

Example of essay on what is stress

[Engineering](#), [Aviation](#)



According to Selye (1955) stress is defined as a condition which propels a unique body response in a manner that causes changes in physiological or structural aspects of our body. Another view proposed by (Lazarus, 1966) is that stress is a condition which compels an individual to feel exhausted when the demands of that person exceed the physical and social resources accessible to him.

Stress in Aviation

Pilots are really conscious at the time of their flights because accidents can happen with tragic repercussions. These accidents are a cause of series of mistakes committed at the time. Although the executor of mistake may only do one thing wrong, but due to stress, mistakes emanate unconsciously (Goode, 2003). Thus stress is the driving factor behind this domino effect. The only way to ensure safety in aviation is to foster conditions, through hard work and human factor studies, in which one mistake does not execute other one. All this hard work and human factor studies will be diverted towards identifying ways to reduce undue stress. In this regard, a few common factors to reduce stress have already been identified. These are physical factors which include having appropriate diet, consuming large amounts of water, taking rest and exercising to keep free from exhaustion and stress (Goode, 2003). Furthermore, there are mental factors too that hold equal importance. These factors may include being aware of what the job entails and having the skill and confidence to be able to meet those requirements with proficiency. There are many other studies conducted to identify the ways to reduce stress and physical and mental factors alone are

not sufficient to eliminate stress entirely. However these factors can be used to minimize the level of stress felt at work.

The growing concern

As mentioned earlier, there are many factors that lead to stress in aviation. One such factor of growing concern is the pilot schedules that can lead to fatigue and greater chances of accidents. This is the reason why Federal Aviation Administration (FAA) has taken a step in 1995 to establish stringent rules clarifying the job hours and the amount of rest that flight crew must undertake in order to liberate themselves of fatigue (Goode, 2003). These rules do not limit the duties that can be performed however they do emphasize on limiting the duty timings for adequate rest. The latter two are dependent upon the type of operation that has to be performed. Commercial flight crew members are currently limited to 30 flight hours per week for domestic operations and 32 flight hours per week for flag operations. For supplemental operations there is no limit imposed. For scheduled domestic operations, the limit is 1000 flight hours in any calendar year and for scheduled flag operations, the limit is also 1000 hours in any consecutive 12 calendar months. They all are entitled to 24 hours of rest per week no matter to which operation category the person belongs (Goode, 2003).

The Scientific Literature

Not only the current studies reinstate the importance of rest but there have been numerous studies in the past which emphasize the same point. For example the NASA Ames Research Centre conducted an in depth study on stress and concluded that the average amount of sleep in 24 hour day

should be 8 hours (International Labor Organization, 2000). Another article emphasizes that exhaustion, loss of sleep and disruption in the sleep cycle caused by the flight operations can impair performance, and safety (Rosekind, 2012).

Fatigue and Aviation Accidents

Time and again, stress has been seen as causing mistakes by pilots that can lead to aviation accidents. According to Rosekind (2012), in transport, exhaustion and stress can bring about approximately 20-30% accidents and in commercial aviation operations it contributes to 15-20% of accidents. This figure has derived out of the sources which claim that 70% of aviation accidents are caused by fatigue; such is the gravity of issue being discussed here. For example analysis reveals that the accidents of kalitta International at Guantanamo Bay, Cuba (1993), Korean Air at Guam (1997), American Airlines at little rock (1999) are just a few to be caused by human error due to fatigue (Rosekind, 2012). There are many more recent evident.

Pilot Stress

Source: (Rosekind, 2012)

Exhaustions and immense stress during flight timings is a causal factor in many accidents that take place. For example one incident happened on January 2, 1989. The scenario was tragic because the accident was inevitable yet the pilot was trying to dodge the direction of the plane towards the lake side area, once it was 200 feet about the ground level, to prevent it from collapsing on the residential area. The reason identified for this was the pilot had been on long hours of duty approximately 19 hours out of which he

spent 13 hours flying the plane and did get 12 hours of off duty yet he couldn't catch up on his lost sleep.

Sometimes, the fault is not personal. Fatigue may also arise because of a shift in the duty timings which doesn't coincide with the human's natural cycle of sleep. One such example, in August 1985, is of the crew of a Learjet who subconsciously led themselves into a tragic accident because they were too tired from a shift in their duty from FAR Part 135 to FAR Part 121 (Brandon, 2000).

Another incident took place on August 18, 1993 during the daylight time recorded at 1656 with Douglas DC-8-61 freighter whose registration number was N814CK and was registered to American International Airways. It was also known as AIA flight 808. The repercussions of flying in exhaustion were that the pilot lost control of the plane when approaching Naval Air Station, Guantanamo Bay, Cuba and the plane collided with the terrain a quarter mile before approaching the runway. Fire had caught up in the engine and serious injuries were registered. The committee established to work on the reasons of accident gave their final statement that it all happened due to the fatigue of pilot and flight crew. Their fault was in the incorrect decision made regarding when to begin the descent of the plane and maneuver its direction for it to approach runway safely. The second fault was attributed to the flying capabilities of the pilot for not being able to keep track of the air speed at which the descent should take place (National Transportation Safety Board, 1993).

In June 1999 a fatal accident on runway was caused in the American Airlines Flight number 1420 in which a McDonnell Douglas MD-82 overran accidentally

at the end of the runway. This caused damage and fatalities counting to 11 which included aircraft captain and numerous injuries were reported of approximately 145 passengers. Although the report has not been produced yet, it was expected that major cause of this accident was pilot fatigue (Brandon, 2000).

Loos of concentration and situational awareness resulted as an accident of KAL flight 801 in Guam August 6 1997. The difficult terrain was reported but the captain was highly experienced which does not satisfy terrain as the cause of accident. Pilot had been immensely stressed due to few hours of rest when prior to flying to Guam the pilot had flown from Seoul to Australia, back to Seoul, to Hong Kong, and then back to Seoul again before his deathly trip to Guam (Brandon, 2000).

A number of incidents support the pilots' worries. A few examples:

There have been a number of incidents posted in the (Flight Duty Times, 2013) that took place in the past and portray mistakes made due to the fatigue of pilot. These incidents arouse worry and concern among the pilots.

- The first incident is the one that took place on September 20, 2012 on a low cost Dutch flight from Crete to Holland. After the accident, an investigation committee was set up which discovered that after two and half hours into the flight, the captain left the cockpit to go to restroom. After he returned, he discovered that the cockpit was locked and despite of calling out, the copilot didn't respond. With the aid of crew members, the door opened to a sleeping pilot and a trackless aircraft.

- Another similar incident took place in 2011 with SAS aero plane. The only

difference was that no accident occurred.

- The other incident was the one that took place on May 5, 2012 with Air Berlin coming from Palma de Mallorca. When the airbus was near Munich airport, the pilots demanded automated landing due to the exhaustion experienced by both the pilots due to lack of rest.
- The fourth incident took place on February 12, 2010 with KLM international airlines at Amsterdam's airport when the plane accidentally left track of the run way and departed from the taxi way.
- The fifth incident took place with Northwest Airlines at October 22, 2009 when the aircraft flew ahead of their destination by approximately 150 mile and also lost contact with air control staff for about an hour. The pilot was told about the issue by a flight attendant.
- The last serious incident took place in 2007 when the aircraft exploded on the runway of Keflavik International airport. The reason was prominent. Immense delays at the previous airport had extended the crew's flight time by 17 hours and 20 minutes.

References:

Brandon, M. 2000. Guest Editorial: The Effects Of Fatigue On Performance And Safety. Available at <http://airlinesafety.com/editorials/PilotFatigue.htm> accessed 4/11/2013

Flight Duty Times, 2013. Accident reports. [online] Available at: [Accessed 2 November 2013]

Goode, H. J., 2003. Are pilots at risk of accidents due to fatigue?, Journal of Safety Research, pp. 1-5

International Labor Organization, 2000. Stress Prevention in Air Traffic

<https://assignbuster.com/example-of-essay-on-what-is-stress/>

Control. [online] Available at: [Accessed 2 November 2013]

Lazarus, R. S., 1966. Psychological stress and the coping process. McGraw-Hill.

National Transportation Safety Board, 1993. Air Craft Accident Report, Washington DC, 20594. Available at <http://www.flightdutytimes.eu/wp-content/uploads/2013/02/AAR94-04.pdf> accessed 4/11/2013

Rosekind, M., 2012. Human fatigue in aviation operations. [online] Available at: [Accessed 2 November 2013]

Selye, H., 1955. Stress and disease. *Science*, 122(2171), pp. 625-631

Tye, D., 2000. Aircraft maintenance and stress. [online] Available at: [Accessed 2 November 2013]

Tham, T., 1997. The air pilot's manual. Airlife Publishing Ltd

Transportation safety board of Canada, 2011. AVIATION INVESTIGATION REPORT

A11F0012. Pitch Excursion Air Canada Boeing 767-333, C-Ghlq North Atlantic Ocean, 55°00'n 029°00'w