Breaking the Stigma:
A Look at Mental Health in the Aviation Industry through Analysis of Research and Accidents

Rebekah Harris
Oklahoma State University
Honors College Graduate from the College of Education and Human Sciences
Mentored by Dr. Kat Gardner- Vandy
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I. INTRODUCTION

In a poll, nine out of ten adults said they believed the United States is in a mental health crisis. The word *crisis* was chosen specifically. It is not just a problem anymore (McPhillips, 2022). By some, mental health per the World Health Organization is defined as, "a state of mental well-being that enables people to cope with the stresses of life, realize their abilities, learn well and work well, and contribute to their community" (2022). Mental health is not determined by the presence or absence of some diagnosed mental disorders, but it is important to note that those with mental disorders may experience lower levels of mental well-being (NCD Alliance, 2022).

Mental health conditions can include mental disorders and psychosocial disabilities (WHO, 2022). Particularly since the COVID-19 pandemic, mental health disorders have been on the rise. Roughly one billion people (970 million) around the world live with a diagnosable mental disorder, with 28.9% being depressive disorders and 31.0% being anxiety disorders (WHO, 2022). Some reports suggest that up to 20% (1 in 5) of Americans will suffer from depression at some point in their life (Aviation Medicine Advisory Service). This is important to note because mental health can directly impact your physical health (CDC, n.d.).

In a 2016 study "Airplane pilot mental health and suicidal thoughts: a cross-sectional descriptive study via anonymous web-based survey," researchers concluded that lots of active pilots currently flying are managing depressive symptoms without the possibility of treatment because of the thought of harming their careers. 12.6% of those surveyed met the threshold for depression with 4.1% reporting having suicidal thoughts (Wu, Donnelly-McLay, Weisskopf, et al, 2016). While not a survey of the entire population (roughly

330,000 per Statista in 2022), if those numbers were to be true across the whole population that would equate to 41,580 pilots having depression and 13,530 pilots having suicidal thoughts/ideation. And hardly any of these pilots will seek help because of fear of negatively impacting the careers they have invested years and thousands of dollars into.

More than anything pilots are people. Always and especially in today's climate with some facing economic strife, some still feeling the effects of COVID-19, and general life events, pilots are just as disposed to feel anxiety and depression as the public. What differs professional aviation from the general is often a notion that feeling this way can be career-ending. Seeking help for many is not an option.

So, what has happened in aviation because of mental health? What is being done by the FAA and airlines to support their people? And what more can be done to help the aviation industry see even higher levels of aviation safety?

II. MENTAL HEALTH DISORDERS & SSRIs

The American Psychiatric Association's text the *Diagnostic and Statistical Manual of Mental Disorders (DSM-5)* defines mental disorders as having the following:

(1) A behavioral or psychological syndrome or pattern that occurs in an individual,

(2) Reflects an underlying psychobiological dysfunction,

(3) The consequences of which are clinically significant distress or disability,

(4) Must not be merely an expected response to common stressors and losses or a culturally sanctioned response to a particular event, and

(5) Primarily a result of social deviance or conflicts with society.

The most common mental disorders are anxiety disorders, depression, and post-traumatic stress disorder. These disorders are outlined below.

Anxiety disorder. Anxiety disorders vary from one's normal reaction to stress that around 30% of adults will deal with in their lifetime. They are treatable. Additionally, women are most likely to experience anxiety disorders than men (Muskin, 2021). In the overall title of "anxiety disorder," there are different specific diagnoses. Only those relevant to the latter-mentioned studies are outlined below. Many with anxiety disorder do not seek help. There are two main forms of treatment, psychotherapy, and medication. Talk therapy allows the patient to alter their view of the situation to help relieve anxiety. Medication traditionally includes anti-anxiety medications, antidepressants, and beta-blockers (for physical symptoms). Medication, while it does not cure the patient, can aid in relief from symptoms (Muskin, 2021).

Generalized Anxiety Disorder. Generalized anxiety disorder involves excessive worry that interrupts daily activities. This can also be accompanied by symptoms, such as restlessness, being easily fatigued, difficulty concentrating, sleep problems, or muscle tension. Often this is the cause of job, family, or minor matters (Muskin, 2021).

Panic Disorder. At the root of panic disorder are recurring panic attacks. Mayo Clinic defines panic attacks as a "sudden episode of intense fear that triggers severe physical reactions when there is no real danger or apparent cause." Some of the symptoms associated with panic attacks include a rapid heart rate, chest pain, shaking, sweating, fear of losing control, abdominal pains, and so on. Panic attacks

can occur expectedly or unexpectedly, and this disorder usually affects patients aged 20-24.

Depression. Depression, known clinically as major depressive disorder, is common and serious. It is also treatable, and each year affects around 7% of adults. Depression lends itself to a variety of emotional and physical problems and can decrease the ability to work. Symptoms vary from mild to severe, including a depressed mood, loss of interest, increased fatigue, feeling worthless, difficulty concentrating, and thoughts of suicide. To be diagnosed, patients must present these symptoms for at least two weeks and tend to appear in patients in their late teens to early 20s (Torres, 2020). Depression is very treatable, and an average of 80- 90% of those affected who seek treatment respond well. There are multiple different ways depression is treated: medication, psychotherapy ("talk therapy"), and electroconvulsive therapy. Antidepressants are prescribed to alter brain chemistry, not to sedate users. There are three kinds of medications for depression and anxiety: tricyclic antidepressants, selective serotonin reuptake inhibitors, and norepinephrine dopamine reuptake inhibitors.

Post-Traumatic Stress Disorder. Post-traumatic stress disorder (PTSD) occurs in people who have experienced/witnessed a traumatic event or series of events. PTSD can affect a person mentally, physically, socially, and/or spiritually. One out of every eleven adults will be diagnosed in their lifetime. Additionally, Latinos, African Americans, and Native Americans are disproportionately affected by this disorder. Symptoms of PTSD include intrusion, avoidance, alterations in cognition and mood and alterations in arousal and reactivity. To be diagnosed, symptoms must last for more than a month and cause significant distress. Post-traumatic stress disorder is also treatable with medication and

therapy. However, not all who have PTSD require psychiatric treatments, and some also notice their symptoms go away on their own or through a support system. Many would benefit from and do seek professional treatment in the end. Different types of therapy can be useful including cognitive processing therapy, prolonged exposure therapy, trauma-focused cognitive behavioral therapy, group therapy, and eye movement desensitization and reprocessing. Additionally, medications like SSRIs and SNRIs can be used to provide relief from PTSD symptoms (Taylor-Desir, 2022).

Medications: Selective Serotonin Reuptake Inhibitors

Selective serotonin reuptake inhibitors (SSRIs) are used to treat generalized anxiety disorder, obsessive-compulsive disorder, panic disorder, phobias, bulimia, and PTSD. Serotonins work by blocking nerve cells from reabsorbing serotonin, which allows more serotonin to pass more "messages" between cells. They are typically taken in a tablet form requiring around two to four weeks before feeling the effects. After this time, the dosage can be lessened or increased based on how well the medication works. There are a few noted side effects including dizziness, blurred vision, agitation, nausea, difficulty in sex, indigestion, loss of appetite, and weight loss. In the United States, per the Mayo Clinic, the Food and Drug Administration has approved five SSRIs: citalopram (Celexa), escitalopram (Lexapro), fluoxetine (Prozac), paroxetine (Paxil or Pexeva), and sertraline (Zoloft).

III. FAA MEDICAL CERTIFICATION AND SSRIS

Per 14 CFR 61.3, to legally fly, pilots of all ratings and licenses must have and carry a valid FAA medical certificate. To get a medical, an applicant must meet with an FAA-designated aviation medical examiner, who tests their vision, hearing, general health, and

cardiovascular health. Based on these tests, the pilot will either be granted a medical or denied a medical (ATP, n.d.). This test a renewed every six months to five years, depending on the age of the pilot and the type of flying they do (FAA, n.d.).

There are four different options for medicals—first, second, third, and Basic Med:

1st Class Medical:

A first-class medical requires the applicant to have 20/20 corrected or uncorrected distance vision in both eyes and 20/40 or better for near vision. The pilot is required to be able to differentiate between colors, score at least 70% reception in one ear on an audiology exam, have no ear disease, have a maximum blood pressure of 155/95, "no diagnosis of psychosis, or bipolar disorder, or severe personality disorders." Additionally, the pilot may not abuse or be dependent on substances. Fifteen listed conditions immediately disqualify a pilot from receiving a medical (FAA, 2022). An EKG is required for those applicants above 35 and annually after 40. This medical is generally for airline transport pilots.

2nd Class Medical:

A second-class medical requires the applicant to have 20/20 corrected or uncorrected distance vision in both eyes and 20/40 or better for near vision. The pilot is required to be able to differentiate between colors, score at least 70% reception in one ear on an audiology exam, have no ear disease, have a maximum blood pressure of 155/95, "no diagnosis of psychosis, or bipolar disorder, or severe personality disorders." Additionally, the pilot may not abuse or be dependent on substances. Fifteen listed conditions immediately disqualify a pilot from receiving a medical (FAA, 2022). This medical is generally for those exercising commercial privileges.

3rd Class Medical:

A third-class medical requires the applicant to have 20/40 corrected or uncorrected distance vision in both eyes and 20/40 or better for near vision. The pilot is required to be able to differentiate between colors, score at least 70% reception in one ear on an audiology exam, have no ear disease, have a maximum blood pressure of 155/95, "no diagnosis of psychosis, or bipolar disorder, or severe personality disorders." Additionally, the pilot may not abuse or be dependent on substances. Fifteen listed conditions immediately disqualify a pilot from receiving a medical (FAA, 2022). This is for students, recreational, and private pilots.

Basic Med:

Basic Med is an alternate way for pilots to fly without an FAA-granted medical safely and legally. It requires pilots to complete FAA form 8700-2, get a physical examination from a state-licensed physician, and complete an online medical course. Commercial pilots are not allowed to fly under Basic Med.

The FAA website states, "Aviation Medical Examiners are trained to determine the pilot's mental health and fitness to fly." Before the examination, pilots are required to report health visits in the last three years, medications taken, and other notable changes in the applicant's medical history (FAA, n.d.). Line item 17a on FAA Form 8500-8 states, "Do you currently use any medication (prescription or nonprescription)" (FAA, 2006). Line 18 states, "Have you ever in your life been diagnosed with, had, or do you presently have any of the following?" (FAA, 2006). This questioning and self-reporting is the only basis for qualifying or disqualifying a pilot based on their mental health. If the AME does suspect

mental health issues, they can request the applicant go through further psychological testing (FAA, n.d.).

The identification of mental illness in applicants can be tricky. Those applicants who suffer from mental illness are disqualified. However, those who are struggling with more "hidden" mental illness struggles can be difficult. How does one differentiate from normal life anxiety or anxiety disorder? General sadness or a depressive disorder?

For those pilots who are taking SSRIs to treat a mental health disorder, it is important to note it is NOT career-ending. There is, however, a medical certification process and evaluation period that takes the pilot out of work. The decision is not up to your AME, but it instead is passed up the chain of the FAA and determined by them. To reapply for a regularly issued medical, an individual can discontinue the use of SSRI for at least sixty days and show a positive report from a physician on their mental health condition. An individual can also apply for an FAA Authorization of an SI or SC medical certification if they have one of four specific diagnoses, have been clinically stable for the last six months on the same dosage of medication, are one of the four approved SSRIs (does not include paroxetine), and does not have currently or have a history of psychosis, suicidal ideation, ECT, treatment with multiple SSRIs, the use of other psychiatric drugs with SSRIs. If the applicant for an SI/SC meets this criterion, they can be further evaluated by a Human Intervention Motivation Study (HIMS) AME (FAA, n.d.). These paths are outlined in Appendix B and C.

IV. ACCIDENTS TIED TO MENTAL HEALTH

University of North Dakota flight student. October 18, 2021. DEPRESSION.

In a routine Part 61 flight departing from Grand Forks International Airport (KGFK) to Hector International Airport (KFAR) back to Grand Forks. The aircraft took place as part of the University of North Dakota's part 141 regulated flight program in their Piper PA-28-181 aircraft. The aircraft crash-landed in Buxton, North Dakota. Per ATC information, the pilot departed from KGFK at 7:00 pm from runway 17L and climbed to its cruising altitude of 3,700' MSL direct to KFAR. Approximately 30 miles south of Grand Forks, the aircraft turned to the north and began a rapid descent, impacting the ground at 7:24 pm (Sauer, 2022). The pilot suffered fatal injuries. The NTSB determined the cause of the accident to be "intentional flight into terrain as an act of suicide."

US-Bangala Fight 211. March 12, 2018. ANXIETY AND DEPRESSION.

An airline flight from Dhaka to Kathmandu crashed while in the landing phase of the flight at Tribhuvan International Airport. Fifty-one people died in the accident. In the final phase of the flight, the crew lost situational awareness and "went missed" on approach. However, flying the incorrect route, the aircraft flew into mountainous terrain (BBC, 2019). Initially, poor communication with ATC was a suspected reason for the crash, but the investigation revealed that the captain's language revealed he was "very much emotionally disturbed and experiencing a high level of stress" (Accident Investigation Committee, 2018). The captain was released from the Bangladeshi Air Force in 1993 due to his suffering from depression but later was recertified to fly in the general aviation sector, but his most recent medical cited no mental health concerns (BBC, 2019).

Germanwings 9525. March 24, 2015. MASS-SUICIDE.

On March 24, 2015, the flight departed from Barcelona bound for Dusseldorf, Germany with one hundred forty-nine passengers. The co-pilot deliberately crashed the

aircraft into the Alps. The plane took off at 10 am and reached its cruising altitude of 38,000'. At this point, the captain was the first officer to take control of the aircraft as he went to the bathroom. At 10:31 am, the plane entered a rapid descent and crashed into the Alps 10 minutes later near Prads-Haute-Bleone in southern France. The investigation revealed the first officer, Lubitz, had intentionally locked the captain out of the cockpit, and on the CVR recording, you can hear the captain yelling and pleading to be let back in. Additionally, it was revealed that Lubitz had a severe history of depression and had undergone treatment during his days in flight training (History, 2015). The French investigative body, the BEA, wrote, "The collision with the ground was due to the deliberate and planned action of the co-pilot who decided to commit suicide while alone in the cockpit" (BEA, 2015).

Malaysia 370. March 8, 2014. MASS- SUICIDE

Note: this accident has not been confirmed as the cause of mental health, but many theorize it played a part

The flight departed Kuala Lumpur at 12:42 am, climbed, and turned south toward the South China Sea. At 1:19 am, MH370 had reached the end of Malaysian airspace and was expected to transfer over to Vietnamese controllers. This never happened, and the flight disappeared from the radar. Air traffic control was not able to reach the flight, and it never arrived in Beijing. The following weeks and months and years were full of confusion and scrambling. The full remains of the flight have not been found to this day. The disappearance of MH370 has been dubbed "the greatest aviation mystery of all time" (Horton, 2023). One theory suggests that one of the captains, much like Germanwings a year later, deliberately committed mass suicide (Horton, 2023). One of the largest

contributors to the theory is the slim evidence, a recovered flaperon, suggesting the aircraft hit the water in a slow controlled manner—an intentional manner. Additionally, on the captain's home flight simulator, there was what some deem a “practice run” with a flight over the Indian Ocean. The captain’s medical records reveal no mental illness, but it has not been ruled out entirely (Morgans, 2018).

Jet Blue 191. March 27, 2012. PANIC ATTACK

On March 27, 2012, the flight bound for McCarran International Airport (Las Vegas, Nevada) diverted to Rick Husband Amarillo International Airport (Amarillo, Texas). The captain of the flight had a mental breakdown. The flight departed at 7:28 am from JFK with six crew and one-hundred thirty-five people on board with one being an off-duty JetBlue pilot. Three hours into the flight the captain began making strange comments. The first officer suspected something was wrong, convinced the captain to leave the cockpit, and locked the door. The captain began panicking in the cabin area and minutes later, passengers subdued him with seatbelt extenders. The off-duty pilot assisted the FO in flying the aircraft. Upon landing, Amarillo police entered the aircraft and arrested the captain. Months after, he was found not guilty because of insanity, but people suspected the man was suffering a panic attack during a flight (Finlay, 2022).

V. “AIRPLANE PILOT MENTAL HEALTH AND SUICIDAL THOUGHTS: A CROSS-SECTION DESCRIPTIVE STUDY VIA ANONYMOUS WEB-BASED SURVEY” (WU ET AL, 2016)

This study was inspired in part by Germanwings 9525, which saw a first officer commit mass suicide while piloting an airliner over the Swiss Alps. Researchers stress how 350 million people suffer from depression. Their study highlights those female pilots who suffer

from mental health and is the first published research study focusing on depression and suicidal thoughts.

To conduct their study, researchers used a web-based survey administered for nine months in 2015. Pilots were found via unions, companies, and airports with around 52.7% of recipients responding to the survey. Around 13.5% of those who completely answered their questionnaire were active pilots who met the depression threshold. 4.1% of those active pilots reported having suicidal thoughts in the prior fourteen days.

They concluded that even with their limited pool of recipients and respondents, there is still a significant number of active pilots suffering from depression. They recommended airlines increase mental health treatment support (Wu et al, 2016).

VI. "DEPRESSION, ANXIETY, AND STRESS IN COLLEGIATE AVIATORS" (ARIZONA STATE UNIVERSITY)

Researchers from Arizona State University sought to "determine if students who are enrolled in a collegiate flight program exhibit significantly higher rates of depression, stress, and anxiety" versus their non-professional flight student counterparts. In addition to the flight student non-flight student comparison, the researchers also sought to compare the stress, depression, and anxiety levels of freshmen and sophomores versus juniors and seniors.

Jacobs, Niemczyk, Nullmeyer, Cooke, & Cline sought to answer the following three questions:

(1) Are students who are enrolled in a professional flight degree program more prone to exhibit significantly higher levels of depression, anxiety, and stress

(Jacobs, Niemczyk, Nullmeyer, Cooke, & Cline, 2020)? The null hypothesis was that there are no groups that are more depressed, stressed, or anxious.

(2) Do upperclassmen (juniors and senior) students exhibit more depression, anxiety, and stress than underclassmen (freshman and sophomore) students (Jacobs, Niemczyk, Nullmeyer, Cooke, & Cline, 2020)? The null hypothesis is upperclassmen do not exhibit higher levels of depression, stress, or anxiety than underclassmen.

(3) Is there an interaction between enrollment and academic stage (i.e., underclassmen vs. upperclassmen) such that differences between professional flight and non-professional flight students are greater for upperclassmen than underclassmen (Jacobs, Niemczyk, Nullmeyer, Cooke, & Cline, 2020)?

To conduct this study, the researchers used the DASS-21 (Jacobs, Niemczyk, Nullmeyer, Cooke, & Cline, 2020). The DASS-21, the Depression, Anxiety, and Stress Scale, was developed by Lovibond and Lovibond to assess some of the key symptoms of depression, anxiety, and stress by asking twenty-one questions on three self-reported scales. Questions are rated on a scale of 0 meaning “did not apply to me at all” to a 3 meaning “applied to me very much or most of the time.” The DASS-21 is a shorter version of the original forty-two-item DASS. The total numerical score gives insight into normal- extremely severe depression, anxiety, and stress (Marijanovic, I., Kraljevis, M., Buhovac, T., Ceric, T., Mekic Abazovic, A., Alidzanovic, J., Gojkovic, Z., & Sokolovic, E., 2021). The DASS-21 test and grading criteria are attached in Appendix A. The results of the study were not significant. It was shown that professional pilot flight students are just as prone to depression, anxiety,

and stress as those not enrolled in a collegiate flight program. Nor were upperclassmen more prone to depression, anxiety, or stress than underclassmen.

Even with the lack of ground-breaking results, the researchers still believe there are important notes to take:

(1) All students need to be provided with educational opportunities to learn about mental health services.

(2) Collegiate flight students need to be taught about mental health and how it can impact their careers. This could include common signs of these disorders.

The researchers wanted to ensure that even though these results were positive and did not show any group was more inclined to mental health disorders, collegiate flight students should "not be lulled into a false sense of security" (Jacobs, Niemczyk, Nullmeyer, Cooke, & Cline, 2020).

VII. "INTERACTIONS OF INTERNATIONAL PILOTS' STRESS, FATIGUE, SYMPTOMS OF DEPRESSION, ANXIETY, COMMON MENTAL DISORDERS, AND WELL-BEING" (VENUS AND GROSSE HOLTFORTH, 2022)

While not entirely devoted to mental health, this study looked to simultaneously investigate aspects of a pilot that have been studied individually and look at how they interact together. Those include their duty rosters, stress, sleep difficulties, fatigue levels, well-being, symptoms of depression, anxiety, and common mental disorders.

Researchers sent out a cross-sectional survey and received responses from 406 international pilots who shared their duty schedules from the last sixty days. Additionally, some questions asked the pilots to self-assess their stress levels, sleep problems, fatigue, well-being, and mental health in those two months. They found that even with pilots being

scheduled 60% of the maximum allowed. 75% of those same pilots reported high or severe fatigue. 24% reported having sleep difficulties. 18.7% reported positive depression results, 8.5% reported positive anxiety results, and 7.2% reported significant symptoms of depression and anxiety. Their research asserted there was a high to highly significant correlation between stress, sleep, depression, anxiety, and well-being.

While the focus of the study was not on determining what part of the population deals with mental health, they are sure to note that stress can negatively impact fatigue, sleep, and mental health. They suggest that further studies should note how much of an impact fatigue can have on a pilot's fitness to fly.

VIII. WHAT IS BEING DONE?

In recent years, especially since Germanwings 9525, mental health has become more talked about and highlighted more in the aviation industry. The FAA has made different changes and invested resources to eliminate this stigma around mental health, including increasing AME training on mental health, supporting industry research and clinical studies, as well as hiring more specifically training professionals to conduct testing on those pilots who need "return-to-fly" decisions made (FAA, n.d.).

The Pilot Fitness Aviation Rulemaking Committee (ARC) was chartered by the FAA on May 11, 2015, to consider and provide recommendations to the FAA regarding a pilot's mental fitness. After the Commercial Aviation Safety Team considered MH370 and Germanwings 9525, the ARC was chartered as a body with expert knowledge of mental health. As their considerations and responses were made considering two accidents referenced in this paper, their recommendations have also been included. ARC believes to

minimize risks related to pilot mental fitness, there must be an environment created that "encourages and is supportive of pilot voluntary self-disclosure" (FAA, 2015). In their report, they note that mental health is not career-ending, but even short-term medical disqualifications can have lasting implications and effects on professional pilots' finances and careers. The members of ARC agree that a risk mitigation process utilizing a safety management system should be used to create an environment where "early reporting, appropriate treatment, and rapid return to the flight deck are the expectation" (FAA, 2015).

ARC made several recommendations for enhancing mental health and working through mental health in the aviation industry including enhancing AME training, opinions on psychological testing, developing pilot assistance programs, increasing air career education, releasing information material on pilot support programs, encouraging medical professional reporting, performing two persons on the flight deck and flight deck access, and keeping aircraft design standards.

The report goes into further detail about these seven recommendations. AMEs have little psychiatric training with some only having three weeks of medical training and two hours in their basic training. Beyond this, it would be desirable for more AMEs to have more training in mental health areas, which ARC states, "could be accomplished by restricting the AME basic and refresher curricula, to enhance the AME's ability to identify warning signs and refer the pilot for evaluation and appropriate intervention" (FAA, 2015). The ARC does not recommend implementing testing into the medical process or hiring process, as there is no significant research to suggest this would enhance the ability to properly survey pilot mental health. ARC also believes that air carriers should develop and support pilot assistance programs to better form an environment that supports mental

health. Additionally, they believe air career should continue educating their employees on mental health awareness and recognition, while at the same time, ARC recommends the FAA continue to provide resources to deliver to air carrier pilots on support systems and programs designed to benefit them and not harm their careers. Air carriers and the FAA should advocate for a national policy that requires health issues that could endanger the public to be reported by medical professionals. Pilots cannot be expected, nor is there a present way to keep records, to self-report their health issues. Finally, ARC believes that no changes need to be made to FAA Order 8900.1 which outlines two-person flight deck regulations, or to aircraft and flight deck design standards (FAA, 2015).

IX. WHAT MORE IS THERE TO DO?

Much more, but that is always the case. More can be done to help promote the safety of aviators, and in turn that makes our skies safer. The following are potential recommendation—not a "fix all" but a "step towards improved safety."

(1) Much like ASRS reports are voluntary between NASA and the FAA and provide confidentiality and limited immunity, the FAA should create a self-reporting platform that is easier and more user-friendly than refiling a medical application.

(2) Implement mandatory training much like CRM is mandated by regulations for part 121 and part 135 pilots going through training that is focused on educating employees on mental health signs and what to do if they begin struggling with mental health issues.

    a. Pilots should be able to seek therapy without the fear of being grounded or deemed a liability to their company. Pilots probably pose more of a threat if they do not seek help or do not take medications than if they are to withhold treatment. The governing body of aviation, yes, should be concerned about those

it serves, but it should also support and encourage the health and safety of those who fuel the industry.

(3) The FAA should continue to further educate AMEs on mental health identifiers, symptoms, and treatment, requiring yearly retraining in this area. This would allow problems to potentially be identified before the applicant is granted an FAA medical. As eyesight is checked, mental health assessment should also be administered. One test for example could include the DAmcphiSS-21 examination.

(4) Line 18's options on the medical application need to be reworded. Some pilots seeking medicals are in their late 50s or 60s. To ask them a disqualifying question such as "Have you EVER been diagnosed" lends itself to disqualifying lots of pilots and requiring them to go through a time-consuming and costly trek to get a medical. The question ought to be rewarded with a smaller range such as 3-5 years, as those possible mental health issues from twenty- or thirty years prior may have zero effect on the applicant currently.

    a. Or line 18 specifications should state symptoms (specific guidelines) the FAA deems important to note. Throwing the word "anxiety" out in today's world can mean a lot of different things from normal life anxiety to one experiencing an actual anxiety disorder.

As with seemingly every issue today, there is always more to do. This is not an overnight issue, and one singular change will not prevent all future accidents. However, there are things that definitely need improvement and/or additions. However, things currently being done in the industry and some of these potential recommendations could help in taking a step towards increased safety for consumers and those who work within the industry.

Appendix A. DASS- 21 Form and Scoring Sheet. Lovibond, S.H. & Lovibond, P.F. (1995). Manual for the Depression Anxiety & Stress Scales. (2nd Ed.)Sydney: Psychology Foundation.

DASS21

Name: Date:

Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you **over the past week**. There are no right or wrong answers. Do not spend too much time on any statement.

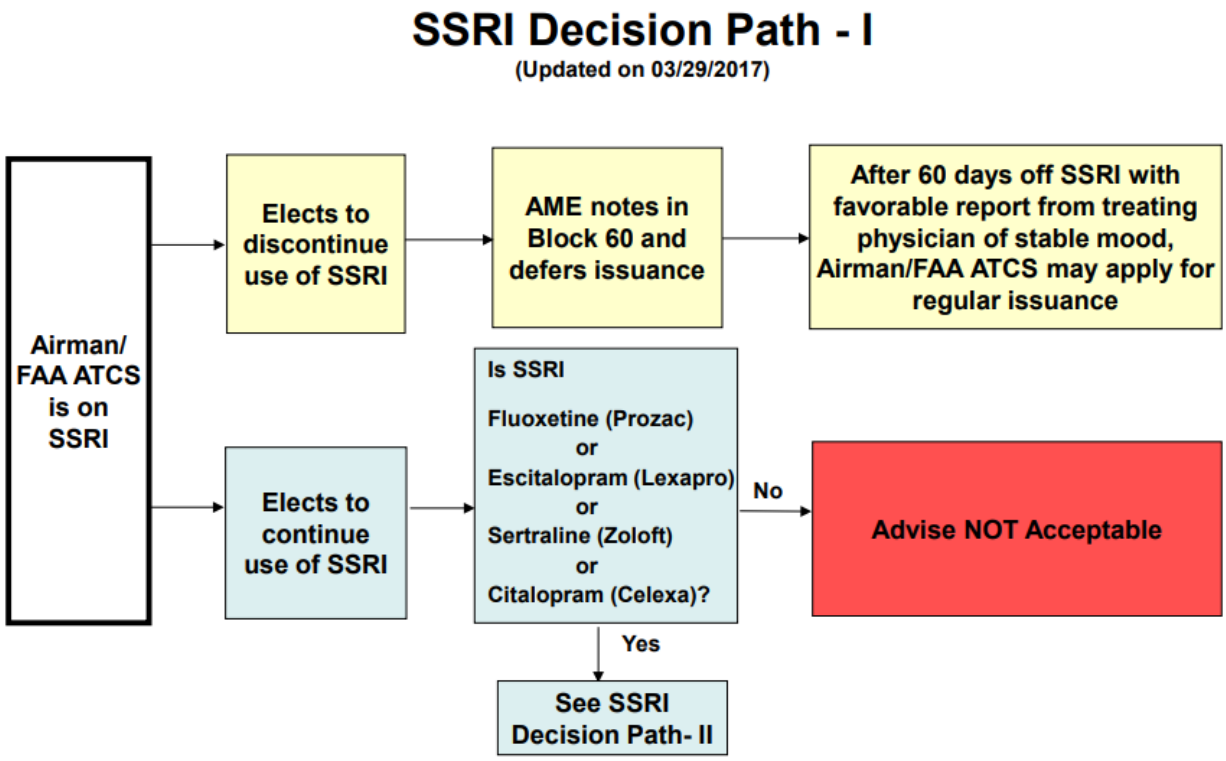
The rating scale is as follows:

0 Did not apply to me at all
1 Applied to me to some degree, or some of the time
2 Applied to me to a considerable degree or a good part of time
3 Applied to me very much or most of the time

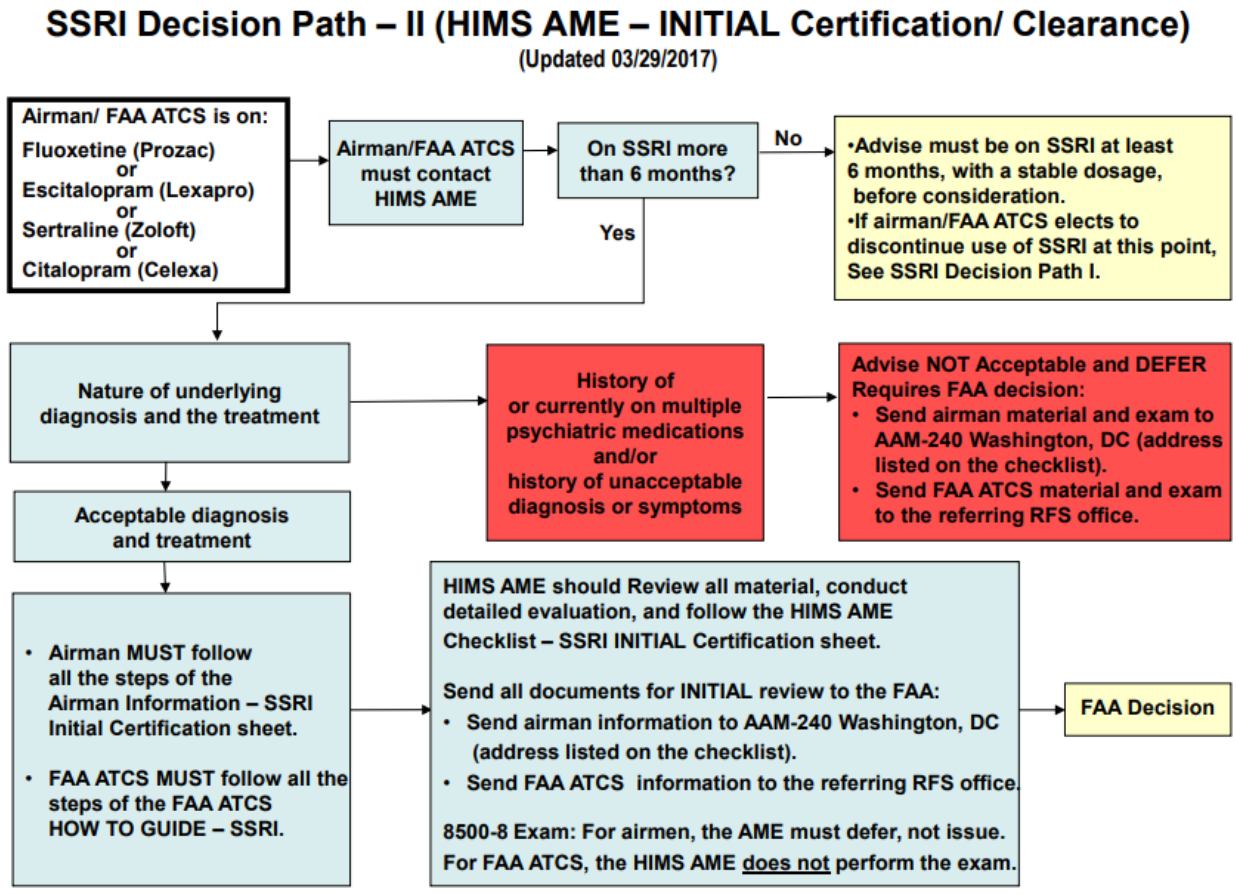
1 (s)	I found it hard to wind down	0	1	2	3
2 (a)	I was aware of dryness of my mouth	0	1	2	3
3 (d)	I couldn't seem to experience any positive feeling at all	0	1	2	3
4 (a)	I experienced breathing difficulty (e.g. excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
5 (d)	I found it difficult to work up the initiative to do things	0	1	2	3
6 (s)	I tended to over-react to situations	0	1	2	3
7 (a)	I experienced trembling (e.g. in the hands)	0	1	2	3
8 (s)	I felt that I was using a lot of nervous energy	0	1	2	3
9 (a)	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
10 (d)	I felt that I had nothing to look forward to	0	1	2	3
11 (s)	I found myself getting agitated	0	1	2	3
12 (s)	I found it difficult to relax	0	1	2	3
13 (d)	I felt down-hearted and blue	0	1	2	3
14 (s)	I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3
15 (a)	I felt I was close to panic	0	1	2	3
16 (d)	I was unable to become enthusiastic about anything	0	1	2	3
17 (d)	I felt I wasn't worth much as a person	0	1	2	3
18 (s)	I felt that I was rather touchy	0	1	2	3
19 (a)	I was aware of the action of my heart in the absence of physical exertion (e.g. sense of heart rate increase, heart missing a beat)	0	1	2	3
20 (a)	I felt scared without any good reason	0	1	2	3
21 (d)	I felt that life was meaningless	0	1	2	3

	Depression	Anxiety	Stress
Normal	0-9	0-7	0-14
Mild	10-13	8-9	15-18
Moderate	14-20	10-14	19-25
Severe	21-27	15-19	26-33
Extremely Severe	28+	20+	34+

Appendix B. SSRI decision path. FAA. https://www.faa.gov/ame_guide/app_process/exam_tech/item47/amd/antidepressants.



Appendix C. SSRI Decision Path with HIMS AME. FAA. https://www.faa.gov/ame_guide/app_process/exam_tech/item47/amd/antidepressants.



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