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# The Role of Mental Health Training and Education in Achieving Resilience for Collegiate Aviation Pilots

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The tragic events surrounding Germanwings Flight 9525 and similar safety events have highlighted the urgent need to address mental health (MH) issues in aviation, particularly among Part 141 collegiate pilots. This ongoing quasi-experimental study evaluates the effectiveness of a Mental Wellness workshop intervention aimed at enhancing collegiate aviation pilots' knowledge and skills in recognizing and managing MH challenges. Conducted over five days and integrated into the flight safety course curriculum, the workshop focuses on resilience, stress management, emotional regulation, and lifestyle changes. Using a one-group pretest-posttest design, participants will complete the Predictive 6-Factor Resilience Scale (PR6-50) before and after the workshop, alongside demographic questions, to capture descriptive data. The study will employ SPSS® to conduct a paired t-test to determine significant differences in resilience scores. Qualitative data will be analyzed to explore participants' experiences concerning existing models of mental health awareness and stigma reduction in aviation. Expected findings include significant improvements in resilience scores, increased awareness of MH issues, and reduced stigma surrounding help-seeking. Participants are anticipated to report enhanced skills in stress management and emotional regulation, fostering healthier lifestyle choices and greater willingness to seek support for MH concerns. The study's conclusions will emphasize the importance of MH training in aviation and advocate for supportive systems that encourage collegiate pilots to prioritize their mental well-being, advancing the safety objectives established by the Federal Aviation Administration and bolstering the overall safety performance of the U.S. National Airspace System.

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## **Introduction**

On March 24, 2015, Germanwings Flight 9525 crashed in the French Alps, killing all 150 people on board. After the captain left the cockpit, the first officer, who had struggled with mental health (MH) issues since 2009, deliberately initiated a descent. Despite efforts to regain access to the cockpit, the aircraft impacted the terrain at high speed. Investigations revealed the first officer had been suffering from severe depression, which he had not fully disclosed to his employer (Federal Aviation Administration [FAA], 2024a). This tragedy, along with similar accidents such as JetBlue Flight 191 in 2012, where a captain exhibited bizarre behavior and was subdued by passengers, and Malaysia Flight 370 in 2014, which remains shrouded in mystery but is suspected of possible deliberate actions by the captain, has sparked increased focus on pilot MH. These events underscore the urgent need for better support systems and regulatory measures to address MH issues in aviation (DeHoff & Cusick, 2018).

MH problems have also impacted students in Part 141 collegiate aviation flight programs. For example, on October 18, 2021, a collegiate aviation flight student tragically took his life by crashing his aircraft during a solo flight. In a letter left behind, the student expressed his depression and fear of losing flight privileges if he sought help, highlighting the urgent need for better support systems and regulatory measures to address MH issues in aviation (Pitts & Faulconer, 2023). College can be a highly stressful period for students, marked by academic pressures and personal challenges such as family separation and various academic and job responsibilities. This environment often triggers the onset or worsening of MH and substance use issues, with an estimated 26% of Americans aged 18 and older experiencing a diagnosable MH disorder each year. On campuses, MH concerns are widespread, with about one-third of undergraduates reporting significant symptoms; depression is the most common issue, affecting 38% to 55% of students. Additionally, many students experience comorbid conditions—76% of those with major depression also have another MH issue, such as generalized anxiety disorder or non-suicidal self-injury. Other MH challenges include eating disorders and panic attacks, often exacerbated by factors like overinvolved parenting, dependence on technology, and increased academic demands (Oswalt et al., 2020; Peddrelli et al., 2015).

When conducting a literature review for a study on mental health training for Part 141 collegiate aviation pilot students, it is important to acknowledge that mental health challenges affect not only general college student populations but also extend specifically to professional pilots, which includes Part 141 college aviation flight students (Romero et al., 2020). For example, studies involving Part 141 collegiate aviation pilots have found a prevalence of poor sleep quality, high levels of psychological distress, and a significant impact on their well-being. These students often face challenges such as adjusting to being away from home, managing excessive workloads, and dealing with uncomfortable classroom environments, which can contribute to psychological distress (Mendonca et al., 2023). The demands of flight training and academic pressures frequently lead to significant levels of stress and poor sleep quality, negatively affecting their academic performance, and physical and mental health. These college demands may also contribute to obesity, increased substance use, physical and mental fatigue, poor judgment, and reduced situational awareness.

Findings by Mendonca et al. (2019) indicated that fatigue significantly impacted flight training, with pilots overlooking mistakes due to fatigue, leading to decrements in alertness and cognitive function. Keller et al. (2020) found that collegiate aviation pilots frequently struggle with both the quantity and quality of their sleep. Contributing factors include inadequate preparation for sleep, such as optimizing the sleep environment, limiting the use of electronic devices before bed, and failing to plan for 7-9 hours of rest. Additionally, the authors noted that collegiate flight students often face difficulties in maintaining healthy lifestyles. Romero et al. (2020) found that while students recognized their fatigue and its negative impact on training, they struggled to make necessary adjustments. Another study by Mendonca (2021) revealed that 60% of participants experienced mental and physical symptoms of fatigue during flight

activities, with 43% lacking training in fatigue identification and management. Factors such as insufficient rest and poor work-life balance further exacerbate these issues, as noted by Levin et al. (2019), where many students failed to engage in adequate exercise, nutrition, and stress management.

Part 141 collegiate aviation pilots face unique stressors and pressures that contribute to MH issues within this demographic, as highlighted in a study by Pitts and Faulconer (2023). Their research reveals that a significant portion of collegiate pilots' experience MH concerns. Their research found that 56.6% of surveyed collegiate pilots met the criteria for depression, and 13.8% reported self-injurious or suicidal ideation within the past two weeks. This study emphasizes that the barriers to seeking MH care—commonly observed in airline and military pilots—are also prevalent among collegiate pilots. Many collegiate pilots expressed apprehensions about seeking help due to fears that disclosing MH issues could jeopardize their medical certification, which is critical for their future careers. The rigorous demands of flight training programs, including academic performance and flight proficiency, create a high-pressure environment that can exacerbate MH concerns. Unlike typical college students, aspiring pilots must navigate the complexities of aviation regulations and the potential consequences of disclosing MH issues. Studies indicate that collegiate pilots often experience significant anxiety related to performance and fear of failure, adding to the MH challenges they face. Addressing MH in this specific population is crucial for ensuring their well-being and future success in aviation.

There are two perspectives on safety in aviation: the traditional view, which focuses on avoiding costs associated with accidents, and a more modern approach that emphasizes the link between safety and efficiency. While the cost of a single major accident can be devastating to an organization, research shows that investing in safety enhances productivity and reduces insurance costs (Ayres Jr. et al., 2009). A Safety Management System (SMS) allows aviation organizations and stakeholders to proactively address safety issues, enabling effective management of accidents and near misses to improve overall safety and efficiency. Central to the effectiveness of an SMS is training and education, which serve as vital pillars in fostering a positive safety culture (DeFusco et al., 2015). Safety training equips personnel with the necessary skills and knowledge to perform their duties safely and competently. It acts as a catalyst for developing a robust safety culture by ensuring that safety information is effectively communicated throughout the organization. By focusing on training, organizations can change shared values among employees and management, reinforcing the importance of safety and cultivating an environment where hazards and risks are well understood and addressed. Ultimately, improving safety culture requires a commitment to continuous training and education, which enhances both safety outcomes and organizational efficiency (Ayres Jr. et al., 2009).

In this study, the College of Aviation's researchers and a clinical team from the University Counseling Center will collaborate. This partnership allows both areas to share their expertise to best serve the students and the aviation industry. Addressing the MH and wellness needs of students cannot be done in isolation, and counseling center staff increase their impact and reach when collaborating with other departments on campus. Building campus partnerships leads to increased participation from students, faculty, and staff and more tailored and relevant programs (Golightly et al., 2017). As such, educational programs such as those offered by MH experts are vital for reducing stigma and empowering individuals to learn more about mental health literacy/care and increase awareness around normal emotions and when to seek help and support. Prevention and education are key interventions including when to seek professional help without feeling stigma and to adopt therapeutic lifestyle changes that promote mental and physical well-being, which is essential for preventing MH issues.

Addressing MH in aviation requires a multifaceted approach. National policies should establish a non-punitive pathway for disclosing MH conditions. Moreover, the Federal Aviation Administration's (FAA) information management system and Aviation Medical Certification Subsystem must be modernized to facilitate easier reporting (FAA, 2024a). A critical aspect of this strategy is education and

training (Aller et al., 2021; Conley et al., 2015). Educational campaigns should enhance MH literacy and promote a safety culture, encouraging aviation professionals to seek care without stigma. MH literacy can be as basic as understanding that feeling sad, anxious, or angry at times is a normal part of the human experience. What is important is educating students about understanding the difference between what is within normal range without self-pathologizing and when to seek mental health support from a professional, essentially understanding the difference between mental health and mental illness. The purpose of this ongoing study is to assess the effectiveness of a Wellness and Resiliency workshop intervention designed to enhance the knowledge and skills of Part 141 collegiate aviation pilots. This four-part workshop, titled *Wellness and Performance: How Resilience Enables Optimum Performance* aims to raise awareness and understanding of MH issues from a well-being and resiliency perspective, which teaches coping strategies and stress management skills. It also works to reframe mental health care as a normal part of self-care and an integral part of aviation safety culture. When presented in the classroom as a normal part of addressing safety through increased awareness of self and self-care needs, students may begin to see their mental health care in a less stigmatizing way. By focusing on prevention through the adoption of healthy lifestyles, as well as learning the various interventions, collegiate aviation pilots can be empowered to proactively seek help and address MH concerns early on, ultimately preventing more serious health issues. This quasi-experimental study advances the FAA's (2024b) broader objectives of improving safety performance within the U.S. National Airspace System.

## Methods

A one-group pretest-posttest quasi-experimental design will be utilized (Leedy & Ormrod, 2020). The dependent variables will be the pre-and post-test scores measured using the Predictive 6-Factor Resilience Scale (PR6-50) and demographic questions (gender, enrollment level, age). The Predictive 6-Factor Resilience Scale (PR6-50) is a psychological assessment tool that measures resilience across six key factors: emotional regulation, optimism, social support, problem-solving skills, self-efficacy, and adaptability. It consists of a series of statements rated on a Likert scale, providing insights into an individual's resilience levels before and after interventions (Rossow & Rossow, 2016). The population of interest includes collegiate aviation pilots enrolled in a flight safety course during the fall 2024 and spring 2025 semesters at a university located in Central Florida. All participation will be in accordance with the Institution Review Board (IRB) guidelines.

The Mental Wellness workshop will be led by a clinical team of licensed MH experts from the University's Counseling Center and will span five days, with sessions integrated into the flight safety course curriculum. The original curriculum for the workshops was developed by Dr. Mazza, the author of *Dialectic Behavioral Skills Training for Emotional Problem Solving for Adolescents (DBT-STEPS-A)* in collaboration with Dr. Chungani from the University of Pittsburg. There, the curriculum was presented as a full 3-hour course that was given over a 16-week period with 14 original lessons. With permission, the clinical team condensed the course into four modules for this study. Topics covered will include: 1. Wellness and Resilience (Lacomba-Trejo et al., 2022), 2. Mindfulness for Stress Reduction, (Brown & Ryan, 2003) 3. Dialectical Behavioral Therapy (DBT) Skills (Mazza et al., 2016), and 4. Developing Therapeutic Lifestyle Changes (TLCs) (Walsh, 2011). These evidence-based strategies aim to improve MH and overall well-being through the introduction of new cognitive and behavioral skill development, as well as emphasizing the mental health benefits of regular physical activity, balanced nutrition, good sleep hygiene, stress management techniques, and other healthy lifestyle habits.

Data collection will occur in two phases: a pre-test administered during an initial information session one week before the workshop, followed by a post-test at the end of the semester. The posttest will include the PR6-50 (Rossow & Rossow, 2016) and a self-reflection component, where participants will reflect on their experiences with the Mental Wellness workshop, including how it influenced their

understanding and behaviors related to MH, any challenges faced, future applications of learned concepts, and feedback on the workshop.

Participants' descriptive data will be examined to help researchers gain a better understanding of the overall trends and patterns (Salkind, 2012). SPSS® will be used to conduct a paired t-test, comparing pre-and post-test scores to determine if the Mental Wellness workshop intervention results in significant improvements for Part 141 collegiate aviation pilots. A deductive approach will guide the qualitative data analysis, aiming to explore how the findings align with established mental health awareness, coping strategies, and stigma reduction models in aviation (Patton, 2015). The primary goal will be to assess how effectively the workshop enhances participants' mental health knowledge, skills, and willingness to seek help.

### **Expected Findings and Conclusions**

MH in aviation is a subject area that demands more attention and understanding by the FAA and the entire aviation community. One approach to support improving MH is through training and education (Aller et al., 2021; FAA, 2024a) so that collegiate pilots who enter the professional arena are best equipped to manage their own mental well-being. Effective mental health educational approaches can lead to better mental health literacy among pilots, fostering a culture that prioritizes mental well-being within the aviation industry. Through this workshop, the research team expects to see an improvement in resiliency and mental health literacy among collegiate pilots. This research aims to evaluate the resiliency of collegiate pilots following their exposure to the Mental Wellness workshop. The research team will assess participants' resiliency levels using the PR6-50 pretest and compare these results to the posttest to determine any improvements. The team anticipates an increased demonstration of resilience as a result of the training and education provided.

By equipping collegiate aviation pilots with the tools to manage the emotional and other challenges of their careers early on, mental well-being can be promoted, and stigma surrounding MH issues can be reduced. The findings of this study can provide the empirical foundation for developing improved national policies and procedures from aviation organizations like the FAA, as well as for enhancing university policies and strategies focused on MH initiatives for future aviation professionals. Most importantly, as these pilots enter the aviation industry, fostering mental well-being from the start of their Part 141 collegiate flight training and education will support their personal and professional growth while contributing to a safer and more supportive aviation industry.

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