



A longitudinal study on the alteration of consumer perceptions and the use of pilot medication



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ABSTRACT

In 2010, the United States' Federal Aviation Administration (FAA) approved the use of four antidepressant medications that could be prescribed to pilots on active flight duty, provided the pilot adhered to detailed policies and protocols. These medications were praised by many in the aviation community who were concerned with pilots underreporting mental health issues or engaging in self-medication. The purpose of this study was to complete a follow-up to a study, initially conducted prior to a 2015 Germanwings accident where a European commercial airliner crashed in an alleged case of pilot suicide. In the previous study, consumers were asked their willingness to fly when their pilot was taking various medications (fluoxetine, loratadine, ibuprofen or clonidine); and the findings suggest that the fluoxetine condition produces the lowest willingness to fly scores. The current study was replicated longitudinally in the weeks following the Germanwings accident. The findings of the current study reveal a significant drop in willingness to fly scores for the fluoxetine condition immediately after the accident; however, there is no significant change to the other medications. After 12-weeks, the fluoxetine condition returns to its pre-accident levels.

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1. Introduction

When passengers board a commercial airliner, there is an expectation that their pilots are not only certified to operate the aircraft but are also medically sound and fit for flight. Pilots must undergo medical examinations every 6–12 months to command commercial airline flights; however, there are a number of medical conditions that could revoke their medical flying credentials. In the past, a pilot suffering from depression would be grounded (removed from flight status). However, within the last five years, the FAA has allowed four antidepressant medications to be prescribed for commercial pilots and established a procedure for their proper use. A prior study (Rice et al., 2015b) examined consumers' willingness to fly depending on if their pilot was taking certain medications. The data was collected for that study two weeks before the Germanwings accident. The purpose of the current study is to examine if there is a hangover effect on consumers' willingness to fly after a major aircraft accident attributed to alleged pilot

suicide and how that would affect the findings of the original study.

1.1. Mental health and depression in the general population

Three hundred and fifty million people suffer from depression in the general population according to the World Health Organization (2012). More importantly, over 80% of those individuals with clinical depression remain undiagnosed every year (Healthline, 2015). Although there are some common factors leading to depression, there is no particular country, region, culture, or even age group more prone to this illness than others. Although depression can occur at any age, the median age of people suffering from this condition is 32 years (Depression and Bipolar Support Alliance, 2015). Extensive medical research has aimed to identify factors that could help people predict which individuals would be more susceptible to depression (National Institute of Mental Health, 2015). We know that a person's environment and surroundings can have a direct impact on their psychological state, and sudden or complex changes to such environments can lead to the onset of some forms of depression (National Institute of Mental Health, 2015). The most common symptoms of this disorder involve overarching feelings of sadness, hopelessness, pessimism, suicidal

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thoughts, and many more (Depression and Bipolar Support Alliance, 2015; National Institute of Mental Health, 2015). These symptoms have been substantiated by analyzing the areas of the brain, in depressed patients, that control mood, thinking, sleeping, appetite, and behavior, and comparing the results to patients not depressed. These issues may indirectly affect everyday activities such as sleep, fatigue levels, work efficiency, appetite, sexual interest, and can even affect interpersonal relationships (National Institute of Mental Health, 2015).

Not only is depression difficult to predict, but another difficulty arises in that there are numerous types of depression, and they manifest differently in different people. Furthermore, this type of psychiatric illness is not necessarily confined to one episode or instance and can re-manifest itself throughout various stages of life. While depression is treatable, it can reappear many years later when external pressures, stressors, or tragic life events trigger issues into resurfacing (Kendler et al., 2000). While depression can reappear many years later, or an individual may go for extended periods of time without suffering, some individuals may experience persistent depressive disorder. This disorder occurs when the depressed mood lasts for two or more years and includes times of major depressive episodes, as well as episodes with less severe symptoms. However, as previously stated, the illness is highly individualized and people may experience a wide range of severities, durations, and frequencies associated with depression.

Another form common amongst women who have just given birth is postpartum depression, which is the result of hormone imbalances that occur after pregnancy. Furthermore, another look at environmental factors suggest that the reduced amount of sunlight during winter months can also lead to a form of depression known as seasonal affective disorder (SAD). All these different types, manifestations, and symptoms of depression show the severity of the illness and the need for more research in the field. It also shows how diverse, and in turn, how difficult such a problem is to remedy.

1.2. Mental health in aviation

Despite their role of command and authority, pilots are humans and suffer from all conditions, both physical and mental, that affect the rest of the population. Stressors can come from either personal or professional realms. Working in the aviation industry produces extra stressors such as, varying schedules, time away from home, and jet lag, which are all unique to the aviation industry. However, there is no denying that pilots, along with others that work in high consequence industries, operate with an extremely small margin of error. It was not until 2010 that pilots suffering from depression were able to receive prescribed medication and remain on flight duty. This led to concern within the industry that pilots may not be reporting mental health issues so as to avoid being grounded and losing their livelihood (Bor and Hubbard, 2006). Cooper and Sloan (1985) and Raschmann et al. (1990) completed research that demonstrated that strong social networks at home can help minimize workplace stress among pilots.

While pilot suicide is rare, unfortunately, it is not unheard of in aviation. From 1991 to 2010 the word 'antidepressant' appears in 137 accident reports from the National Transportation Safety Board (NTSB). In most of these cases, the pilots failed to disclose on their medical application that they were taking antidepressants (Thurber, 2010). Unlike the United States, Australia has allowed pilots to fly with anti-depressant medications since 1987. In 2007, a study on pilots using prescribed anti-depressants was completed in Australia (Ross et al., 2007). The time period of this study was January 1993 to June 2004. The researchers did not discover any significant differences between control groups and medicated

groups of pilots in terms of the number of incidents or accidents. Also, no significant difference was found for the time period before or after the pilot started the antidepressant medication.

Sadly, in extreme cases, there are situations of pilot suicide. In the United Kingdom from 1970 to 1996, pilot suicide was noted between 0.72 and 2.4 percent in general aviation accidents (Cullen, 1998). Within the United States between 1983 and 2003, 37 accidents were attributed to pilot suicide in general aviation (Bills et al., 2005). Alcohol abuse was attributed to 25% of the accidents while illegal substance abuse accounted for 14% of accidents. At the commercial aviation level, an accident involving Egypt Air Flight 990, a Boeing 767, was determined by US authorities to be a case of pilot suicide, although this was disputed by Egyptian authorities. In 1997, an Indonesian carrier, Silk Air, had a Boeing 737 crash attributed to pilot suicide (Morse and Bor, 2006). More recently in March 2015, Germanwings 9525 crash in the French Alps was allegedly caused by pilot suicide (Brown et al., 2015).

Prior to 2010, the Federal Aviation Administration prohibited commercial pilots from being prescribed any type of anti-depression medication while on flight duty. Therefore, any pilot that was suffering from depression would be grounded, provided they admitted to the condition. A concern of this policy was that cases of depression in pilots were being under-reported (Bor and Hubbard, 2006). Pilots may refrain from discussing these issues with their aeromedical physician, receive treatment from a different physician and not report it on their aeromedical exam or self-medicate the condition. However, in 2010, the FAA revised their policy on anti-depressant medications and approved four types of selective serotonin reuptake inhibitors (SSRI) to be used by pilot on active flight duty. The four SSRIs were: Fluoxetine (Prozac), Sertraline (Zoloft), Citalopram (Celexa), and Escitalopram (Lexapro) (AOPA, 2010).

In allowing four SSRIs to be prescribed to pilots on flight duty, the FAA also implemented procedures for their usage. When a pilot is prescribed one of these four medications by an aviation medical examiner, the pilot must refrain from flight duty for a period of six months (FAA, 2015). The purpose of this waiting period is for the patient to accustom themselves to the medication and to ensure there will be no adverse and disqualifying side effects of the drug. After the six-month waiting period, and without any adverse side effects, the aviation medical examiner may approve the pilot's flight duty. Any issues of psychosis, suicidal ideation, electro convulsive therapy, multi SSRI use, or other psychiatric drug use by the patient would be disqualifying (FAA, 2015).

1.3. Social stigmas towards depression and mental health

Aviation safety is a major component of the airline industry, and an area of research that many professionals are working hard to improve. Airline crashes, although tragic, can be useful in identifying the flaws in the system. In most cases, investigators find pilot error to be the major cause of accidents rather than mechanical error. This leads to studies being conducted on pilot behavior in the cockpit and passenger perceptions of their pilots. Prior to a recent accident involving a Germanwings passenger jet, a study (Rice et al., 2015c) examined how an airline passenger's level of trust during flight changes as they interact socially with their pilots. As defined by Cheek and Buss (1981), sociability is "a tendency to affiliate with others and to prefer being with others to remaining alone" (p. 330). In this specific study, sociability was observed in two categories: introverts (unsociable) and extroverts (sociable). Introverts are reserved and tend to avoid social situations, while extroverts are much more outgoing and enjoy social settings (Winter and Rice, 2015). Researchers created a hypothetical scenario in which passengers overheard flight attendants discussing

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