THE ROLE OF CABIN CREW IN MITIGATING PILOT FATIGUE AND ENHANCING FLIGHT SAFETY

News / Airlines



Fatigue poses an important safety risk, especially in aviation, where tasks are conducted around the clock. Psychologist PhD John A. Caldwell noted that pilots' fatigue has been a top-of-mind issue for the National Transportation Safety Board since 1990. One of tragic fatigue examples is the crash of the 2010 Air India Express Flight 812 on arrival into Mangalore. Based on The Court of Inquiry India report, the aircraft cockpit voice recorder showed the captain had been asleep for most of the flight, for 1 hour and 40 minutes of the 2 hours and 5 minutes journey.

Fatigue may arise from numerous forms of causes, mostly including decreased alertness and reduced performance, that can jeopardize an individual's capabilities to operate safely. Exhaustion leads to slower reaction times and impaired concentration and decision making. Besides decreasing performance in-flight (chronic) fatigue has negative long-term health effects, such as sleep loss, extended time awake, and circadian phase irregularities.

Abdelmagid Bouzougarh, CEO of Aerviva commented: “Managing crew exhaustion is not just about guidelines. It is a severe problem that can have a detrimental effect on pilots’ health and the

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safety of the flight. Therefore, regulatory policies and compliance with fatigue management programs are vital to ensure the safety of every passenger and crew member. “In terms of pilot fatigue, cabin crew members can be considered as a first line of defense. A well-trained cabin crew can recognise the early signs of pilot fatigue, evaluate the situation and collaborate closely to ensure that the pilot does not experience any further irritations. It is also very important that airlines foster a culture where cabin crew feel encouraged to report any concerns about pilot fatigue."

What is fatigue?

ICAO defines fatigue as “a physiological state of reduced mental or physical performance capability, resulting from extended wakefulness that can impair a crew member’s alertness and ability to safely operate an aircraft or to perform safety related duties”. In other words, fatigue is a direct result of prolonged strenuous physical or mental effort. It occurs when the body’s resources are depleted at a greater rate than that at which they are being replaced.

Mental fatigue is mainly caused by time-on-task and cognitive load. In the aviation mental type and sleepiness have been mentioned as the most important form of fatigue. This type of fatigue may result from mental strain or mental stress, over stimulation and understimulation, as well as jet lag, boredom, lack of sleep, diseases and depression.

Fatigue can be physiological or subjective. The first one reflects the need for the body to replenish and restore. This condition may have a connection with the current health of the person, physical activity, circadian rhythms, and consumption of alcohol. It is very important to understand that in this case a person needs to rest properly. An individual’s perception of how sleepy they feel is defined as subjective fatigue. This form of fatigue is influenced by factors such as sleep deprivation and motivation levels.

The connection between fatigue and vigilance

According to Federal Aviation Administration, there are common effects associated with tiredness, such as increased reaction times, inability to make decisions, decreased alertness and situational awareness. Situational awareness ties in with vigilance, which refers to an individual’s ability to pay close and continuous attention to a field of stimulation for a period of time. When it comes to pilots, flight crew attentiveness is key. This involves being aware of and anticipating the stages of the flight, its development, weather conditions, communication with Air Traffic Control, and monitoring times and waypoints.

Long-haul pilots usually associate their fatigue with jet lag, caused by time-zone crossing flights, while short-medium-haul pilots associate their fatigue with the high operational demand during the flight duty period. The fatigued pilot may not easily accept an assessment of their degraded performance or be able to improve their performance despite increased effort. Even when feeling tired, a person tends not to link that directly with a loss of vigilance. Sometime people easily overrate their capacity. But often, reduced vigilance is shown by unwanted outcomes of decisions and actions.

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In the article “The impact of cognitive fatigue on airline pilots’ performance”, based on data from the European Cockpit Association (ECA), obtained through questionnaires applied to more than 6,000 European airline pilots, it is known that about 80% of them have to deal with fatigue in the cockpit. A significant part of the pilots has already fallen asleep unexpectedly (i.e. without notifying the other pilot beforehand) during a flight (*Nuno Quental, João Rocha, Jorge Silva, Lídia Menezes, Jorge Santos,* 2021).

According to BBC, aviation accidents are still extremely rare, but when they have occurred, figures show that 80% are a result of human error, with pilot fatigue accounting for 15-20% of human error in fatal accidents. In 2009 Colgan Air Flight 3407 crashed in Buffalo (USA), the cause of the accident was indicated as inadequate training, unnecessary conversation amongst aircrew during takeoff and landing, pilot flying after failing proficiency tests, and fatigue. Both pilots had long commutes and slept in the crew lounge, instead of a hotel before the flight.

Shared responsibility makes a significant difference

The main causes of pilot fatigue are the disturbance of circadian rhythms, continuous wakefulness, and cumulative sleep loss. But there are other factors such as length of a duty day, shift irregularities, multiple layovers, restricted time available for sleep, and even poor cockpit ergonomics.

Crew members are trained to identify the signs of exhaustion in teammates and encouraged to report their own tiredness before the flight. According to EASA, a crew member should not perform duties if they know, or suspect, that their personal state renders them unfit to operate, to the extent that the flight may be endangered. The collaboration and empathy between the crew members can reduce the risk of human error during the flight.

The cabin crew can help each other and pilots to avoid fatigue by cross-checks and monitoring, paying extra attention to their colleagues who seem to appear tired as they are intended to take more risky decisions, and their reaction time might be longer. During the flight the cabin crew can reassure that pilots do not experience dehydration by offering refreshments. Consideration should be given to caffeine intake, which can later affect sleep quality. A cabin crew shall not distract flight crew during controlled rest periods and avoid non-essential conversations during critical phases of the flight.

Fatigue can cause irritation, and mood changes can negatively affect the ability to communicate. Therefore, cabin crew shall support each other by taking over dealing with demanding passengers as tired teammate might have lower stress tolerance, impaired judgment and poorer communicational skills, which can lead to further conflict escalation.

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