

# Factors Contributing to Heightened Anxiety in Airline Pilots During the COVID-19 Pandemic

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## ABSTRACT

This study analyzed the specific effects that the COVID-19 pandemic has had on the mental health of airline pilots. Using an exploratory research methodology, the researcher sent a self-designed questionnaire to seventeen (17) currently registered pilots that flew before, during, and after the pandemic. The intent of the survey was to measure anxiety levels and explore causes of anxiety. The results showed that there were three (3) common causes of post-pandemic anxiety: lack of job security, decreased social interactions, and lack of control. This study analyzed mental health, which is less commonly talked about within the aviation industry. Future research should continue to explore the impacts of the COVID-19 pandemic on airline pilots, and how to manage a comparable situation again in the future.

## **Introduction**

Many aspects of being a pilot can pose challenges, such as being responsible for a large piece of machinery, as well as the lives of fellow passengers on board (O'Hagan et al., 2016). As a result of these circumstances, many pilots experience levels of depression and anxiety during the time that they fly (O'Hagan et al., 2016). Over the last few years, the COVID-19 pandemic has affected numerous businesses as well as many people's mental health, and pilots are no exception. During the pandemic, it was found that the revenue of the aviation industry "plummeted by 55 percent, setting the sub sector back, in nominal terms, 16 years—to 2004" (Bouwer et al., 2022). Along with the industry being impacted by quarantine, when these pilots were quarantined for ten weeks or more, it was found that 28.3% of pilots reported moderate depression symptoms while 12.5% reported severe symptoms (Stadler, 2022).

Many people around the world may have felt symptoms of anxiety at some point during the pandemic, especially during the lockdown periods. Anxiety is a feeling of unease, fear, or worry that can either be mild or severe (NHS, 2022). With the restriction of travel around the world, numerous pilots were losing their jobs (Staff, 2022). This in turn caused career insecurity, with the constant uncertainty that they would never be able to return to the career that they had spent so long building for themselves. Aside from the fear of losing their jobs, the isolation away from their regular way of life proved to be a large contributor to the stress and anxiety that many pilots experienced during the COVID-19 pandemic (Trevino, 2023).

There is a problem with anxiety levels experienced by pilots, more so due to the repercussions felt from the COVID-19 pandemic and its effects on the aviation industry. Although there has been research done on the mental effects of cabin crew and pilots working long hours, many pilots "wouldn't disclose a mental health issue to their employer because of the stigma and fear of losing their license and perhaps losing their salary" (Carroll, 2021). This problem has negatively impacted on pilots as it is not only hurting them mentally but is ultimately affecting their work performance. Some possible influences are the COVID-19 pandemic, work-related stressors, the nature of the career, and the personal life of pilots; however, because of the COVID-19 pandemic, some new factors contributing to anxiety

may have arisen that were not previously identified. This study analyzes several factors that may have contributed to heightened anxiety among airline pilots due to the COVID-19 pandemic.

## Literature Review

### General Anxiety of Pilots

From being in a cramped cockpit to long working hours resulting in less sleep, mental health among pilots has become of growing interest due to increasing evidence showing how it is being affected (O'Hagan et al., 2016). While almost everyone in the world experiences anxiety from their jobs, the increased stressful work environments paired with unpredictable sleep schedules prove to be a breeding ground for multiple mental health issues for pilots, with many experiencing worker fatigue and sleep disturbances (O'Hagan et al., 2016). For starters, many pilots working in the industry may feel a conflicting desire to both satisfy their passengers as well as their management; however, it is nearly impossible to satisfy both all the time (Flight Safety Management, 2023). If the pilot rushes through checks and completes all tasks necessary to satisfy everyone, they will undoubtedly experience frequent elevated levels of stress. This may lead to increased risks of making mistakes that could result in the higher probability of an accident (Flight Safety Management, 2021-2023). On the other hand, if they choose to be thorough, there could be a delay, risking threats from management (Flight Safety Management, 2023).

Along with being responsible for their own lives, airline pilots are also required to safely manage a multi-million-dollar piece of machinery containing hundreds of other lives. With all of this at stake, "the mental health of commercial airline pilots has been found to influence flight performance," which could in turn pose a major risk (O'Hagan et al. 2016, p. 109). Due to a combination of their expectations to perform their jobs flawlessly while simultaneously pleasing customers and management, and even during a pandemic, pilots' anxiety levels have increased greatly in recent years.

### Stigma Surrounding Pilots' Mental Health

Since the start of the piloting profession, there has been a stigma around talking about mental health issues because of the fear of losing one's job. However, Barajas from *FlyingMag* stated that when pilots report issues relating to their mental health, "while there might be short-term repercussions as it is related to your medical certificate, that's how you can ensure that your health can be a tool for your long term [wellness]" (Barajas et al., 2022, para 16).

It has become increasingly accepted recently for pilots to seek either medical or therapeutic help when they experience mental health issues. It has been proven that talking to a therapist helps develop coping skills as well as providing supportive company (Barajas et al., 2022). For one to be evaluated for a mental illness, a doctor's appointment is required to assess the severity, and if there is a presence of the mental illness altogether.

For most pilots, this step of seeking out medical help for mental health issues is just simply not an option, not even in secret, because failure to report any health professional visit can result in significant fines (Barajas et al., 2022).

The FAA (Federal Aviation Administration) requires all pilots obtain an FAA medical certificate, deeming them physically and mentally fit to be trusted to safely fly an aircraft. Deficiencies such as color blindness or bipolar disorder can automatically disqualify someone from obtaining an FAA medical certificate (Barajas et al., 2022). Although pilots can obtain their certificate initially, if they show signs of severe anxiety or depression, there is a chance that their employer may ground them (suspend their flying privileges) for fear that they could be unsafe in the aircraft or around their coworkers. From one study completed on 1,000 pilots, it was found that 80% experienced moderate

burnout along with 18% that experienced moderate depression (Carroll, 2021). Out of all who were surveyed, “more than three quarters of the respondents said they would not disclose such issues to employers,” presumably due to fear of negative repercussions (Carroll, 2021). This is yet another unforeseen consequence of pilots admitting their need for mental health counseling- a stigma in the industry that must be addressed and fixed to help pilots cope with anxiety long-term.

## Mental Repercussions of the COVID-19 Pandemic

It is universally known that the COVID-19 pandemic has impacted the mental health of so many people. Staying quarantined indoors for months on end caused many people to lose touch with the outside world as well as the things that kept them upbeat and happy, like seeing friends and even possibly, their career. One possible explanation as to why many adults experienced greater levels of anxiety and stress during the pandemic would be because they were simply interested in accessing information about it, thus becoming more anxious as the situation worsened (Tudorel et.al., 2022).

Along with the general population being affected, “those most exposed to infection, such as healthcare workers, are at risk of succumbing to immense mental pressure” (Saeed et.al., 2022, p.19). Many people reported feeling symptoms of depression, anxiety, post-traumatic stress, and even suicidal thoughts (World Health Organization, 2022).

During the pandemic, researchers observed that “disruptive and unpredictable pandemic circumstances may increase distress levels in many individuals, at least temporarily” (Penninx et.al., 2022, p. 2028). A sudden stop in routine also caused many people to turn to unhealthy coping mechanisms, such as excess alcohol consumption, which may worsen symptoms of depression or anxiety overall (Drinkaware, 2023).

## Description of Research Study

### Methodology

The aim of this research study was to find the common contributors to pilots’ mental health over the course of the pandemic, as well as after it ended. Previous research on the mental health of pilots has been conducted using surveys, which enable it to be sent to large volumes of people, as well as to keep the participants’ confidentiality as many pilots may be hesitant to answer mental health-related questions for personal reasons. However, there can be a low response rate when sending out a survey to large groups of people. An instance of this can be seen in a study done in 2016 by O’Hagan along with other researchers, looking to explore the relationship between sleep and depression/anxiety of pilots while they are working.” A total of 2,186 European-registered commercial pilots’ email addresses were obtained...of the distributed surveys, 701 were fully completed, representing a 32% response rate” (O’Hagan et.al., 2016).

Considering the results from the study conducted by O’Hagan, the researcher of this study used the snowball sampling method as well as convenient sampling to obtain enough responses. For snowball sampling, the researcher sent the survey to five unique connections within the aviation industry in hopes that it would get passed on and around other professional connections. This sampling method was shown to be the most effective to get responses as it is hard to access pilots who are willing to participate in the study when not personally engaged with them. Along with snowball sampling, convenience sampling was used. The researcher sent out eighty-five inquiries to currently registered pilots. Combined from both sampling methods, the questionnaire was given to one hundred pilots.

The method used for this study was exploratory research. To answer the research question, the aim of this

study was to find the main, common contributors to the heightened anxiety of pilots because of the pandemic. If the smaller, less recognizable sources of stress and anxiety can be acknowledged, it may be easier for mental health professionals to help pilots become more comfortable talking about these less acknowledged issues. This research study was reviewed and approved by the Singapore American School Institutional Review Board (IRB).

To identify these factors, the researcher sent out a self-designed survey to one hundred pilots. The researcher of this study collected and analyzed data from survey responses from seventeen currently registered commercial airline pilots, who flew before the COVID-19 pandemic, and who are flying again after the COVID-19 pandemic, providing the researcher with a 17% response rate. The survey began with a consent form (see Appendix A), informing the participants about the study, how they would remain anonymous, and requesting their informed consent at the very end. If the participant selected 'no' under the question asking for their informed consent, the survey would be concluded. If the participant selected 'yes,' they would be redirected to the rest of the survey containing the remainder of the questions.

Once the consent form was complete, the participant was directed to enter their demographic information. The questions (see Appendix B) that followed were formulated to both understand anxiety levels and to gauge the reasons as to why they may have had these feelings. The level of anxiety was measured using a likert scale under the DSM-5 (Diagnostic and Statistical Manual of Mental Disorders) criteria, which is used by medical professionals to measure the severity of symptoms of anxiety and other mental disorders (American Psychiatric Association, 2023). The DSM-5 scale is used primarily by professionals who are determining whether their patients experience an anxiety disorder. It contains common symptoms that one with anxiety may experience. There were three identical likert scales, one in each section. Each scale was used for measuring average anxiety level before the pandemic, during the pandemic, and after the pandemic. The likert scale was from one to ten, with one meaning 'felt no anxiety' and ten meaning 'felt extreme anxiety.' Following each likert scale, open-ended questions were aimed at exploring the causes for their varying levels of anxiety. Participants were encouraged to answer as honestly as possible. Following the open-ended questions regarding their anxiety, they were asked about their sleep patterns.

## Results

After all data was collected, the researcher narrowed all responses down to common factors found with the use of inductive coding. Throughout this process, the researcher sorted the data into categories by factor. The three common factors found were (1) lack of job security, (2) decreased social interaction, and (3) lack of control. The results found do not represent all airline pilots. The results can only be used to draw conclusions about the pilots who were surveyed. Each of these three factors were represented the most throughout the results.

### Lack of Job Security

Of the seventeen pilots who provided survey responses, seven expressed that they felt more anxious during the pandemic as opposed to before the pandemic because of the uncertainty of the aviation industry, as well as the lack of job security. Participant #2 specified in their answers that they felt a "lack of job security" as well as saying that "the unknown of the future increases anxiety that may affect day to day" life. With passenger airlines shutting down the pandemic, participant #10 expressed their "uncertainty [is] of cargo operations would be able to continue as passenger operations nearly ceased and if I would be able to continue working and receiving a paycheck." A few pilots specified that with the anxiety of job security came the thought that they might not be able to provide for their family or receive a salary. "Not knowing how I was going to be able to provide for my family, as well as trying to find a new job and preparing multiple job applications," stated participant #7 when asked why they felt anxious during the pandemic. Similarly, participant #13 said that "you can't financially plan" and participant #14 said that they felt a "loss of salary"

because of the pandemic. The lack of job security in the past also caused multiple pilots to envision how they see their career playing out in the future. Participant #2 stated that “the pandemic caused us to think about work differently where it could be taken away at any moment.” Likewise, participant #10 made a comment saying, “there is still a lingering thought of delicacy of the job in which conditions exist that could affect my job security to such an extreme level.”

Table 1 presents results from several participants, and the quotes that they provided about their feeling of the lack of job security.

Table 1: Participant Quotes Pertaining to Lack of Job Security

PARTICIPANT	QUOTE
Participant #2	"Lack of job security."
	"The unknown of the future increases anxiety that may affect day to day."
	"The pandemic caused us to think about work differently where it could be taken away at any moment."
Participant #7	"Not knowing how I was going to be able to provide for my family, as well as trying to find a new job and preparing multiple job applications."
	"Threat of losing my job."
Participant #10	"Uncertainty if cargo operations would be able to continue as passenger operations nearly ceased and if I would be able to continue working and receiving a paycheck."
	"There is still a lingering thought of delicacy of the job in which conditions exist that could affect my job security to such an extreme level."
Participant #13	"Instability of the industry."
	"You can't financially plan."
Participant #14	"Loss of salary."
Participant #15	"Instability of the industry."
	"Lack of consistency from company management."
Participant #16	"Unsure of job future."

Table 1 also shows the number of pilots surveyed that articulated that they felt anxiety during the pandemic due to their perception of the lack of job security. This was by far the most significant factor of the three. It was a common cause for anxiety among most pilots, not limited to their age group, position, or experience.

As previous research has determined, the pandemic did not only impact airline companies, but also directly impacted each pilot individually.

### Decreased Social Interactions

Out of the seventeen pilots surveyed, three pilots commented on the fact that they felt more anxious and stressed due to the decreased social interactions they experienced. The first category pertained to layovers and quarantine procedures in different countries. The first participant to express this – participant #4, said that “being locked up in hotels around the world and not being able to go outside had an effect on my mental health.” Participant #12 said something

similar, saying “we had to stay in our hotel room for the duration of our layovers.” The second category of quotes talked about how these limited amounts of interaction with their coworkers and others impacted their mental health. “Exercise and socializing are important for my well-being and being quarantined on almost every international layover was tough,” stated participant #4. Participant #9 said that “being social during stressful times helps a human get through anxiety and difficult situations.”

Table 2 presents each participant and their quotes about how decreased social interactions caused them to feel higher levels of anxiety.

Table 2: Participant Quotes Pertaining to Decreased Social Interactions

PARTICIPANT	QUOTE
Participant #4	"Being locked up in hotels around the world and not being able to go outside had an affect on my mental health."
	"Exercise and socializing are important for my well-being and being quarantined on almost every international layover was tough."
Participant #9	"Hotel lockdowns."
	"Being treated like you were diseased."
	"Not being able to be social."
	"Being social during stressful times helps a human get through anxiety and difficult situations."
Participant #12	"We had to stay in our hotel room for the duration of our layover."

Although there were only three participants that stated that decreased social interactions caused them to feel higher levels of anxiety, the impact of decreased social interactions has an extremely harmful effect on the mental well-being and work performance of many pilots. Particularly with participant #4 and participant #9 elaborating on it more than once proves that it was not a small factor, it had a greater impact on them than some of the other factors did.

### Lack of Control

Out of the seventeen pilots surveyed, four pilots said that one of the reasons why they felt higher levels of anxiety during the pandemic was because of the lack of control that they had over situations within the pandemic. Two participants highlighted how they tried to focus on things that were under their control rather than things out of their control. “There are many aspects in aviation and life that are in your control. Rather than focusing on issues outside of your control, focus on what you can control,” stated participant #4. In addition, participant #7 said that “I have found that identifying and mitigating the threats that I have some sort of control over. While not worrying about those which I do not have led to a lot less stress.” The other two participants talked about how they felt a lack of control over the situation pertaining to scheduling and COVID-19 procedures in other countries. Participant #15 explained this in two instances, where they felt more anxious due to “unknown factors and constantly changing procedures for entering foreign countries,” as well as “unknown conditions of quarantine facilities.” Participant #16 talked about schedule changes, saying “schedule changes constantly because of large schedule changes pre and during trip,” which “made me less focused on flying and more focused on uncertainties.”

Table 3 presents each participant and each of their quotes about how lack of control within their job caused them to feel higher anxiety.

Table 3: Participant Quotes Pertaining to Lack of Control

PARTICIPANT	QUOTE
Participant #4	"There are many aspects in aviation and life that are in your control. Rather than focusing on issues outside your control, focus on what you can control."
Participant #7	"I found that identifying and mitigating the treats that I have some sort of control over. While not worrying about those which I don't, has led to a lot of stress."
Participant #15	"Unknown factors and constantly changing procedures for entering foreign countries."
	"Unknown conditions of quarantine facilities."
Participant #16	"Schedule change constantly because of large schedule changes pre and during trip."
	"Made me less focused on flying and more focused on uncertainties."
Participant #17	"With regard to COVID, I did not want to bring home illnesses to my family and friends, or make my coworkers sick."
	"If you chose to go to work you had literally no control over this."

Lack of control regarding career decisions was very prevalent and common within the responses from the participants. A significant percentage of the participants surveyed felt this, proving it to be more than a minimal disturbance to their mental health. The unknown and constantly changing procedures pertaining to the COVID-19 pandemic added on to the pre-existing stress felt by the participants.

## Discussion

The aim of this exploratory study was to find the most common factors that contributed to the heightened anxiety level of pilots due to the COVID-19 pandemic.

### Anxiety From Uncertain Job Conditions

The first and most common factor among the participants was the lack of job security that they felt throughout the pandemic. Seven pilots expressed that they experienced a lack of job security; however, they articulated it in diverse ways. The first expression of it was that there was uncertainty within the aviation industry. Participant #2 stated that “the unknown of the future increases anxiety that may affect day to day” life. Many pilots were on edge about whether they were going to be keeping their job, as the airline industry was continuing to cease throughout the pandemic. It was found that the revenue of the aviation industry “plummeted by 55 percent, setting the sub sector back, in nominal terms, 16 years—to 2004” (Bouwer et.al., 2022). Along with passenger airline pilots facing the threat of losing their jobs, this fear was rippling through the rest of the industry, including cargo pilots. Participant #10 expressed their “uncertainty of cargo operations [and if they] would be able to continue as passenger operations nearly ceased and if I would be able to continue working and receiving a paycheck.” Many passenger planes were grounded, while cargo pilots continued to fly, to help deliver goods and medical supplies around the world (Bryan, 2021).

The lack of job security planted the idea in many pilots' heads that they might not be able to get a salary or provide for their families; "33% of pilots are still grounded due to COVID-19" (Staff, 2022). This gave the rest of the industry a pause that they might also lose their jobs. "Not knowing how I was going to be able to provide for my family, as well as trying to find a new job and preparing multiple job applications," stated participant #7.

The "disruptive and unpredictable pandemic circumstances may increase distress levels in many individuals, at least temporarily" (Penninx et.al., 2022, p. 2028). This factor of lack of job security was by far the most common cause for anxiety among the participants surveyed as it was a universal experience, it was not specific to the job position, or age, this affected all pilots who were expected to fly during the pandemic.

## Anxiety in Interpersonal Relationships

The second factor that was found to have affected the anxiety of the pilots surveyed was the decreased social interactions that they had during layovers. When pilots have layovers in between each flight, that is typically the time that they have to socialize with the rest of their crew as well as going out and getting a bit of a break from the stressful environment of the cockpit. However, during the pandemic, the pilots that were able to fly were required to quarantine in hotels and obey the pandemic procedures of every country they visited, which meant that they had no way to destress from work each day. Some of the pilots expressed how it felt to be stuck in their hotel rooms from the time they landed to the time they took off again. Participant #4 said that "being locked up in hotels around the world and not being able to go outside had an effect on my mental health." It has been proven that the health quarantine was an environment that negatively affected people's mental health (Alfai et.al., 2022).

The other pilots that talked about the decreased social interactions talked specifically about how it impacted them and their mental health. They talked about how being social with other people during their layovers really helped to alleviate some of the common stressors of being a pilot. Participant #4 specified, saying "exercise and socializing are important for my well-being and being quarantined on almost every international layover was tough." Socializing not only increases happiness on the outside, but it also impacts hormone levels. "Socialization increases a hormone that decreases anxiety levels and makes us feel more confident in our ability to cope with stressors" (MentalHelp.net, 2015). With the lack of socialization during layovers to help deal with the anxiety of being in the cockpit, pilots do not have a way to escape the environment of the work. "Being social during stressful times helps a human get through anxiety and difficult situations," says participant #9. Forcing someone into constant quarantine and solitude can lead to many physical and mental issues, including anxiety, depression, as well as poor cardiovascular health and cognitive function (Trevino, 2023).

Although this factor of decreased social interactions is more centered on the down time of pilots in between flights, many pilots expressed that it was something that really impacted their work ethic, as well as how anxious they felt for future flights.

## Anxiety From Industry Unpredictability

The third most common factor that contributed to the anxiety of pilots was the lack of control throughout the entirety of the pandemic. Out of the participants that answered the survey, two highlighted how they were trying to focus on things that they were in control of, instead of things that they were not in control of, since that was something that caused them excessive amounts of anxiety. Participant #7 said that "I have found that identifying and mitigating threats that I have some sort of control over. While not worrying about those which I do not has led to a lot less stress." Although pilots had control over how their plane flew, they did not have much control over their schedules or quarantine procedures in the different countries. The increased stressful work environments paired with unpredictable schedules proved to be a perfect environment for multiple mental health issues to worsen for many pilots (O'Hagan



et al., 2016). Participant #15 explained that they felt more anxious due to “unknown factors and constantly changing procedures for entering foreign countries.” This gave many pilots more things to worry about on top of their normal working procedures. They were required to provide negative COVID-19 tests as well as any other requirement needed for entering foreign countries. Adding on, participant #16 said that “schedule changes constantly because of large schedule changes pre and during trip,” which “made me less focused on flying and more focused on uncertainties.” Clinical and aviation psychologist Dr. Gill Green says that “one of the downsides of the phenomenon of human consciousness is our ability to worry about the future...when our certainty is challenged our stress-response is triggered and anxiety increases” (Writer, 2020, para. 6). These pilots were worried about the future regarding COVID-19 procedures and requirements, causing general anxiety regarding their career to increase.

Even though many pilots already feel a lack of control daily with unpredictable sleep and flight schedules at times, the pandemic added another layer of uncertainty, making it one of the primary reasons why pilots felt more anxiety during the pandemic.

## Conclusion

In this study, the researcher aimed to find the common factors that caused heightened anxiety levels of airline pilots due to the COVID-19 pandemic. After in-depth analysis of the responses given by each participant, it has been found that isolation and career insecurity posed as the leading causes of why many airline pilots experienced higher levels of career-related anxiety during and after the pandemic. This finding answers the initial research question as it provides the specific factors which can be linked back to the pandemic. The findings of this study demonstrate that further research is needed on how to support the mental health of pilots as well as how to train future pilots on how to cope with common career-stressors.

## Limitations

Since this data was collected via an online survey, there were some limitations that may have impacted the results. The first could have been that the participants had a social desirability bias, where they filled out each question how they think the experimenter would want it to be answered. They may have also answered the questions in a way that would sound socially acceptable. This would mean that the participants may have been slightly dishonest with their answers. Since the questionnaire was completely optional, another limitation that the experimenter kept in mind was that only people who felt that they had something to say would fill out the survey. This in turn, may have skewed the results for pilots who felt greater anxiety. The final limitation was that the survey was not sent out to pilots who quit their jobs due to the anxiety caused by the pandemic. The survey was only sent to people who had moderate to elevated levels of anxiety, as opposed to people who had extreme anxiety, causing them to quit their jobs.

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