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Self-Efficacy and Mental Well-Being in Aircraft Maintenance Technicians: The Role of Professional Experience in a Safety-Critical Context

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ABSTRACT

Purpose – The study investigates the effect of self-efficacy on mental well-being among Aircraft Maintenance Technicians (AMTs) in Türkiye, with an emphasis on how this relationship varies across different levels of professional experience.

Design/methodology/approach – Data were collected from 324 AMTs through an online survey. Regression analysis was conducted to examine the relationship between self-efficacy and mental well-being. Additionally, separate regression analyses were conducted for each experience group to compare the strength of the relationship across career stages.

Results – The analysis revealed a significant and positive relationship between self-efficacy and mental well-being ($B = .486$, $SE = .055$, $\beta = .441$, $t = 8.812$, $p < .001$). Separate regression analyses indicated observable differences in the magnitude of this relationship across experience groups, with relatively stronger associations in early- and late-career stages and comparatively weaker associations during mid-career.

Discussion – The findings highlight the potential importance of supporting self-efficacy through competency-based training and developmental practices, particularly during mid-career stages. Future research may further explore how self-efficacy interacts with technological transitions, including artificial intelligence integration, within aviation maintenance contexts.

1. Introduction

Aircraft Maintenance Technicians (AMTs) play a critical role in ensuring the airworthiness of aircraft and have a direct impact on aviation safety (Güneş, Turhan, & Açıkel, 2025). Despite rapid developments in aircraft technologies, maintenance-related errors account for a significant share of aviation accidents due to human factors. Maintenance errors have been identified as contributing factors in approximately 15%–20% of aviation accidents; however, recent studies indicate that this proportion may reach up to 35% (Truong & Lee, 2025), with human error exerting a direct or indirect influence in 70%–80% of such incidents (Nkosi, Gupta, & Mashinini, 2020). This rate demonstrates the importance of human factors in the maintenance processes. Although AMTs are not directly involved in flight operations, they are essential for the safe, efficient, and airworthy operation of aircraft. Their responsibilities require not only technical competency but also high levels of individual awareness and operational precision.

Given the high safety stakes , understanding the psychological and environmental challenges faced by AMTs is essential. Technicians working in this high-risk, error-prone field must possess not only technical knowledge and skills but also psychological resilience and strong personal resources (Hobbs, 2008). Aircraft maintenance processes are often performed under time pressure, night shifts, and harsh environmental conditions such as noise, cold, or heat. These conditions expose AMTs to cognitive and physiological stressors, including fatigue, distraction, and elevated stress levels (da Silva et al., 2024; Dawson & Reid, 1997; Drury, 1990). In addition, technology-induced stress has emerged as a significant factor in the highly technology-intensive aviation

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industry (Çoban & Aydoğdu, 2020; Erdem & Sökmen, 2022). Moreover, the increasing complexity of aviation systems, driven by digitalization and global integration, further intensifies the cognitive demands placed on aircraft maintenance. In this context, AMTs are key actors in ensuring and maintaining aircraft airworthiness (Olaganathan, 2024).

Maintenance activities have been shown to play a critical role in reducing the technical causes of aviation accidents (Shanmugam & Robert, 2015; Yazgan & Kavsaoğlu, 2023). However, the contribution of human error remains significant and tends to increase over time. In response, Annex 19: Safety Management System, published by the International Civil Aviation Organization (ICAO), has introduced a framework that centers on human factors to improve aviation safety (ICAO, 2023). While the initial phases of the system address the systematic causes of accidents, subsequent phases aim to mitigate random and multifactorial human errors.

Despite these advances, there remains a regulatory gap regarding AMTs. While there are well-defined standards for flight crew duty and rest periods, similar regulatory provisions for AMTs are largely absent (Prasad & Raveendran, 2024; Santos & Melicio, 2019). The shift-based and intensive working conditions characteristic of AMTs increase the exposure to risk factors such as cognitive overload, fatigue, and psychological strain (Hobbs, 2008; Yang et al., 2024). These factors elevate the probability of errors due to diminished mental performance. Furthermore, the inherently collaborative nature of maintenance operations necessitates effective communication and coordination among diverse expert teams (Shanmugam & Robert, 2015). Therefore, AMTs must possess not only technical competency but also psychosocial skills such as self-efficacy, emotional regulation, and stress management capacity (Slazyk-Sobol et al., 2021).

The theoretical foundation of the study is rooted in Bandura's (1986) Social Cognitive Theory. This framework explains individual behavior through the dynamic interplay of personal, behavioral, and environmental factors. Bandura (1977) defines this bidirectional relationship with the concept of "reciprocal determinism", emphasizing that individuals both shape and are shaped by their environments. According to this perspective, beliefs, cognitive abilities, and past experiences influence how individuals interpret their surroundings and act within them. Self-efficacy, defined as the belief in one's capacity to perform tasks effectively, is closely associated with key psychosocial variables such as motivation, job satisfaction, and coping with stress (Bandura, 1997; Schwarzer & Jerusalem, 1995). Employees with high self-efficacy make safer and more efficient decisions, especially under conditions of uncertainty and pressure (Salanova, Peiro & Schaufeli, 2002). Although self-efficacy functions as a key personal resource within Social Cognitive Theory, its impact on mental well-being may not be uniform across career stages. Differences in accumulated experience, role expectations, and prolonged exposure to operational stressors may shape how effectively self-efficacy translates into well-being outcomes. As elaborated in the literature review section, both early-career adaptation demands and mid-career plateau or workload pressures may condition this relationship. Therefore, examining career-stage differences provides a theoretically grounded basis for expecting variation in the strength of the self-efficacy–well-being association.

Mental well-being although frequently underestimated within the context of aviation maintenance, constitutes a critical component of a resilient safety culture. It is positively associated with self-awareness, enhanced cognitive and physical functioning, and elevated intrinsic motivation, often fostered through meaningful social interactions (Lyubomirsky, King, & Diener, 2005). Individuals with higher levels of psychological well-being tend to exhibit greater commitment to personal growth, a stronger sense of purpose, and healthier interpersonal relationships. Moreover, they are generally more effective in self-regulation and contribute positively to the psychosocial climate of their work environment (Ryff & Keyes, 1995). The significance of psychological well-being in aviation safety has been highlighted by several tragic incidents. For example, the Germanwings Flight 9525 crash on March 24, 2015, which resulted in the loss of 150 lives, involved a co-pilot later found to have a mental health condition (DeHoff & Cusick, 2018). Additional cases suspected to involve pilot-related murder-suicide, including the 1999 EgyptAir Flight 990 and the 1997 SilkAir Flight 185 accidents, have demonstrated the serious operational consequences of inadequately managed mental conditions among flight crew (Pasha & Stokes, 2018). According to Mulder and de Rooy (2018), there have been at least nine aviation accidents plausibly linked to mental illness, collectively causing over 500 fatalities. These cases emphasize the necessity of systematic psychological screening and support mechanisms, particularly for flight-critical personnel. While much of the existing literature has concentrated on pilots, it is equally important to recognize that AMTs are also subject to substantial occupational stressors (Santos & Melicio,

2019) that may compromise their well-being. Mental well-being encompasses both psychological and subjective dimensions (Keyes, 2002), and it may be adversely affected by factors such as excessive workload, inconsistent schedules, insufficient organizational support, and chronic fatigue (Chang & Wang, 2010; Kucuk Yilmaz, 2019). Diminished well-being among AMTs has been linked to increased susceptibility to human error and reduced operational performance. Therefore, fostering supportive work environments and implementing targeted interventions to mitigate occupational stressors are essential not only for safeguarding individual health but also for ensuring sustained safety and reliability in maintenance operations (Dias, Santos, & Melicio, 2019; Hobbs, 2008).

While there are numerous human factors studies focusing on operational roles such as pilots and air traffic controllers, empirical research specifically addressing AMTs remains limited (McDonald et al., 2000). This gap is particularly evident in the context of Türkiye, where rapid sectoral growth has not been met with a corresponding increase in research on AMTs' working conditions, organizational support, burnout levels, or performance outcomes. The number of AMTs has increased significantly in parallel with Türkiye's aviation sector expansion, making it imperative to adopt human factors approach toward this occupational group.

The aim of the study is to examine the relationship between self-efficacy and mental well-being among AMTs. Specifically, it seeks to explore how these constructs interact and to identify the potential implications for human resource strategies and aviation safety practices. By doing so, the study intends to contribute to the design of training programs, support mechanisms, and human-centered workplace policies tailored to AMTs. These findings are expected to inform both organizational decision-making and future research on occupational health and safety in aviation maintenance.

2. Literature Review

Aircraft Maintenance Technicians (AMTs) play a critical role in the performance of airworthiness activities in accordance with the principles of safety, reliability, and continuity of the civil aviation system. AMTs are technical personnel responsible for the maintenance, repair, inspection and certification of the aircraft body, engine systems, avionics equipment, flight control surfaces and structural components (Directorate General of Civil Aviation, 2025; Skybrary, 2025). The work of this occupational group is regulated under the airworthiness responsibility of airlines and maintenance organizations. It is carried out on the basis of licenses (e.g. ICAO Annex 1) issued by the relevant national aviation authorities. Aircraft maintenance involves many factors that challenge human performance due to time pressures, environmental challenges (lack of light, noise, temperature), physical limitations and the need for complete adherence to documented procedures. The work environment requires the simultaneous use of cognitive and psychomotor skills such as high attention, problem solving, decision making, hand-eye coordination and effective documentation (Hobbs, 2008). In addition, these technicians carry not only physical but also emotional burdens. As a maintenance operation can have long-term effects, the consequences of a potential failure can put severe psychological pressure on AMTs. This situation is directly related to job stress, burnout, and well-being (Dias, Santos, & Melicio, 2019; Santos & Melicio, 2019).

In high-risk areas such as the aviation industry, self-efficacy and well-being are two critical psychosocial concepts that directly affect human performance and task safety. According to Bandura (1977, 1994), self-efficacy is defined as an individual's belief that they possess the capability to successfully perform a specific task. This conviction is informed by four principal sources: prior success experiences (performance accomplishments), observing the success of others (vicarious experiences), verbal persuasion, and emotional/physiological states. A substantial body of research has demonstrated that individuals who possess high self-efficacy typically exert greater effort when executing tasks, demonstrate greater persistence in achieving their objectives, and exhibit more rapid recovery from obstacles they confront (Bandura, 1997; Scholz et al., 2002). The level of self-efficacy exerts a positive influence not only on individual motivation but also on task performance. As Stajkovic and Luthans (1998) demonstrated, self-efficacy has a significant positive relationship with job performance. Likewise, Horjaco, Santos, and Higuero (2022) and De Clercq, Haq, and Azeem (2018) have demonstrated that self-efficacy enhances cognitive and physical performance, particularly by reducing anxiety levels and moderating perceived organizational negativities (e.g., workplace incivility or stressors).

Well-being is a multifaceted construct that encompasses subjective, psychological, and social dimensions, and is widely defined as a general sense of life satisfaction (Gallagher & Lopez, 2009). Mental well-being, in particular, integrates subjective well-being, which is characterized by positive life evaluations and emotional experiences (Diener, 1984), and psychological well-being, which involves aspects such as self-acceptance, autonomy, purpose in life, and positive relationships (Keyes, 2002; Waterman, 1993). According to Keyes (2002), individuals with high mental well-being perceive themselves positively, maintain safe and warm interpersonal relations, accept their limitations, and actively strive to fulfill their potential. Moreover, the World Health Organization [WHO] (2004) highlights mental well-being as the capacity to make sound decisions under stress, recognize one's skills, maintain productivity, and contribute to society through social responsibilities. In the civil aviation sector, employees' mental well-being and their ability to manage stress are particularly significant due to the industry's high safety standards (Cahill, Cullen, & Gaynor, 2023). Within this context, the well-being of AMTs refers to their physical, mental, and emotional health, which has a direct influence on both performance and aviation safety. Recent evidence suggests that AMTs are frequently exposed to chronic fatigue, stemming from irregular and extended working hours, sleep disturbances, environmental stressors, and intense job demands (Prasad et al., 2024). These factors adversely affect their cognitive functioning and decision-making capacity. As positive psychology emphasizes the promotion of well-being at the individual and organizational levels (Brown & Ryan, 2003), there is growing awareness among researchers and industry leaders regarding the critical role of well-being in achieving positive workplace outcomes (Simunjak & Menke, 2023).

Recent studies in the field of aviation maintenance have emphasized the role of self-efficacy and well-being in flight safety. For instance, Yang et al. (2024) conducted a study with 593 AMTs in China. The findings of the study demonstrated that well-being was positively correlated with task safety, with this effect being partially mediated by work commitment. As demonstrated by Slazyk-Sobol et al. (2021), the impact of self-efficacy is twofold, manifesting not only in cognitive but also in emotional and behavioral safety attitudes. The same study also stated that self-efficacy contributes to safe behaviors by reducing perceived stress levels. In a comparable investigation of pilots, Zhao et al. (2023) discovered that perceived stress had a detrimental impact on safety attitudes. However, this effect could be moderated by individual capacity indicators, such as cognitive flexibility and psychological resilience.

Experience is a potential variable that may affect the relationship between self-efficacy and well-being. Given the long-term accumulation of knowledge, experience, and reflexive decision-making required in aviation maintenance operations, the impact of experience on human performance should be carefully considered. Hobbs (2008) posited that senior AMTs may exhibit greater resilience to environmental stressors; however, the execution of long-term tasks can induce burnout and distraction. Research conducted by Olaganathan (2024) and Yazgan & Kavsaoğlu (2017) has also observed that experienced technicians, particularly those engaged in hangar maintenance, are subject to considerable stress due to the demands of deadlines, the conditions of the environment, and the complexity of their tasks. Furthermore, Santos and Melicio (2019) posit that regulatory bodies have not sufficiently limited the fatigue and stress levels of AMTs, a situation that affects all employees regardless of their experience. The conceptual basis of the study is supported by various aviation incidents demonstrating the relationship between AMTs' work experience and human performance support. For instance, in the incident involving a Qantas Airways Airbus A330 (VH-QPA) in 2008, a fuselage component separated during flight due to the engine panel not being properly closed. The investigation revealed that an experienced technician signed off before completing the procedures and was distracted (Australian Transport Safety Bureau [ATSB], 2009). The incident that led to the crash of a Beechcraft King Air B200 aircraft at Essendon Airport in 2017 was attributed to improper rudder trim adjustment before the flight. It was determined that the pilot had not undergone simulator training for a period of six months, despite his extensive experience (ATSB, 2018). A similar incident occurred in 2018, when a passenger died after an engine failure on Southwest Airlines Flight 1380. The National Transportation Safety Board (NTSB) determined that the incident was related to the failure of the technicians on duty during the maintenance process to detect metal fatigue in the relevant engine part (NTSB, 2019). Moreover, in the American Airlines Flight 191 accident, which occurred in 1979 and resulted in the loss of 273 lives, senior technicians employed an unprocedural maintenance method, resulting in the separation of the engine from the fuselage (Federal Aviation Agency [FAA], 1981). The examples given demonstrate that the experience of senior technicians does not invariably mitigate the risk of error. Indeed, in certain cases, the perception of self-efficacy can metamorphose into a state of overconfidence, thus causing critical security vulnerabilities. Consequently, the experience levels of AMTs should be considered in conjunction with their well-being and self-efficacy. Furthermore, the effects of these factors on human performance should be evaluated multidimensional. From a theoretical standpoint, professional experience may function as a conditioning variable in the self-efficacy–well-being relationship. Career development literature suggests that different career stages are associated with changing role expectations, growth opportunities, and motivational patterns (Super, 1990; Hall, 2002). Mid-career phases, in particular, have been linked to career plateau perceptions, increased role complexity, and elevated burnout risk (Ference et al., 1977; Maslach et al., 2001). From a Conservation of Resources (COR) perspective, prolonged exposure to operational stressors may lead to resource depletion, thereby weakening the extent to which personal resources such as self-efficacy translate into well-being outcomes (Hobfoll, 1989). Conversely, accumulated mastery experiences in later career stages may reinforce the positive psychological returns of self-efficacy. Despite these theoretical indications, empirical evidence examining whether the self-efficacy–well-being link differs across career stages among AMTs remains limited, particularly in the Turkish aviation context. This gap provides the basis for proposing experience level as a differentiating factor in the present study.

Based on this theoretical and empirical background, the following hypotheses are proposed:

H1: Self-efficacy is a positive and statistically significant predictor of well-being among aircraft maintenance technicians.

H2: The strength of the relationship between self-efficacy and mental well-being significantly differs across the experience groups.

3. Method

3.1. Sample of the Study

The participants of the study consisted of 324 Aircraft Maintenance Technicians (AMTs) in Türkiye. To facilitate data collection, an online survey was distributed through the WhatsApp groups of UTED (Aircraft Technicians Association), the primary organization representing AMTs in Türkiye. UTED is a professional association established in 1968 with the aim of uniting internationally qualified aircraft technicians in Türkiye under a common platform and promoting solidarity and collective strength within the profession.

3.2. Data Collection Tools

Demographic Form: The demographic form used in the study was prepared to determine the individual and professional characteristics of the participating AMTs. The form consists of four main categories: gender, age, education background, and professional experience.

General Perceived Self-Efficacy Scale (GPSES): The GPSES was developed by Schwarzer and Jerusalem (1995) to measure individuals' beliefs in their capacity to cope effectively with a wide range of challenging situations. The Turkish adaptation of the scale was conducted by Yeşilay (1996). The scale comprises 10 items and is unidimensional in structure. Studies indicated that alpha coefficients were .84, .81, and .91 across samples from different cultural contexts (Schwarzer et al., 1997), reflecting high internal consistency.

Warwick-Edinburgh Mental Well-Being Scale – Short Form (WEMWBS-SF): The WEMWBS-SF was developed by Tennant et al. (2007) to evaluate individuals' overall mental well-being, encompassing both psychological and subjective aspects of well-being. The Turkish version of the scale was adapted by Demirtaş and Baytemir (2019). The short form consists of 7 positively worded items and is structured as a unidimensional measure. In the Turkish adaptation study, the scale demonstrated high internal consistency, with a Cronbach's alpha coefficient of .84.

3.3. Statistical Analysis

The collected data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 27. Descriptive statistics were computed to examine the demographic characteristics of the AMTs. For the GPSES and WEMWBS-SF, exploratory factor analysis and reliability analysis were conducted to assess construct validity and internal consistency. Prior to conducting regression analyses, Pearson correlation analysis and normality tests (skewness and kurtosis values) were examined. The assumptions of linear regression were systematically evaluated. Multicollinearity was assessed using Variance Inflation Factor (VIF) and tolerance values, with all VIF values below the recommended threshold of 5. Independence of errors was tested using the Durbin–Watson statistic, which fell within the acceptable range (1.5–2.5). Normality of residuals was examined through standardized residual plots and histogram inspection. Homoscedasticity was evaluated by inspecting scatterplots of standardized residuals against predicted values, which indicated no serious violations. These diagnostics confirmed the suitability of the data for regression analysis.

3.4. Ethical Approval

The study involving human participants was reviewed and approved by the Istanbul University Research Ethics Committee (IUREC 21/2025). The participants provided their written informed consent to participate in the study.

4. Findings

4.1. Descriptive Statistics

The demographic characteristics of the Aircraft Maintenance Technicians (AMTs) who participated in the study are presented in Table 1. In terms of gender distribution, most participants were male, accounting for 96.9% (n = 314), while only 3.1% (n = 10) were female. Regarding educational background, 71.0% (n = 230) of the participants held a bachelor's or postgraduate degree, whereas 29.0% (n = 94) had either an associate degree or a high school education. When professional experience was examined, 30.2% (n = 98) of the technicians had between 6 and 10 years of experience. This group was followed by those with more than 20 years of experience, comprising 21.6% (n = 70). Additionally, 19.8% (n = 64) had 11–15 years of experience, 17.6% (n = 57) had less than 6 years, and 10.8% (n = 35) had between 16 and 20 years of experience. These findings suggest that the study sample consists of technicians with a diverse range of educational qualifications and professional backgrounds, thereby enhancing the representativeness and generalizability of the findings.

The mean age and standard deviation values of the participants were also analyzed to provide additional insight into the sample profile. The average age was 36.99 years (SD = 11.014), indicating a broad age distribution among the participants. The relatively high standard deviation reflects notable variability in age, suggesting the presence of both early-career and highly experienced professionals. This diversity in age supports the applicability of the study's findings to AMTs across various career stages.

Table 1. Demographic Information of the Participants

		Frequency	Percent
Gender	Female	10	3.1
	Male	314	96.9
Education Background	Associate degree or High school education	94	29.0
	Bachelor's or Postgraduate degree	230	71.0
Experience	< 6 years	57	17.6
	6- 10 years	98	30.2
	11 - 15 years	64	19.8
	16- 20 years	35	10.8
	> 20 years	70	21.6
Total		**324**	**100.0**

4.2. Scale and Reliability Analysis

As a result of the analyses conducted, the KMO value of the General Perceived Self-Efficacy Scale was found to be 0.873, indicating a "good" level of sampling adequacy (Leech, Barrett, K., & Morgan, 2013). Additionally, Bartlett's Test of Sphericity was statistically significant (χ^2 = 1067.876, df = 45, $p < 0.001$). The cumulative percentage is 43.744%, which falls within the recommended range of 40% to 60% for social sciences (Scherer et al., 1988) and exceeds the 30% threshold considered sufficient for unidimensional scales (Büyüköztürk, 2007). The factor loadings of the items range from 0.482 (item 6) to 0.765 (item 7), all surpassing the commonly accepted minimum threshold of 0.40 (Stevens, 2002), indicating that each item adequately contributes to the underlying factor structure.

The KMO value of the Warwick-Edinburgh Mental Well-Being Scale (WEMWBS) was found to be 0.776, indicating a "moderate" level of sampling adequacy. Additionally, Bartlett's Test of Sphericity was statistically significant ($\chi^2 = 513.639$, df = 21, $p < 0.001$). The cumulative percentage is 42.247%. The factor loadings of the items ranged from 0.537 (item 6) to 0.768 (item 3).

The reliability analysis results for the Mental Well-Being and Self-Efficacy scales are presented in Table 2. The Cronbach's alpha coefficient for the Self-Efficacy scale was 0.845, indicating a "good" level of internal consistency. The Cronbach's alpha for the Well-Being scale is 0.759, reflecting an "acceptable" level of reliability. Both values exceed the commonly accepted minimum threshold of 0.70 (Mallery & George, 2005), suggesting that the items within each scale consistently measure their respective constructs.

Table 2. Reliability Results of the Self-efficacy and Well-being Scales

	Cronbach's Alpha
Self-Efficacy	.845
Well-Being	. 759

4.3. Correlation and Normality Test

The analysis revealed a statistically significant and positive correlation between self-efficacy and well-being ($r = .441$, $p < .01$). This result suggests that individuals with higher self-efficacy tend to report greater levels of well-being, highlighting the beneficial role of self-efficacy in supporting psychological health.

As shown in Table 3, the skewness and kurtosis values for self-efficacy and well-being were examined to assess the normality assumption before conducting a confirmatory regression analysis. The skewness values for self-efficacy (−.033) and well-being (.012), along with kurtosis values (-.371 and -.618), indicate that the distributions of both variables are approximately normal. According to Tabachnick and Fidell (2013), skewness and kurtosis values within the range of ±1.5 are acceptable for the use of parametric analyses. Furthermore, when evaluated across different professional experience groups, all skewness and kurtosis values remained within acceptable limits. These findings support the assumption of normality and confirm the appropriateness of proceeding with confirmatory regression analysis.

Table 3. Normality Tests of the Self-efficacy and Well-being Scales

		Skewness	**Kurtosis**
Self-Efficacy		-.033	-.371
	< 6 years	.433	.485
	6- 10 years	-.339	-.089
	11 - 15 years	.144	-.405
	16- 20 years	-.039	-.559
	> 20 years	-.124	-.400
Well-Being		.012	-.618
	< 6 years	.139	-.536
	6- 10 years	.013	-.437
	11 - 15 years	.017	-1.002
	16- 20 years	-.046	-.375
	> 20 years	-.171	-.762

4.4. Regression Analysis

The results regarding the impact of self-efficacy on well-being among AMTs are presented in Table 4. The findings indicate that self-efficacy significantly predicts well-being, as shown in the regression model (Well-Being = 1.952 + 0.486 × Self-Efficacy) ($B = .486$, $SE = .055$, $\beta = .441$, $t = 8.812$, $p < .001$). This result reveals a statistically significant and positive relationship, suggesting that an increase in self-efficacy is associated with a corresponding increase in well-being. Specifically, a one-unit increase in self-efficacy was associated with an estimated increase of approximately 0.486 units in well-being, with all other factors held constant. The model accounts for approximately 19.4% of the variance in well-being ($R^2 = .194$, $F = 77.652$), suggesting that self-efficacy explains a meaningful proportion of the individual differences in perceived well-being among technicians. The 95% confidence interval for the unstandardized coefficient (CI = [.378, .595]) further confirms the stability of this effect. These results confirm Hypothesis 1 (H1), indicating that self-efficacy is a significant and positive predictor of well-being among AMTs.

The results of the separate regression analyses conducted for each experience group are presented in Table 5. These analyses allow a comparison of the strength of the relationship between self-efficacy and well-being across different levels of professional experience. Among technicians with less than 6 years of experience, self-efficacy emerged as a strong predictor of well-being, as reflected in the regression model (*Well-Being = 1.758 + 0.552 × Self-Efficacy*) (B = .552, SE = .084, β = .495, t = 6.553, $p < .001$, $R^2 = .245$, CI = [.386, .717]). In the 6–10 years group, the relationship remained significant but was relatively weaker (*Well-Being = 2.197 + 0.413 × Self-Efficacy*) (B = .413, SE = .094, β = .365, t = 4.412, $p < .001$, $R^2 = .133$, CI = [.226, .600]). A further decline in predictive power was observed in the 11–15 years group, with the model (*Well-Being = 2.464 + 0.327 × Self-Efficacy*) (B = .327, SE = .144, β = .277, t = 2.270, p = .027, $R^2 = .077$, CI = [.039, .616]). The 16–20 years group demonstrated a similar pattern (*Well-Being = 2.498 + 0.338 × Self-Efficacy*) (B = .338, SE = .144, β = .373, t = 2.339, p = .027, $R^2 = .139$, CI = [.040, .637]). Notably, the strongest relationship was found in the group with more than 20 years of experience, where self-efficacy strongly predicted well-being (*Well-Being = 1.167 + 0.718 × Self-Efficacy*) (B = .718, SE = .098, β = .686, t = 7.362, $p < .001$, $R^2 = .471$, CI = [.516, .921]). These findings indicate observable differences in the magnitude of the relationship between self-efficacy and well-being across experience groups. However, formal statistical tests comparing regression coefficients between groups (e.g., interaction-based moderation analysis or coefficient equality tests) were not conducted. Therefore, the variation across career stages should be interpreted as descriptively observed rather than statistically confirmed. Future research employing interaction-based regression or multi-group comparison techniques may provide a more rigorous examination of potential moderating effects of experience level. The observed subgroup pattern is in line with, but does not constitute a formal statistical test of, Hypothesis 2. However, because formal statistical comparisons between regression coefficients were not conducted, the observed differences across experience groups should be interpreted with caution.

Table 4. Impact of Self-Efficacy on Well-Being among AMTs

	Unstandardized Coefficients		**Standardized Coefficients**	**t**	**Sig.**	**95.0% Confidence Interval for B**	
	B	**Std. Error**	**Beta**			**Lower Bound**	**Upper Bound**
Self-Efficacy	.486	.055	.441	8.812	.000	.378	.595
R^2= 0.194; F= 77.652; Constant= 1.952							
Dependent Variable: Well-Being							

Table 5. Impact of Self-Efficacy on Well-Being among AMTs' Experience Groups

		Unstandardized Coefficients		**Standardized Coefficients**	**t**	**Sig.**	**95.0% Confidence Interval for B**	
		B	**Std. Error**	**Beta**			**Lower Bound**	**Upper Bound**
< 6 years (n=57)	Self-Efficacy	.552	.131	.495	4.220	.000	.290	.815
	R^2= 0.245; F= 17.809; Constant= 1.758							
6- 10 years (n = 98)	Self-Efficacy	.413	.108	.365	3.839	.000	.199	.626
	R^2= 0.133; F= 14.735; Constant= 2.197							
11-15 years (n = 64)	Self-Efficacy	.327	.144	.277	2.271	.027	.039	.616
	R^2= 0.077; F= 5.156; Constant= 2.464							
16-20 years (n = 35)	Self-Efficacy	.338	.147	.373	2.309	.027	.040	.637
	R^2= 0.139; F= 5.331; Constant= 2.498							
> 20 years (n = 70)	Self-Efficacy	.718	.092	.686	7.784	.000	.534	.902
	R^2= 0.471; F= 60.585; Constant= 1.167							
	Dependent Variable: Well-Being							

5. Discussion

The study examined the relationship between self-efficacy and mental well-being among Aircraft Maintenance Technicians (AMTs) and found that self-efficacy significantly and positively predicts well-being. In line with Hypothesis 1, the regression analysis indicated that higher self-efficacy levels are associated with increased perceived well-being. These findings are consistent with previous literature suggesting that individuals with high self-efficacy experience enhanced well-being (Milam et al., 2019; Söner & Eldeleklioğlu, 2022; Tanya, 2023). For instance, Milam et al. (2019) reported that self-efficacy not only promotes well-being but also reduces burnout, highlighting its protective role in demanding work environments.

The aviation sector offers further empirical support for this relationship. Qiu et al. (2023) showed that pilots with strong self-efficacy exhibit higher resilience and are better able to manage operational challenges. Similarly, Rochmawati, Fatmawati and Sukma (2023) found that aviation students with elevated self-efficacy demonstrated reduced anxiety and better academic outcomes. These findings underline the broader relevance of self-efficacy across various aviation roles and professional stages.

Although the present study did not directly measure attitudes toward artificial intelligence (AI), emerging research highlights the potential role of self-efficacy in technology adaptation processes. Prior studies suggest that individuals with higher self-efficacy may demonstrate greater adaptability to AI-supported work environments (Naiseh et al., 2025). Therefore, future research may explore how self-efficacy interacts with AI integration processes in aviation maintenance contexts.

One of the distinctive contributions of the study lies in its examination of professional experience as a potential differentiating factor. The findings offered descriptive, not confirmatory, support for the proposed experience-based variation, with a non-linear pattern observed between self-efficacy and well-being across different career stages. Specifically, the predictive power of self-efficacy was strongest among early-career (<6 years) and late-career (>20 years) AMTs, whereas a relative decline was observed among those in mid-career (6–20 years). This pattern suggests that self-efficacy plays a more pronounced role during the periods of career initiation and reflection, while its influence may weaken during the more routine and possibly stressful phases of mid-career. This trajectory aligns with Super's (1990) Life-Span Career Development Theory, which posits that constructs like self-efficacy are particularly influential during the exploration and establishment stages, as individuals seek to prove competency. Similarly, Savickas (2002) emphasized the importance of perceived capability during the maintenance stage, when professionals rely on accumulated experience to sustain performance. The reemergence of self-efficacy's importance in late career may reflect these dynamics. Additionally, Stajkovic and Luthans (1998) found that self-efficacy enhances motivation and persistence, especially under challenging conditions. Caza and Milton (2012) also observed that experienced professionals draw on self-efficacy to manage complex roles, further validating its importance in high-responsibility positions such as aircraft maintenance. The relatively weaker association observed among mid-career technicians may potentially be related to factors such as elevated workload demands, reduced organizational support, or increased role complexity. However, given that the present model did not include control variables, these explanations should be interpreted as plausible rather than causal. Ng and Feldman (2010) argued that such stressors during mid-career may undermine the benefits of psychological resources like self-efficacy. Consequently, organizational interventions that reinforce self-efficacy among mid-career technicians may be crucial for sustaining both their well-being and job performance.

Self-efficacy is not only a psychological asset but also a functional driver of job performance, particularly in safety-critical environments. Judge, Erez, and Bono (1998) emphasized that employees with high self-efficacy are more persistent and effective in performing complex tasks. In the context of aircraft maintenance, where precision and accountability are essential, self-efficacy enhances situational awareness, speeds up decision-making, and strengthens perceived control (Luthans et al., 2007). These attributes directly contribute to operational safety and task execution quality.

Furthermore, the findings of the study reinforce the relevance of self-efficacy in contemporary training frameworks such as Competency-Based Training and Assessment (CBTA), which has been increasingly adopted within contemporary aviation training systems. CBTA emphasizes not only technical skills but also behavioral and cognitive competencies. Within this framework, self-efficacy may function as an important psychological resource supporting task readiness and sustained performance (Salas, Maurino, & Curtis, 2010).

For AMTs, whose contributions are often overlooked despite being safety-critical, monitoring and supporting self-efficacy is essential for long-term operational reliability (Andrew & Mohankumar, 2017).

Finally, self-efficacy contributes to effective team functioning and adaptability. According to DeChurch and Mesmer-Magnus (2010), high self-efficacy is associated with better coordination and performance in team-based tasks. Griffin, Neal, and Parker (2007) also demonstrated that individuals with high self-efficacy adapt more efficiently to rapidly changing work conditions. Considering the collaborative and detail-intensive nature of aircraft maintenance, self-efficacy emerges as a fundamental psychological resource that supports both individual well-being and organizational safety outcomes.

6. Conclusion

The study showed that self-efficacy is a significant and positive predictor of mental well-being among Aircraft Maintenance Technicians (AMTs). The results also indicated that the strength of this relationship differs by experience level. It was stronger among early-career and late-career professionals compared to those in the middle stages of their careers. These findings highlight the importance of psychological resources, especially self-efficacy, in supporting mental well-being in safety-sensitive and high-responsibility roles.

Self-efficacy plays an essential role not only in personal well-being but also in professional performance. Therefore, it is important to support self-efficacy in the workplace. Competency-Based Training and Assessment (CBTA) offers a useful approach in this context. CBTA focuses on improving both technical and non-technical skills, including cognitive and emotional abilities. Structured feedback, peer learning, and mentoring are effective strategies that can help individuals feel more confident in their skills. These practices may be especially useful for mid-career employees, who may face challenges such as increased workload or reduced organizational support. These factors may lower the positive effects of self-efficacy on well-being. In addition, rapid changes in technology, such as the use of AI in maintenance operations, require technicians to develop new skills. In these changing environments, self-efficacy becomes a key factor in adapting to new systems and tools. Technicians with higher self-efficacy are more likely to adjust to technological changes and maintain good mental health. Therefore, future training programs should also focus on improving psychological readiness along with technical abilities.

The study has several limitations. First, it used a cross-sectional design, which does not allow for conclusions about cause and effect. Future research should use longitudinal methods to explore how self-efficacy and well-being affect each other over time. Second, the study relied only on self-report measures, which may have been influenced by personal bias or social desirability. Future studies could include objective data such as performance records or observations. Third, the study did not include organizational and contextual factors such as workload, shift type, working hours, sleep quality, or supervisor support, which are known to influence both self-efficacy and well-being. The use of a parsimonious two-variable regression model may therefore limit internal validity and the ability to fully isolate the unique contribution of self-efficacy. Future research should incorporate relevant control variables to provide a more comprehensive and causally robust understanding of psychosocial determinants of well-being among AMTs. Although the scales used are well-established in prior research, confirmatory factor analysis (CFA) was not conducted in the present study. Future research may employ CFA to further validate the measurement model within aviation maintenance populations.

Future research may compare different groups in the aviation industry, such as pilots, air traffic controllers, and cabin crew, to understand whether similar patterns exist. It may also be useful to test the effects of CBTA-based training programs on self-efficacy through experimental studies. In addition, future studies may explore how self-efficacy interacts with emerging technological contexts, such as artificial intelligence-supported systems, particularly within training and operational environments. These results could provide important guidance for improving employee development and well-being in aviation settings.

In conclusion, the study supports the idea that self-efficacy is a key factor for maintaining mental well-being and ensuring safe and effective performance in aviation. Organizations should promote self-efficacy by creating supportive environments and offering training that develops both technical and psychological skills.

References

Andrew, A., & Mohankumar, S. (2017). The relationship between self-efficacy and employee readiness for organizational change. *International Journal of Engineering Research and General Science*, *5*(1), 16-27.

Australian Transport Safety Bureau [ATSB] (2018). *Loss of control and collision with terrain involving B200 King Air, VH-ZCR*. https://www.atsb.gov.au/sites/default/files/media/5775076/ao-2017-024_final_v2.pdf (Accessed on: May 22, 2025)

Australian Transport Safety Bureau [ATSB] (2009). *ATSB Preliminary Factual Report, In-flight upset, Qantas Airbus A330, 154km west of Learmonth, WA, 7 October 2008*. https://www.atsb.gov.au/media/2008/release/2008_45 (Accessed on: May 22, 2025)

Bandura, A. (1977). Self-efficacy: toward a unifying theory of behavioral change. *Psychological review*, *84*(2), 191. https://doi.org/10.1037/0033-295X.84.2.191

Bandura, A. (1986). Social foundations of thought and action. *Englewood Cliffs, NJ*, *1986*(23-28), 2.

Bandura, A. (1994). Social cognitive theory and exercise of control over HIV infection. In *Preventing AIDS: Theories and methods of behavioral interventions* (pp. 25-59). Boston, MA: Springer US.

Bandura, A. (1997). *Self-efficacy: The exercise of control.* W H Freeman/Times Books/ Henry Holt & Co.

Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: mindfulness and its role in psychological well-being. *Journal of personality and social psychology, 84*(4), 822.

Büyüköztürk, Ş. (2007). *Veri Analizi El Kitabı [Data analysis handbook for social sciences]*. Ankara: Pegem Yayınları.

Cahill, J., Cullen, P., & Gaynor, K. (2023). The case for change: aviation worker wellbeing during the COVID 19 pandemic, and the need for an integrated health and safety culture. *Cognition, Technology & Work*, *25*(1), 75-117.

Caza, B. B., & Milton, L. P. (2012). Resilience under adversity. In K. S. Cameron & G. M. Spreitzer (Eds.), *The Oxford handbook of positive organizational scholarship* (pp. 895–908). Oxford University Press.

Chang, Y. H., & Wang, Y. C. (2010). Significant human risk factors in aircraft maintenance technicians. *Safety science*, *48*(1), 54-62. https://doi.org/10.1016/j.ssci.2009.05.004

Çoban, R., & Aydoğdu, T. (2020). Havacılık sektöründe zaman baskısının teknostrese etkisi: uçak bakım teknisyenleri üzerine bir araştırma. *İşletme Araştırmaları Dergisi*, *12*(3), 2442-2460.

da Silva, J. C., Barqueira, A., Magalhães, L. B., & Santos, L. F. (2024). Human fatigue in the aircraft maintenance environment. *Safety Science*, *180*, 106634.

Dawson, D., & Reid, K. (1997). Fatigue, alcohol and performance impairment. *Nature*, *388*(6639), 235-235. https://doi.org/10.1038/40775

De Clercq, D., Haq, I. U., & Azeem, M. U. (2018). Self-efficacy to spur job performance: Roles of job-related anxiety and perceived workplace incivility. *Management Decision*, *56*(4), 891-907. https://doi.org/10.1108/MD-03-2017-0187

DeChurch, L. A., & Mesmer-Magnus, J. R. (2010). The cognitive underpinnings of effective teamwork: A meta-analysis. *Journal of Applied Psychology*, *95*(1), 32–53. https://doi.org/10.1037/a0017328

DeHoff, M. C., & Cusick, S. K. (2018). Mental health in commercial aviation-depression & anxiety of pilots. *International Journal of Aviation, Aeronautics, and Aerospace*, *5*(5), 5.

Demirtaş, A. S., & Baytemir, K. (2019). Warwick-edinburgh mental iyi oluş ölçeği kisa formu'nun türkçe'ye uyarlanmasi: geçerlik ve güvenirlik çalişmasi. *Elektronik Sosyal Bilimler Dergisi*, *18*(70), 689-701.

Dias, N. G., Santos, L. F., & Melicio, R. (2019). Aircraft maintenance professionals: Stress, pressure and fatigue. In *MATEC Web of Conferences* (Vol. 304, p. 06001). EDP Sciences. https://doi.org/10.1051/matecconf/201930406001

Diener, E. (1984). Subjective well-being. *Psychological bulletin*, *95*(3), 542.

Directorate General of Civil Aviation (2025). *Hava Aracı Teknisyeni*. https://web.shgm.gov.tr/tr/havacilik-personeli/2125-hava-araci-teknisyeni (Accessed on: May 22, 2025)

Drury, C. G. (1990). Human factors in aircraft maintenance. *Aging Aircraft Fleets: Structural and Other Subsystem Aspects*, *15*, 151.

Erdem, E., & Sökmen, A. (2022). Havacılıkta teknostresin verimlilik üzerine etkisinde öğrenen örgütlerin aracılık rolü: hava aracı bakım personeli tutumları üzerine bir alan araştırması. *İşletme Araştırmaları Dergisi*, *14*(4), 3105-3122.

Federal Aviation Agency [FAA] (1981). *McDonnell Douglas DC-10-10 American Airlines Flight 191, N110AA*. https://www.faa.gov/lessons_learned/transport_airplane/accidents/N110AA (Accessed on: May 22, 2025)

Ference, T. P., Stoner, J. A., & Warren, E. K. (1977). Managing the career plateau. *Academy of Management review*, *2*(4), 602-612. https://doi.org/10.5465/amr.1977.4406740

Gallagher, M. W., & Lopez, S. J. (2009). Positive expectancies and mental health: Identifying the unique contributions of hope and optimism. *The Journal of Positive Psychology*, *4*(6), 548-556.

Griffin, M. A., Neal, A., & Parker, S. K. (2007). A new model of work role performance: Positive behavior in uncertain and interdependent contexts. *Academy of management journal*, *50*(2), 327-347. https://doi.org/10.5465/amj.2007.24634438

Güneş, T., Turhan, U., & Açıkel, B. (2025). Aircraft Maintenance Technician Perceptions and Evaluations about the Safety Culture and Responsibility Related Competencies. *Journal of Aerospace Technology and Management*, *17*, e0725.

Hall, D.T. (2002) Careers in and out of Organisations. Sage Publications, Thousand Oaks.

Hobbs, A. (2008). An overview of human factors in aviation maintenance. *ATSB Safety Report, Aviation Research and Analysis Report AR*, *55*(2008), 1-37.

Hobfoll, S. E. (1989). Conservation of resources: a new attempt at conceptualizing stress. *American psychologist*, *44*(3), 513. https://doi.org/10.1037/0003-066X.44.3.513

Horcajo, J., Santos, D., & Higuero, G. (2022). The effects of self-efficacy on physical and cognitive performance: An analysis of meta-certainty. *Psychology of Sport and Exercise*, *58*, 102063. https://doi.org/10.1016/j.psychsport.2021.102063

International Civil Aviation Organization. (2023). *Safety Report 2023*. ICAO. https://www.icao.int/safety/Documents/ICAO_SR_2023_20230823.pdf (Accessed on: May 22, 2025)

Judge, T. A., Erez, A., & Bono, J. E. (1998). The power of being positive: The relation between positive self-concept and job performance. *Human Performance*, *11*(2-3), 167–187. https://doi.org/10.1207/s15327043hup1102&3_4

Keyes, C. L. (2002). The mental health continuum: From languishing to flourishing in life. *Journal of health and social behavior*, 207-222.

Kucuk Yilmaz, A. (2019). Strategic approach to managing human factors risk in aircraft maintenance organization: risk mapping. *Aircraft Engineering and Aerospace Technology*, *91*(4), 654-668. https://doi.org/10.1108/AEAT-06-2018-0160

Leech, N., Barrett, K., & Morgan, G. A. (2013). *SPSS for intermediate statistics: Use and interpretation*. Routledge.

Luthans, F., Avolio, B. J., Avey, J. B., & Norman, S. M. (2007). Positive psychological capital: Measurement and relationship with performance and satisfaction. *Personnel Psychology*, *60*(3), 541–572. https://doi.org/10.1111/j.1744-6570.2007.00083.x

Lyubomirsky, S., King, L., & Diener, E. (2005). The benefits of frequent positive affect: Does happiness lead to success?. *Psychological Bulletin*, *131*, 803–855.

Mallery, P., & George, D. (2005). *SPSS for Windows Step by Step: A Simple Guide and Reference 13.0 Update*. Allyn and Bacon.

Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job burnout. *Annual review of psychology*, *52*(2001), 397-422. https://doi.org/10.1146/annurev.psych.52.1.397

McDonald, N., Corrigan, S., Daly, C., & Cromie, S. (2000). Safety management systems and safety culture in aircraft maintenance organisations. *Safety science*, *34*(1-3), 151-176. https://doi.org/10.1016/S0925-7535(00)00011-4

Milam, L. A., Cohen, G. L., Mueller, C., & Salles, A. (2019). The relationship between self-efficacy and well-being among surgical residents. *Journal of surgical education*, *76*(2), 321-328. https://doi.org/10.1016/j.jsurg.2018.07.028

Mulder, S., & de Rooy, D. (2018). Pilot mental health, negative life events, and improving safety with peer support and a just culture. *Aerospace medicine and human performance*, *89*(1), 41-51.

Naiseh, M., Babiker, A., Al-Shakhsi, S., Cemiloglu, D., Al-Thani, D., Montag, C., & Ali, R. (2025). Attitudes Towards AI: The Interplay of Self-Efficacy, Well-Being, and Competency. *Journal of Technology in Behavioral Science*, 1-14.

Ng, T. W. H., & Feldman, D. C. (2010). The relationships of age with job attitudes: A meta-analysis. *Personnel Psychology*, *63*(3), 677–718. https://doi.org/10.1111/j.1744-6570.2010.01184.x

Nkosi, M., Gupta, K., & Mashinini, M. (2020). Causes and impact of human error in maintenance of mechanical systems. In *MATEC Web of Conferences* (Vol. 312, p. 05001). EDP Sciences.

National Transportation Safety Board [NTSB] (2019). *Left Engine Failure and Subsequent Depressurization, Southwest Airlines Flight 1380, Boeing 737-7H4, N772SW.* https://www.ntsb.gov/news/events/Pages/2019-DCA18MA142-BMG.aspx (Accessed on: May 22, 2025)

Olaganathan, R. (2024). Human factors in aviation maintenance: understanding errors, management, and technological trends. *Global Journal of Engineering and Technology Advances*, *18*(2), 92. https://doi.org/10.30574/gjeta.2024.18.2.0021

Pasha, T., & Stokes, P. R. (2018). Reflecting on the Germanwings disaster: a systematic review of depression and suicide in commercial airline pilots. *Frontiers in psychiatry*, *9*, 86.

Prasad, V. S. K., & Raveendran, C. V. (2024). A Case Analysis Of Human Factors Affecting Aviation Maintenance Personnel. *Aviation maintenance*, *1000*(10), 5. https://doi.org/10.56726/IRJMETS48058

Prasad, V. S. K., Va, N.A., Lobo, A. E., & Cv, R. (2024). A case study of factors impacting fatigue in aircraft maintenance technicians (AMT). *International Journal of Case Studies in Business, IT, and Education (IJCSBE)*, 850-855.

Qiu, R., Gong, Y., Cao, Y., You, X., & Zhu, X. (2023). Influence of self-efficacy on male military pilots' capability to handle special situations: a moderated mediation model. *Scientific reports*, *13*(1), 10794. https://doi.org/10.1038/s41598-023-38009-9

Rochmawati, L., Fatmawati, & Sukma, M. M. (2023). Motivation, anxiety, and self-efficacy in learning aviation English: a study of Indonesian aviation cadets. *Asian-Pacific Journal of Second and Foreign Language Education, 8*(1), 40. https://doi.org/10.1186/s40862-023-00212-6

Ryff, C. D., & Keyes, C. L. M., (1995). The structure of psychological well-being revisited. *Journal of Personality and Social Psychology*, *69*, 719–727.

Salanova, M., Peiró, J. M., & Schaufeli, W. B. (2002). Self-efficacy specificity and burnout among information technology workers: An extension of the job demand-control model. *European Journal of work and organizational psychology*, *11*(1), 1-25. https://doi.org/10.1080/13594320143000735

Salas, E., Maurino, D., & Curtis, M. (2010). Human factors in aviation: an overview. *Human factors in aviation*, 3-19.

Santos, L., & Melicio, R. (2019). Stress, pressure and fatigue on aircraft maintenance personnel. *International Review of Aerospace Engineering (I.RE.AS.E) 12 (1), N. 1* https://doi.org/10.15866/irease.v12i1.14860

Savickas, M. L. (2002). Reinvigorating the study of careers. *Journal of Vocational Behavior, 61*(3), 381–385. https://doi.org/10.1006/jvbe.2002.1880

Scherer, R. F., Luther, D. C., Wiebe, F. A., & Adams, J. S. (1988). Dimensionality of coping: Factor stability using the ways of coping questionnaire. *Psychological reports, 62*(3), 763-770.

Scholz, U., Doña, B. G., Sud, S., & Schwarzer, R. (2002). Is general self-efficacy a universal construct? Psychometric findings from 25 countries. *European journal of psychological assessment*, *18*(3), 242.

Schwarzer, R., & Jerusalem, M. (1995). Generalized self-efficacy scale. *J. Weinman, S. Wright, & M. Johnston, Measures in health psychology: A user's portfolio. Causal and control beliefs*, *35*(37), 82-003.

Schwarzer, R., BaBler, J., Kwiatek, P., Schröder, K., & Zhang, J. X. (1997). The assessment of optimistic self-beliefs: comparison of the German, Spanish, and Chinese versions of the general self-efficacy scale. *Applied psychology, 46*(1), 69-88.

Shanmugam, A., & Paul Robert, T. (2015). Human factors engineering in aircraft maintenance: a review. *Journal of quality in maintenance engineering*, *21*(4), 478-505. https://doi.org/10.1108/JQME-05-2013-0030

Simunjak, M., & Menke, M. (2023). Workplace well-being and support systems in journalism: Comparative analysis of Germany and the United Kingdom. *Journalism, 24*(11), 2474-2492.

Skybrary (2025). *Aircraft Maintenance Technician*. https://skybrary.aero/articles/aircraft-maintenance-technician (Accessed on: May 22, 2025)

Slazyk-Sobol, M., Dobrowolska, M., Zomerfeld, J., & Pieloch, A. (2021). Stress and self-efficacy as specific predictors of safety at work in the aviation sector. *Medycyna pracy*, *72*(5), 479-487. https://doi.org/10.13075/mp.5893.01104

Söner, O., & Eldeleklioğlu, J. (2022). Öğretmenlerde mental iyi oluşun yordayıcısı olarak ahlaki çözülme ve öz-yeterlilik. *Okul Psikolojik Danışmanlığı Dergisi*, *5*(2), 1-28.

Stajkovic, A. D., & Luthans, F. (1998). Self-efficacy and work-related performance: A meta-analysis. *Psychological bulletin*, *124*(2), 240. https://doi.org/10.1037/0033-2909.124.2.240

Stevens, J. P. (2002). *Applied multivariate statistics for the social sciences* (4th ed.). Lawrence Erlbaum Associates Publishers.

Super, D. E. (1990). A life-span, life-space approach to career development. In D. Brown & L. Brooks, *Career choice and development: Applying contemporary theories to practice* (2nd ed., pp. 197–261). Jossey-Bass.

Tabachnick, B.G., Fidell, L.S. (2013). *Using Multivariate Statistics* (6th Ed.). Boston: Allyn & Bacon.

Tanya, R. (2023). *The relationship between self-efficacy and mental Well-being. Sri Lanka Institute of Technology's School of Psychology*. Research Report. Sri Lanka Institute of Technology's School of Psychology. https://doi.org/10.13140/RG.2.2.34684.72327

Tennant, R., Hiller, L., Fishwick, R., Platt, S., Joseph, S., Weich, S., ... & Stewart-Brown, S. (2007). The Warwick-Edinburgh mental well-being scale (WEMWBS): development and UK validation. *Health and Quality of life Outcomes*, *5*, 1-13. https://doi.org/10.1186/1477-7525-5-63

Truong, D., & Lee, S. A. (2025). Developing A new safety culture framework for aviation Maintenance: Preliminary results. *Safety Science*, *183*, 106729.

Waterman, A. S. (1993). Two conceptions of happiness: Contrasts of personal expressiveness (eudaimonia) and hedonic enjoyment. *Journal of personality and social psychology, 64*(4), 678.

World Health Organization [WHO]. (2004). *Promoting mental health: concepts, emerging evidence, practice: summary report/a report from the World Health Organization, Department of Mental Health and Substance Abuse in collaboration with the Victorian Health Promotion Foundation and the University of Melbourne*. https://iris.who.int/bitstream/handle/10665/42940/9241591595.pdf (Accessed on: May 22, 2025).

Yang, C., Liu, P., Xu, S., Xie, X., Li, X., Bai, H., ... & You, X. (2024). Exploring positive psychological factor on safety behavior of Chinese aircraft maintenance technicians: The interplay of workplace well-being, work engagement, and leadership. *Safety science*, *175*, 106523. https://doi.org/10.1016/j.ssci.2024.106523

Yazgan, E., & Kavsaoğlu, M. Ş. (2017). Evaluation of stress affecting aircraft maintenance technician's performance. *Int'l Journal of Computing, Communications & Instrumentation Engg.(IJCCIE)*, *4*(1), 96-101.

Yeşilay, A. (1996). *Genelleştirilmiş Öz-yetki Beklentisi.* http://userpage.fu-berlin.de/~health/turk.htm. (Accessed on: May 22, 2025)

Zhao, Y., Wang, Y., Guo, W., Cheng, L., Tong, J., Ji, R., ... & Wang, L. (2023). Studies on the relationship between occupational stress and mental health, performance, and job satisfaction of Chinese civil aviation pilots. *Aerospace*, *10*(10), 896. https://doi.org/10.3390/aerospace10100896