Myths Vs. Facts about Commercial Airlines

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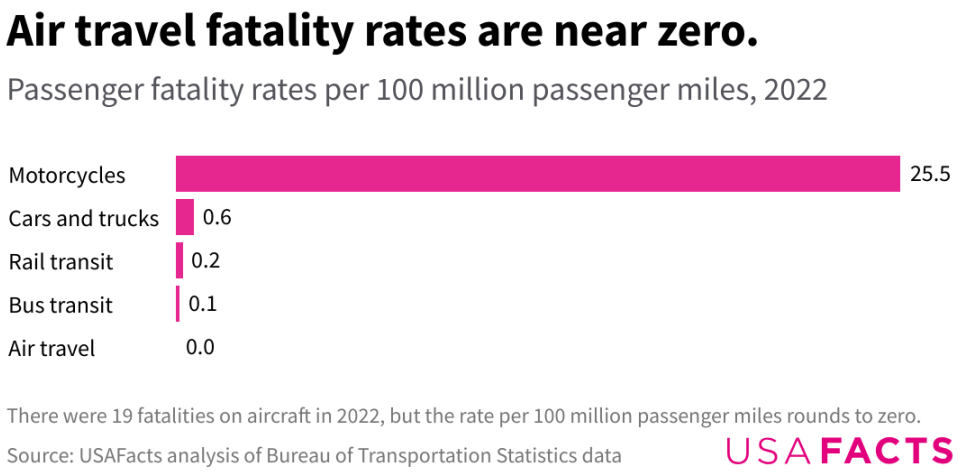
"No survivors expected after plane collides with helicopter over Potomac River" (NBC, 2025). An overwhelming number of people are rethinking their decisions to fly out of fear. My mom is one of these individuals; she is incredibly scared of flying and is dreading our nine-hour flight to Europe this summer. It is very easy to understand why people may feel this way, especially with recent incidents in the aviation industry becoming headline news. However, this mindset is formed by something called negativity bias. Negativity bias in this setting is essentially letting the minute number of accidents overly impact the phenomenal track record of safety. There will always be an inherent risk of travelling on a plane. However, through very strict regulations, intense training, safety features, air traffic control, and maintenance, it remains as one of the safest modes of transportation. By shining the light on facts, I hope people like my mom will not have to suffer with being scared to fly.

Aerophobia is the fear of flying; it impacts more than 25 million people in the U.S alone (Cleveland Clinic, 2022). It's easily understood how this may affect people, especially with never-ending news feed involving Boeing's legal battles, small aircraft crashes, and mechanical issues during flight. Boeing is one of the largest aviation manufacturers and has been dealing with multiple issues, hurting their public view. They have a recent history of prioritizing profits over safety, leading to large legal troubles. In January of 2024, a door blew off during a flight, forcing an emergency landing. Because of the incident, "investigations revealed a pattern of manufacturing defects, including missing bolts and improper installations." Along with "whistleblowers alleging systemic failures at manufacturing facilities" (NLPC 2025). Profits over safety is never a good look, especially when hundreds of lives are at stake on every flight. From January 1st to February 17th, 2025, there were eighty-seven accidents. Of those eighty-

seven, “There have been 13 fatal aircraft accidents” (Robledo, 2025). However, only one of those was a commercial flight and it was the first in fifteen years.

“I dont plan on traveling by air until the industry is fixed. I would rather drive.” (Sassafrass84, 2025). This was a post made by an individual on the social media platform X, and there are plenty of others that feel the same exact way. However, this is a very common misconception. The simplest way to combat this claim is to compare injuries with miles traveled, even though you will fly fewer miles than driving when going to the same destination. According to *“Is Flying Safer than Driving?”* by USA Facts (2024), the passenger injury rate per 100 million miles traveled in a car is forty-two, and a plane is 0.0. Along with this, the fatality rate using the same parameters was .6 for cars, and again 0.0 for planes. Because of these statistics, “Pilots often claim that the drive to the airport is the most dangerous part of any flight. And if you’re boarding a commercial airliner, this is true.” (Pilot Institute, 2024). The data focuses on commercial airlines because that is what most of the public use for air transportation. When it comes to general aviation like a small four-seat Cessna, the chances of an accident greatly increase.



(USAFACTS, 2024)

US Civil Aviation Accident Summary for Calendar Year 2022

	Accidents		Fatalities		Flight Hours	Accidents per 100,000 Flight Hours	
	Total	Fatal	Total	Aboard		Total	Fatal
Part 121 Air Carriers	20 ▼	1 ▲	1 ▲	0 —	17,872,547 ⇧	0.112 ▼	0.006 ▲
Part 135 Commuter and On-Demand Carriers	52 ▲	5 ▼	18 ▼	18 ▼	4,836,649 ⇩	1.075 ▲	0.103 ▼
General Aviation	1,206 ▲	212 ▲	337 ▼	337 ▼	22,542,999 ⇧	5.341 ▲	0.936 ▼
US Civil Aviation	**1,277 ▲**	**218 ▼**	**356 ▼**	**355 ▼**			
Other Accidents in the United States							
Foreign Registered Aircraft	14	0	0	0			
Unregistered Aircraft	2	0	0	0			

(NTSB, 2025)

Exceptional safety can be partially credited to the safety requirements involved for every flight. TCAS and ETOPS are just two from the extensive list. Traffic Collision Avoidance System, commonly referred to as TCAS, is an onboard system that detects potential collisions while flying on all commercial aircraft. There is one antenna on top, and one on the bottom of the plane that constantly scans the airspace and sends information to a computer. When a plane is located, a signal is sent to the other plane and returned. The computer then calculates the direction, airspeed, and elevation change of the other plane, and determines if they are on course to collide. If this is the case, first there is a warning, if nothing changes the TCAS system will instruct movement to avoid potential issues (Aircraft Science, 2022). Extended-range Twin-engine Operation Performance Standard or ETOPS is defined as “acceptable means…for two-engine airplanes to operate over a route that contains a point farther than one hour flying time at the normal one-engine inoperative cruise speed (in still air) from an adequate airport.” (FAA, 2019). Essentially, how far a multi-engine plane is allowed to fly from the nearest airport in case of an engine failure. Each model of aircraft is tested and given their own ETOPS rating, some are higher than others. The current highest rating is ETOPS 370, or 370 minutes of flight. “This maximum diversion time, of six hours and 10 minutes, is equivalent to a maximum diversion distance of 2,500 nautical miles” (Spray, 2025). To put that in perspective, you could fly from

MSP (Minneapolis St-Paul) to JAX (Jacksonville FL.) twice and still have 200 miles left over. Even if one engine is lost, there is nothing to fear as planes are tested, and designed to perform under such circumstances.

In addition to this, becoming a pilot is no easy task. Every individual regardless of their identity or background must go through the same training. The steps involved are intense and time consuming. To become an airline pilot, you must pass a first-class FAA medical exam. This exam covers your entire medical history, along with a physical examination to determine whether you are fit for flight. These exams are required every year. After this, you must decide where you will complete your flight training. Majority of people participate in a four-year bachelor's program where you will also conduct flight training and receive ratings. To become an airline pilot, you must acquire 6 different ratings (Certifications/licenses) and log a total of 1500 flight hours depending on the type of schooling (Thompsom, 2025). Just because you finally land your dream job as pilot does not mean that the training ends there. "Recurrent training is required by the FAA and airlines once or twice every year. It's a two or three-day session, with simulator rides and classroom work—and of course, tests" (Claiborne, 2021). While preparing for a flight, the FAA has a "am I fit for flight" personal health evaluation using the acronym IMSAFE, or Illness, Medical, Stress, Alcohol, Fatigue, and Emotion. Even going as in depth as suggesting to take 12-24 hours away from flying after going scuba diving (FAA, 2022 B). Becoming a pilot is no walk in the park. Because of this, only dedicated individuals who truly have a passion for their job become pilots. Along with this, the Faa makes sure that every pilot is in perfect health and mental clarity before beginning the flight. The combination of both maintains extreme professionalism and optimal performance when it comes to the humanized aspect of the job.

Furthermore, air traffic control (ATC) plays a crucial role in all commercial flights. ATC is separated into three different categories. Air Route Traffic Control Center manages all of the high-altitude traffic over a very large area. Approach and Departure Control guides every plane during their takeoff and climb, along with the final approach when they reach their destination. Finally, Airport Control Towers manage all ground traffic (Radu, 2024) By separating ATC operations into three categories, it becomes less cluttered, and operators can become experts at their respective area. A mind-boggling fact is that “Every day, FAA's Air Traffic Organization (ATO) provides service to more than 45,000 flights and 2.9 million airline passengers across more than 29 million square miles of airspace.” (FAA, 2022). Despite the strongly organized system and well-trained controllers, there is always room for improvement with everything when it comes to safety. The equipment and some tactics used are very outdated. This is because everything is very standardized and regulated meaning that “improving the ATC system is not a quick fix, and as Walsh noted, will take years, billions of dollars, and the efforts of many people.” (Husain, 2024). However, once these updates take place it could revolutionize ATC, further increasing the reliability and safety. With attention to detail and continuous monitoring, ATC maintains safety both in the air and on the ground by guiding planes with proper separation.

Lastly, maintenance and preflight inspections ensure everything is in perfect working order when the plane is ready for use. Continued Airworthiness Maintenance Programs (CAMP) are mandated thorough inspections of every plane in a company’s fleet. There are five different types of maintenance checks, line checks, A, B, C, and D. Each one progressively goes more in depth but are also scheduled at longer intervals. Line checks are the most frequent and the easiest, usually done at the gate after a plane is finished with their flight. Basic areas are covered “like wheels, brakes, and fluid levels (oil, hydraulics) during line checks” (National Aviation

Academy, 2020). D checks are the most in depth and can take up to 30,000 to 50,000 manual labor hours. These occur every six to ten years and involve opening the whole entire plane to check for damage and corrosion. With the nature of these checks, most airlines opt into refurbishing and upgrading the interiors (National Aviation Academy, 2020). A, B, and C checks come in between the two, covering new and overlapping areas. Besides the actual mechanics, pilots are also required to do a preflight inspection every time the plane is used. They will conduct a walk around of the whole entire aircraft checking doors, sensors, probes, lights, landing gear, control surfaces (ailerons, rudder, flaps), etc. They will then check each blade inside the engines to verify there is no visible damage to them. If everything checks off, then the plane is ready to fly (Surette, 2023). With constant inspections and scheduled maintenance, pilots and mechanics ensure optimal operating conditions for all mechanical aspects of flying.

Although commercial airlines remain one of the safest forms of travel; the news creates fear from negativity bias, and it will always triumph the thorough track record of safety. One final point that most people are unaware of is that turbulence is almost obsolete at causing an accident; even in the harshest conditions. Planes are designed to counteract it; the only thing that is affected is the comfortability inside. In the last sixty years, only three accidents were a result of turbulence (Resto NYC, 2023). With incredibly strict regulations, thorough training, safety implementations, air traffic control, and inspections, there is no reason that someone should fear flying commercially, especially the average joe like my mom. She is by no means a frequent flyer, maybe one to two flights every year. Based on statistics the likelihood of her being in an accident throughout her whole lifespan is almost zero. Over a nine-year period from 2013-2022, there were seventy-four accidents on commercial airliners in North America (eight of which

were fatal). Under the same parameters, there was a total of 67 million departures, leading to an accident rate of .91 and fatality rate of .1 per one million departures (FAA, 2023).

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