years ☐
 6 years to 10 years ☐
 11 years to 15 years ☐
 16 years to 20 years ☐
 20 years and above ☐
5. Please, indicate your level of education. Diploma ☐ undergraduate ☐ ☐
 Master ☐ PhD ☐

SECTION 2: WORKPLACE STRESS SCALE

This is a scale that developed by the American Institute of stress and the Marlin company.

1 Never, 2 Rarely, 3 Sometimes, 4 Often, 5 Very Often

		1	2	3	4	5
1	Conditions at work are unpleasant or sometimes even unsafe.					
2	I have too much work to do and/or too many unreasonable deadlines					

		1	2	3	4	5
3	I feel that job pressures interfere with my family or personal life.					
4	I receive inadequate recognition or rewards for good performance.					
5	I have adequate control or input over my work duties					
6	I find it difficult to express my opinions or feelings about my job conditions to my superiors					
7	I am unable to fully utilize my skills and talents at work					
8	I feel that my job is negatively affecting my physical or emotional well-being.					

SECTION 3: MENTAL WELL-BEING

The Warwick-Edinburgh mental well-being scale (WEMWBS) developed by Warwick and Edinburgh universities and validated on students above 16 years and general adult population.

1 None of the time, 2 Rarely, 3 Some of the time, 4 Often, 5 All the time.

		1	2	3	4	5
1	I have been feeling optimistic about the future					
2	I have been feeling useful					
3	I have been feeling relaxed					
4	I have been feeling interested in other people					
5	I have had energy to spare					
6	I have been dealing with problems well					
7	I have been thinking clearly					
8	I have been feeling good about myself					
9	I have been feeling close to other people					
10	I have been feeling confident					
11	I have been able to make up my own mind about things					
12	I have been feeling loved					

13	I have been interested in new things					
14	I have been feeling cheerful.					

SECTION 4: PSYCHOLOGICAL RESILIENCE

1 strongly disagree, 2 disagree, 3 Neutral, 4 Agree, 5 Strongly agree.

		1	2	3	4	5
1	I am able to adapt to change					
2	I can deal with whatever comes.					
3	I try to see the humorous side of problems.					
4	Coping with stress can strengthen me.					
5	I tend to bounce back after illness or hard ship					
6	I can achieve goals despite obstacles					
7	I can stay focused under pressure					
8	I am not easily discouraged by failure					
9	I think of myself as a strong person					
10	I can handle unpleasant feelings.					

Appendix B: Consent Form

TOPIC: Moderating Role of Psychological Resilience on Work-Related Stress and Mental

Well-being Among Aircraft Maintenance Personnel at Wilson Airport, Nairobi

County, Kenya

I agree

- To voluntarily participate in this study being conducted by Eunice Karanja, thereby I may not benefit in any way from this research.
- That I have received instruction on the reason why she is carrying out the research and I have the right to ask for the research results and findings.
- That I have a right to refuse to answer the questions or withdraw from the research at any time without giving any explanation for my withdrawal.
- That this information will be kept confidential and solely used for research only.
- That the risk in carrying out this research has been reduced to a minimum and my personal data will be kept confidential.

I have read the questions and I have been given an opportunity to ask questions and I have received satisfactory answers.

Respondents Name:Respondent Signature:

.....

Date:

Appendix C: PAC University Ethical Clearance



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enquiries@pacuniversity.ac.ke | www.pacuniversity.ac.ke

REF: PAC/ISERC/66/09/24
TO:
EUNICE WAMBUI KARANJA
PAC UNIVERSITY

Date: 30/9/2024

Dear Madam,

RE: MODERATING ROLE OF PSYCHOLOGICAL RESILIENCE ON WORK-RELATED STRESS AND MENTAL WELL-BEING AMONG AIRCRAFT MAINTENANCE PERSONNEL AT WILSON AIRPORT, NAIROBI COUNTY, KENYA.

This is to inform you that PAC_ISERC has reviewed and approved your above research proposal. Your application approval number is PAC/ISERC/66/09/24. The approval period is 31st October 2024 – 31st October 2025.

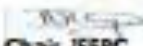
This approval is subject to compliance with the following requirements:

- i. Only approved documents including (informed consent and study instruments,) will be used
- ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by PAC_ISERC.
- iii. Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to PAC_ISERC within 72 hours of notification
- iv. Any changes, anticipated or otherwise that may increase the risks or affect the safety or the welfare of study participants and others or affect the integrity of the research must be reported to PAC_ISERC within 72 hours.
- v. Clearance for export of biological specimens must be obtained from relevant institutions.
- vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal.
- vii. Submission of an executive summary report within 90 days upon completion of the study to PAC_ISERC.

Before commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) <https://research-portal.nacosti.go.ke> and also obtain other clearances needed.

Yours sincerely,

Dr. Jane Kinuthia


Chair, ISERC

Appendix D: NACOSTI Permit

 REPUBLIC OF KENYA Ref No: 771818	 NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION Date of Issue: 13/November/2024
RESEARCH LICENSE	
	
This is to Certify that Ms. Eunice Wambui Karanja of Pan African Christian University College, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Nairobi on the topic: Moderating Role of Psychological Resilience on Work-Related Stress and Mental Well-being Among Aircraft Maintenance Personnel at Wilson Airport, Nairobi County, Kenya for the period ending : 13/November/2025.	
License No: NACOSTI/P/24/42081	
771818 Applicant Identification Number	
Director General NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION	
Verification QR Code	
	
NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.	
See overleaf for conditions	

Appendix E: Introduction Letter

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TO THE HEAD OF QUALITY
WILSON AIRPORT
COMPANY:

Dear Sir/Madam,

**RE: RESEARCH ON THE MODERATING ROLE OF PSYCHOLOGICAL
RESILIENCE ON WORK-RELATED STRESS AND MENTAL WELL-
BEING**

I am a master's student at Pan Africa Christian University, majoring in Marriage and family therapy, and would like to carry out a study as mentioned above.

Work related stress is a common occurrence amongst aircraft engineers and it subsequently affects their personal well-being. Considering engineers are at the fore front in making sure that the industry flies safe as they maintain the aircraft this study aims at exploring the role of psychological resilience in overcoming or coping with work related stress.

I have identified Wilson Airport as the best population to carry the study on considering the diversity of the work carried here by the different AMOs. In this regard I would like engage with your engineers to carry out a voluntary study where the engineers will answer to 3 self-reporting questionnaires to measure mental well-being, work related stress and psychological resilience.

The study will contribute to existing knowledge and form and input to new strategies and approaches towards mitigating work related stress and mental well-being of this important population.

I will highly appreciate your support and permission to carry out the study.
Attached find my clearance certificate and introduction letter from the university

Yours Faithfully,



Eunice Karanj