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The Impact of COVID-19 on the Aviation Industry in Somalia: Challenges, Opportunities and Recovery Strategies

By

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Approval

The jury members certify that the study conforms to acceptable standards of scholarly presentation and is fully adequate in scope and quality as a dissertation for the degree of the Master of Science in Aviation Management.

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DECLARATION

I hereby declare that this work is entirely original and has not been submitted for any academic degree or award at any university or higher-learning institution. This was entirely the result of my own efforts, and I have been guided by **Dr. Melih Mahmut Başdemir**.

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Abstract

Background: The COVID-19 pandemic has significantly disrupted the global aviation industry, leading to the cancellation of major international conventions, uneven lifting of travel restrictions, and the reestablishment of connections between nations and global trade networks. These disruptions have raised concerns among experts regarding the revival of business travel. This study aims to assess the impact of COVID-19 on the aviation industry in Somalia, focusing on the challenges faced, opportunities available, and strategies for recovery.

Methods: This study was conducted using a cross-sectional design that takes into account the information on the impact of COVID-19 from to 2019-2020 in Somalia. The samples were gathered from Somalia aviation workers following the census method through the distribution of survey questionnaires to key stakeholders in Somalia's civil aviation industry through Google Forms. Means and frequencies were used to describe the variables, and data were presented using graphs, charts, and frequency tables. The chi-square test was used to evaluate whether there was a relationship between the variables (p-value <0.05).

Results: The survey indicated that 97.2% of the aviation sector was affected by COVID-19, with significant impacts on income, professional losses, flight delays, and a decrease in passenger numbers. About 77.8% of respondents reported that the sector had recovered from the pandemic's effects, while 22.2% indicated ongoing challenges. A statistically significant association was found between recovery and factors such as age, professional experience, and monthly income of aviation employees ($p < 0.05$).

Conclusion and Recommendations: The research findings indicate that the aviation industry in Somalia has not yet fully recovered from the effects of the COVID-19 pandemic. Therefore, it's imperative that the government and leaders in the aviation industry take concerted action to mobilize available resources and devise comprehensive strategies to address the current challenges and facilitate recovery.

***Key words*:** COVID-19, Aviation, recovery, challenges, opportunities

ÖZ

Arka plan: COVİD-19 salgını, küresel havacılık endüstrisini önemli ölçüde sekteye uğratmış, büyük uluslararası sözleşmelerin iptal edilmesine, seyahat kısıtlamalarının dengesiz bir şekilde kaldırılmasına ve ülkeler ile küresel ticaret ağları arasındaki bağlantıların yeniden kurulmasına yol açmıştır. Bu aksamalar, uzmanlar arasında iş seyahatlerinin yeniden canlanmasına ilişkin endişelere yol açtı. Bu çalışma, karşılaşılan zorluklara, mevcut fırsatlara ve iyileşme stratejilerine odaklanarak, COVID-19'un Somali'deki havacılık endüstrisi üzerindeki etkisini değerlendirmeyi amaçlamaktadır.

Yöntemler: Bu çalışma, Somali'de 2019-2020 yılları arasında COVID-19'un etkisine ilişkin bilgileri dikkate alan kesitsel bir tasarım kullanılarak gerçekleştirildi. Örnekler, Somali'nin sivil havacılık endüstrisindeki kilit paydaşlara Google Formlar aracılığıyla anket anketlerinin dağıtılması yoluyla sayım yöntemi izlenerek Somalili havacılık çalışanlarından toplandı. Değişkenleri tanımlamak için ortalamalar ve frekanslar kullanılmış ve veriler grafikler, çizelgeler ve frekans tabloları kullanılarak sunulmuştur. Değişkenler arasında ilişki olup olmadığını değerlendirmek için ki-kare testi kullanıldı (p değeri <0,05).

Sonuçlar: Anket, havacılık sektörünün %97,2'sinin COVID-19'dan etkilendiğini, gelir üzerinde önemli etkiler, mesleki kayıplar, uçuş gecikmeleri ve yolcu sayılarında azalma olduğunu gösterdi. Katılımcıların yaklaşık %77,8'i sektörün salgının etkilerinden kurtulduğunu belirtirken, %22,2'si zorlukların devam ettiğini belirtti. İyileşme ile havacılık çalışanlarının yaşı, mesleki deneyimi ve aylık geliri gibi faktörler arasında istatistiksel olarak anlamlı bir ilişki bulundu ($p < 0,05$).

Sonuç ve Öneriler: Araştırma bulguları Somali'deki havacılık sektörünün henüz Kovid-19 salgınının etkilerinden tam olarak kurtulamadığını göstermektedir. Bu nedenle, hükümetin ve havacılık endüstrisindeki liderlerin mevcut kaynakları harekete geçirmek ve mevcut zorlukları ele almak ve toparlanmayı kolaylaştırmak için kapsamlı stratejiler tasarlamak için ortak eyleme geçmesi zorunludur.

ABBREVIATIONS

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CHAPTER 1
INTRODUCTION

1.1 Background

The aviation industry has experienced several major economic and natural disasters over the past 20 years, including influenza outbreaks, the September 11th terrorist attacks, and ash clouds resulting from the Indonesian volcano. Despite these challenges, the industry was affected by each of these shocks. Another example of such a shock is the COVID-19 pandemic, an infectious disease that can be transmitted from person to person, as announced in Wuhan, China, in December 2019.The pandemic has spread globally and caused global problems. The global aviation sector has been severely affected by the COVID-19 pandemic. The pandemic has significantly influenced several aspects of the travel and tourism industry, including various locales, industries, and subsectors (Škare et al., 2021). Although the severe lockdown measures implemented by several nations may have caused the initial shock of the outbreak to be consistent across economies (Ali, Bhuiyan, Zulkifli, & Hassan, 2022), the reality remains that the pandemic spread. When the pandemic was at its worst, various governments and nations attempted different strategies to combat it (Ali et al., 2022). The aftermath of the COVID-19 pandemic has been addressed differently in each country and territory owing to varying levels of susceptibility and resilience. Moreover, the pandemic had an impact on the routines and patterns of movement of tourists, and affected economies globally (Bhaduri, Manoj, Wadud, Goswami, & Choudhury, 2020). This situation was exacerbated by the wave of lockdowns and the resulting anxiety experienced by the frequent fliers (K. Dube, 2022). The pandemic also led to a significant increase in virtual events, coinciding with the rise of the internet. Consequently, the long-term implications of these travel trends are mostly negative.

The aviation industry in Somalia faces several challenges including a substantial decrease in passenger demand, restrictions on international travel, operational constraints, and financial strain on carriers. The number of passengers has significantly decreased as a result of the closure of airspace, the imposition of quarantine laws, and the distribution of travel advisories. This has had an impact on the financial stability of airlines and the service providers that work with them. In addition, the sector needs to make significant investments to adapt to the new standard of air travel and solve issues with health, safety, and regulatory uncertainty.

The COVID-19 epidemic has had a major negative impact on the aviation sector, which has a big social impact. There are fewer job prospects and job losses as a result of the airline operations coming to a standstill due to the decline in passenger traffic. The pandemic also affected passenger behavior, which resulted in the topic of air transportation being studied from a variety of angles (Barczak et al., 2022).

The pandemic also affected public transit, as many people opted to drive and ride their bikes instead of cramming into overcrowded buses. As a result, the number of customers using public transit decreased, which would have negatively impacted their revenue (Almlöf et al., 2021). The pandemic has had, and continues to have, a profound effect on society.

1.2 Statement of the Problem

As a result of the COVID-19 vaccine's release in late 2020 and early 2021, more people are planning trips all over the world, giving tourists hope (Williams et al., 2022). The application of COVID-19 health and safety standards was noted concurrently with a decline in COVID-19 infections. This has led to increased optimism for a fresh start and recovery in numerous industries, including tourism, which is crucial for the world's economic revival (Gursoy et al., 2021). However, the rollout of vaccines revealed that recovery would be challenging owing to the pandemic's additional impacts and the gradual reopening of most locations. The aviation industry, which is highly dependent on globally connected networks, has been severely affected by this change in travel habits. Airlines have had to adapt to a new reality, the so-called new normal, as the pandemic has altered their route networks and aircraft (Deveci et al., 2022). Early in the pandemic, it was anticipated that the COVID-19 disruption would bring about new challenges and chaos for the aviation and tourism industries, which they had to confront. Given the aviation industry's current difficulties in recovering from the effects of COVID-19, this study aimed to investigate the sector's impacts, challenges in recovery, and potential opportunities. This study is crucial because it provides a roadmap and predicts the future direction of this important economic force.

Due to the cancellation of major international conventions and exhibitions (MICE), the uneven lifting of travel prohibitions, and the reconnection of nations to global trade networks, experts expressed concern about the revival of business travel. In light of the present climate of digital transformation and cloud apps, which provide superior alternatives to conventional

videoconferencing for teleworking, this was perceived as a major threat to demand. However, it was anticipated that the leisure passenger segment would recover more quickly. Nevertheless, with reduced disposable income, there will be a decrease in the tendency to fly; therefore, major support such as route subsidies, marketing aid, and direct demand stimulants will be required. Finally, vacationers are more likely to experience anxiety and health problems than business travelers (P. Suau-Sanchez et al, 2020a).

Airline companies worldwide have suffered catastrophic commercial losses on a scale never seen before because of the COVID-19 pandemic. After a 21% decrease in March 2020 compared with the previous year, there was a sudden increase in traffic, which led to a further contraction in April, resulting in a total decline of 66%. The magnitude of the devastating shockwaves that spread across the globe in May became apparent, with the decline continuing at alarming levels and dropping to 69%. Over time, the 'fear factor' gained increasing societal traction. According to the United Nations World Tourism Organization (UNTWO), international tourist arrivals are predicted to drop by 70% in 2020, resulting in a loss of 700 million visitors and $ 730 billion in inbound tourism revenue. In 2020, COVID-19 caused eight times as much damage as the 2008-2009 financial crisis (Liu, Kim, & O'Connell, 2021).

From the aviation perspective, the situation in 2020 was significantly different. Airline passenger revenues were expected to decrease by 69%, amounting to $421 billion, as compared to the year 2019, and the overall loss was projected to be in excess of $118 billion, which is more than four times the loss experienced by the industry following the financial crisis of 2009 (IATA, 2020b). The COVID-19 pandemic has emerged as the most significant threat to the aviation sector, and its effects may persist until at least 2024 (Liu et al. 2021).

The aviation industry has experienced substantial global disruptions because of the COVID-19 pandemic. The aviation industry in Somalia is particularly susceptible to these disruptions, impacting both domestic and international travel.

This study provides a comprehensive analysis of the effects of COVID-19 on the aviation industry in Somalia, focusing on identifying the most significant obstacles, exploring potential opportunities for recovery, and proposing effective strategies to mitigate negative consequences.

This study revealed that customer satisfaction was highest when customers collaborated with service providers to restore services during COVID-19-related outages. Conversely, customer

satisfaction with recovery was lower when customers were more actively involved during service outages caused by pilot strikes. This study adds to the existing knowledge on customer engagement in service recovery and provides practical guidance to service managers when determining the appropriate level of customer involvement in service recovery efforts (Wang, (Gao, & Practice, 2022). Therefore, the present study aimed to evaluate the impact of COVID-19 on the aviation industry in Somalia by examining challenges, opportunities, and recovery strategies.

1.3 Purpose of the Study

The purpose of this study is to investigate the impact of COVID-19 on the Aviation industry in Somalia: challenges, opportunities, and recovery strategies that may cause a decrease in flights during the 2020 pandemic. To determine the impacts of the pandemic that are expected to occur in the world and East Africa in 2020, we focus on primary data.

The purpose of this research is to provide comprehensive recovery strategies for the aviation industry in Somalia, considering the different opportunities and obstacles that have been identified. This study will produce recommendations for adaptive business models, financial restructuring, and legislative interventions that can speed up the recovery process. These recommendations are based on best practices in other regions and industries. The objective is to equip stakeholders in the Somali aviation sector, such as government authorities, airlines, airports, and investors, with actionable information that will allow them to navigate the post-COVID period and establish an industry that is more robust and sustainable.

1.4 Research Objective

General Objective

- To assess the impact of COVID-19 on the Aviation industry in Somalia: challenges, Opportunities, and recovery strategies

Specific objectives

- To determine the level of recovery from the impact of COVID-19 on the aviation industry
- To identify challenges and opportunities related to the impact of COVID-19 on the aviation industry.

1.5 Research questions

- What is the level of aviation industry recovery, opportunities, and challenges due to the impact of COVID-19?
- What is the relationship between recovery from the aviation industry and sociodemographic factors?

1.6 Research Hypothesis

The research hypothesis was derived from the research main questions. The way it was crafted was based on theory of the study. Based on this the research hypothesis is as follows:

- Is the recovery of aviation sector from COVID 19 pandemic effect is high?
    - Rationale and description: According to this theory, respondents believe that the aviation industry has recovered well from the COVID-19 pandemic's consequences. This indicates that the respondents, who are probably employed in the aviation industry, believe that the industry has successfully recovered from the pandemic's setbacks and has returned operations, safety protocols, and service standards to what they were before the outbreak, if not better.
    - Reasoning

      Is the aviation industry recovering well from the COVID-19 pandemic's effects? Goal: To gauge how much the aviation industry has recovered, according to aviation employees.

      Gathering of Data: This can be assessed by asking respondents to grade different aspects of their recovery on a yes or no in surveys or questionnaires.
    - Outcome expected from study: If the hypothesis is correct, a sizable percentage of respondents will get good scores, demonstrating their general contentment with and faith in the aviation industry's post-pandemic recovery initiatives.

- Is there relationship between COVID 19 recovery and socio-demographic characteristics of the aviation workers?
    - According to this hypothesis, there is a statistically significant correlation between the sociodemographic attributes of aviation workers, including age, gender, years of experience, and education level, and the perceived recovery of the industry from

the COVID-19 epidemic. This implies that respondents' perceptions or experiences of the sector's recovery may differ depending on variances in these sociodemographic factors.

- Outcome: The analysis would show notable correlations or relationships between one or more sociodemographic characteristics and the aviation sector's perceived recovery if the hypothesis were to be confirmed. For example, seasoned workers may see a quicker rate of recovery, or disparities between different age or educational groups may be noted.

1.7 Significance of the Study

The significance of this inquiry is directly linked to the fact that COVID-19 has caused major disruption to both normal and business flights globally and in Africa, affecting financial and work-related activities. Investigating the impact of COVID-19 on the aviation industry in Somalia, including challenges, opportunities, and recovery strategies, can help to identify issues and guide the development of policies to address these challenges and improve preparedness for future crises.

Using a retrospective approach in this study, we can gain valuable insights into the recovery process, challenges, and opportunities within the aviation industry. This information can be used to create a preparedness plan that will enable the industry to perform better in the face of future problems.

1.8 Limitations of the Study

This study, like many quantitative studies, has certain limitations. Some of these constraints include the following. The data collected primarily focused on Somalia and East Africa and did not provide information in broader contexts. Additionally, because of the use of survey data, this study was susceptible to recall bias.

CHAPTER 2
LITERATURE REVIEW

2.1 Overview of COVID-19 and Aviation Industry

From an aviation perspective, the situation is inverse: in 2020, airline passenger revenues were projected to fall by 69%, or $421 billion, compared to 2019 (the year before the pandemic), and the total loss would be close to $118 billion, or more than four times the amount lost following the 2009 financial crisis (Suau-Sanchez ET AL., 2020b). The COVID-19 pandemic has emerged as the greatest danger to the aviation sector, and its effects may not be felt until at least 2024 (Liu et al. 2021).

The aviation industry is essential for the health of the global economy (Dube & Nhamo, 2021). Due to the fact, it makes commerce, industry, and collaboration easier to accomplish. One of the most important contributors to the pre-COVID-19 boom in tourism that took place before 2020 was the expansion of both the capacity of planes and connectivity of the air (Gössling, Scott, & Hall, 2013). The virtuous cycle, which is the aviation value chain, is beneficial to many different sectors of the economy. As a result, the economic prospects of a nation or region frequently improve when the aviation industry is in good health (Alsumairi & Hong Tsui, 2017). Many people worldwide are concerned about the safety of airplanes, regardless of whether they are used for military or civilian purposes. For the reasons that were discussed earlier, this is the situation. Considering that the COVID-19 pandemic caused widespread disruptions in the worldwide supply chain, the consequences of the pandemic on aviation have become significantly more noticeable, as stated in (K. Dube, 2022). When airlines go out of business, they have a significant impact on the accuracy of meteorological data collection in a variety of regions around the world (K. Dube, Nhamo, & Chikodzi, 2021). Because weather and climate data are necessary for aircraft route planning, this might potentially result in difficulties for the aviation industry and a scarcity of climate data at precisely the moment when adaptation strategies are required.

Due to the cancelation of major international conventions and exhibitions (MICE) and the uneven lifting of travel prohibitions and the reconnection of nations to global trade networks, experts were worried about the revival of business travel. In light of the present climate of digital transformation and cloud apps, which provide superior alternatives to conventional videoconference for teleworking, teleworking was perceived as a major danger to demand. However, it was anticipated

that the leisure passenger segment would recover more quickly. However, with reduced disposable income, there will be a decrease in the tendency to fly; therefore, major support, such as route subsidies, marketing aid, and direct demand stimulants, will be needed. Finally, vacationers are more likely to experience anxiety and health problems than business travelers (Suau-Sanchez et al., 2020a).

2.2 Evolution of Air Transport in the Somali Civil Aviation Industry

The development of air transport in Africa necessitates a comprehensive approach that considers various aspects including the effects of COVID-19, environmental impact, wildlife conflicts, and safety climate. The aviation industry's history in Somalia is one of expansion, adversity, and resiliency, mirroring the nation's larger political and historical changes. Below is a summary of its development: Somalia's aviation history dates to the colonial period, when the country was ruled by the British and Italians. In 1928, the Italian colonial government constructed the first airstrips and basic airport infrastructure to facilitate military and administrative activities. In 1930, regular aviation services were launched, mainly linking Mogadishu to other important cities in Italy and East Africa. Petrella Airport (later renamed Aden Adde International Airport) in Mogadishu grew to be a major hub (Somali Airlines Archives, 2020).

Post-Independence Era: The newly established Somali Republic worked to develop and upgrade its aviation infrastructure following its declaration of independence in 1960. The national airline, Somali Airlines, was founded in 1964 and began operating mostly on domestic routes before branching out to international locations like Rome, Nairobi, and Frankfurt. Somali Airlines grew both its fleet and its routes throughout the 1970s and 1980s, capitalizing on the nation's advantageous position as a gateway between Africa and the Middle East (Somali Airlines Archives, 2020).

The national airline and the infrastructure supporting civil aviation collapsed as a result of the Somali Civil War that broke out in 1991. Many of the airports in the nation were either taken over by militias or fell into disrepair when Somali Airlines stopped operating in 1991. Amidst the pandemonium, a few private airlines surfaced, providing restricted local and regional flights, frequently functioning in hazardous and difficult circumstances (Somali Airlines Archives, 2020).

Rebuilding the aviation industry has accelerated as certain areas of Somalia have steadily stabilized. To control and monitor the sector, the Somali Civil Aviation Authority (SCAA) was reestablished in 2013. Significant funds have been spent renovating major airports, like Aden Adde International Airport in Mogadishu, which is today home to several international airlines, including Turkish Airlines and Ethiopian Airlines. The Somali government has also signed agreements with foreign parties in an attempt to improve air traffic control and safety standards.

2.3 Key Developments and Challenges

Infrastructure Development: New terminals, runways, and navigation systems are being built as part of ongoing modernization projects at major airports. The airports in Garowe and Egal International Airport in Hargeisa have also undergone significant renovations (ICAO, 2018).

Enhancements in Regulation and Safety: The SCAA strives to adhere to global aviation guidelines established by the International Civil Aviation Organization (ICAO).
In order to win worldwide confidence and increase trade and tourism, efforts are being made to improve safety and security measures (ICAO, 2018).

Growth of the Private Sector: A number of private airlines, including Daallo Airlines and Jubba Airways, have become important participants in the local and regional market. These airlines serve the Horn of Africa as well as Somalia's neighbors (African Aviation Reports, 2021). Political stability and economic expansion are critical for the aviation sector in Somalia. Ensuring sustainable development and inclusion into the global aviation network will require international alliances and investments (SAA, 2023).

Considered a tangible representation of statehood, a state-owned national airline upholds national pride and status while serving as a symbol of modernity. When a Boeing 737-400 bearing the flag carrier's characteristic blue livery was seen on camera in Budapest, Hungary, in November 2013, it appeared as though Somali Airlines was about to make a victorious comeback to the air. The national carrier of Somalia, which had stopped operations in 1991, was set to resume operations, according to official government statements at the time. Notwithstanding the positive indications, weeks eventually stretched into months, and the aircraft was unable to make its much-awaited debut in Mogadishu. Any dreams of the FG-carrier's impending revival were dashed when it was

later acquired by Spain's Swift Air and transformed into a freighter (https://www.scribd.com/document/292116950/Somali-Airlines). The establishment of foreign airlines in Somalia in recent years has demonstrated the country's growing aviation industry. Due to political unrest, commercial aircraft operations and passenger movements in Somalia drastically decreased between 1991 and 2012, to the point where all international operations were discontinued. Private domestic airlines have, nevertheless, kept running.2012 saw a gradual return of international flights as the nation's security situation improved. Over two decades ago, Turkish carriers became the first foreign airline to begin operations in Somalia, opening the door for other carriers to operate there, including Ethiopian Airways, Air Djibouti, Kenya Airways, Qatar Airways, Uganda, and Fly Dubai (Mohamed et al., 2019). At the moment, Brazil is home to seven domestic and international airlines.

Ensuring the provision of effective and efficient operational services falls within the purview of the airport director, who holds supervisory authority over the Department of Airports. The agency makes sure Somalia's airports and aerodromes follow ICAO guidelines and best practices while continuing to be financially viable businesses. In addition to overseeing 50 other aerodromes and airfields around the nation, the airport manager of (AAIA) oversees the management of the airport (https://www.scaa.gov.so).

2.4 Impact of COVID-19 on Aviation Industry

An investigation conducted by the World Tourism Organization found that the COVID-19 epidemic was responsible for a 70 percent drop in the number of people traveling internationally during the first eight months of 2020 when compared to the same period in 2019.When compared to the same month of the previous year, the number of visitors from the Northern Hemisphere decreased by 81% and 79% during the summer months of July and August, respectively, which are generally the busiest months. Additionally, during 2020 (January–August), the average number of tourists decreased by 700 million, which coincided with this decline rate. This was around 730 billion in monetary value. From this estimate, it can be deduced that the financial crisis that occurred in 2008 caused eight times as much damage to the economy (Folinas & Metaxas, 2020). The transportation industry is one of the most significant contributors to the pandemic. This is because the application of pandemic measures increases travel delays for both passengers and

personnel. This is because people make it easy for infectious diseases to spread to virtually any corner of the world, which could potentially lead to a pandemic.

The limits imposed on the aviation industry in April 2020 had a significant impact on the entire industry. There has been a disruption in air transportation connections that allows cities all over the world to communicate with one another. This continued for some time on local Chinese and American circuits, which started to show signs of improvement in March. However, the efforts taken have prevented the majority of the planned connections connecting cities that are located on other continents. Cargo planes continued to operate, even though they caused disruptions in the global supply chain. This was because 50 percent of the cargo delivered by airlines was carried by passenger baggage. The COVID-19 epidemic has had the greatest impact on the aviation industry compared to any other incident that has occurred since World War II, including the events that occurred on September 11, 2001, and the financial crisis that occurred in 2008. The IATA reports that the number of passengers traveling around the world will fall by 66% in 2020 (Suau-Sanchez et al., 2020b).

2.5 The COVID-19 Outbreak

Because of the history of viruses such as SARS, H1N1, and Ebola, the spread of the coronavirus should not have come as a surprise to the global economy, even though it caught the world economy off guard. It seemed unavoidable that a new virus would develop, considering that those working in public health had been warned about the dangers of pandemics for a considerable amount of time. Even though these warnings were made, the global population was unprepared for the coronavirus and was unable to react quickly enough to stop its spread. Multiple millions of people worldwide have been infected by the virus, which continues to spread uncontrollably. According to Brands and Gavin (2020), the United States has been the region that has been most affected economically and in terms of the number of actual instances that have been proven. Although air travel is responsible for the rapid spread of viruses because it transports individuals from one end of the earth to another, infectious disease transmission can occur far more swiftly with any mode of transportation. As a result of their enclosed confines, the absence of fresh air, and the high concentration of germs and viruses that are carried by the hundreds of individuals riding on board at any given time, airplanes are notoriously conducive to disease transmission (Gottdiener, 2001). The SARS virus was responsible for the deaths of over 800 people and infected

over 8,000 others between the months of late November and June 2003.Approximately 20 countries were affected by the illness, which had its beginnings in China. According to the evidence presented herein, air travel is a significant factor in the transmission of infectious diseases worldwide. The coronavirus has spread at a much faster rate and over more geographical channels, such as airlines and cruise ships, which has resulted in the transformation of a local epidemic into a pandemic spread worldwide (Attard & Mulley, 2022; Gaskin, Zare, & Delarmente, 2021).

Beginning in the beginning of March 2020, the COVID-19 virus started to spread to an increasing number of countries and markets worldwide. Due to the terrible influence of the COVID-19 virus on the global economy of the entire world, the initial health crisis was transformed into a financial catastrophe as a result of its widespread dissemination. As a result of the closing of international borders and suspension of a large number of domestic and international flights until further notice, there was a significant deal of unpredictability surrounding the activities of purchasers and foreign trade partners. In response to social isolation, which was one of the measures taken by the World Health Organization (WHO), businesses, financial markets, corporate offices, and events were shut down. The two most significant changes brought about by the COVID-19 virus in the economy are those that have already been detailed. Chinazzi et al. (2020) stated that the continued extension of the lockdown and travel restrictions had a detrimental effect on both the economy and stock markets.

When international borders were closed and international travel was prohibited as a preventative measure against the COVID-19 pandemic, air travel was in a state of survival. The global aviation sector was forced to cancel the majority of flights in 2020, resulting in a reported loss of almost $134 billion, which is equivalent to a 55% decrease in revenue compared to 2019.The spread of the COVID-19 virus, both internationally and within the United States, has put pressure on different areas of the aviation industry. As a consequence of the progression of the virus, there was very little hope for 2020.In addition, it was anticipated that the travel demand would decrease by between 35 and 65 percent in 2020 compared to the preceding year.It is also expected that airports will experience a revenue decrease of $97 billion, with both domestic and international travel experiencing a drop of 48%. In the same year, it was anticipated that travel companies would suffer losses ranging from $910 billion to $1170 billion. Therefore, (Goyal and Gupta (2020) and Malik

et al. (2020) estimated that global GDP would decrease by -3% by 2020.This would be a far larger reduction than that observed during the 2008–2009 financial crisis.

In particular, the aviation business is being impacted by the COVID-19 epidemic, which harms the tourism industry as a whole. Because laws have affected the business climate, a great number of foreign airlines have reduced the number of flights they operate to the greatest extent possible. Even though airlines may be able to save money on gasoline as a result of decreasing oil prices, the cost of sanitation is blowing out of hand. Some airlines have grounded their aircraft, which has resulted in a reduction in the number of flights being operated and has compelled staff to take time off (Maller, 2021). The extremely contagious coronavirus is most likely transmitted through international travel, posing a substantial risk. The vast bulk of international travel is accomplished through air transportation is common knowledge. The close quarters on flights make it more probable that someone on board could become ill (Chetty, Daniels, Ngandu, & Goga, 2020). This is because everyone uses the restroom simultaneously and touches the shared surfaces.

Due to the present COVID-19 dilemma, the aviation sector has had to make swift adjustments. Airlines around the world are scrambling to find ways to stay afloat as the crisis drags on, with many planes grounded, owing to a precipitous drop in passenger demand. A press release (Serrano & Kazda, 2020) issued by the International Air Transport Association (IATA) in response to the current situation states that all governments should play a significant role in supporting the aviation industry financially through measures such as direct financial assistance, loans, and tax relief. More than 2.7 million airline jobs are currently in jeopardy.

Even though airlines are halting operations in reaction to a steep reduction in passenger demand, airport operators have little choice but to continue operating to handle essential activities, such as repatriation and cargo flights. Airports also assist airlines by providing space for additional aircraft parking slots. The World Airport Council International (ACI) stated that the aviation industry as a whole may require up to 18 months to recover and return to the levels of traffic that existed before the crisis. To ensure the safety of essential airport operations and, by extension, millions of jobs all over the world, the Airports Council International (ACI) has expressed the same concern, highlighting the importance of a rapid and accurate response to the policy of the global economy (Štimac et al, 2021).

In December 2019, China was the third-largest aviation market in the world, following the United States and United Kingdom. Within just four weeks of the coronavirus outbreak that occurred in January 2020, China was ranked 25th, which was a significant change from the previous ranking. There were 59 airlines that either implemented a variety of limitations or completely stopped all flights to China at the beginning of February 2020. Italy, Russia, Australia, and the United States of America are among the countries that have implemented travel restrictions owing to regulations enforced by their respective governments. As a result of the coronavirus, a significant number of flights were canceled, which had a discernible effect on the aviation industry as a whole and, more specifically, on airlines and their operations (Saraswat & Pipralia, 2022).

Passenger traffic has fluctuated over the most recent major crises between 1945 and 2021. This can be seen in the following figure, which was derived from the most recent analysis of the economic repercussions of COVID-19 on civil aviation that was conducted by the International Civil Aviation Organization (ICAO) (Bureau, 2020). In comparison to one another, the image illustrates the total number of domestic and international travels that have been taken. The picture shows that the commencement of the COVID-19 outbreak had the most significant impact on passenger traffic, and that this impact is still being felt concerning passenger traffic today. Due to the severe impacts of COVID-19, passenger traffic in 2020 fell far short of the volume projected for the year, in comparison to the levels seen in 2019.A total of 2699 million passengers experienced a reduction of fifty percent in the number of seats made available by airlines, as well as a reduction of sixty percent in the total number of passengers. Therefore, airlines were unable to generate an income of $371 billion that they had anticipated from passengers. Domestic passenger traffic has decreased by 38%, whereas foreign passenger traffic has decreased by 66%. This information was derived from separate analyses of domestic and international passenger traffic. Similarly, when we look at the numbers, we see that the number of passengers traveling within the country was expected to be 1323 million, while the number of passengers traveling from other countries decreased by 1376 million. According to the International Civil Aviation Organization (ICAO), the cost of domestic passenger travel is expected to be 120 billion dollars, while the cost of international passenger travel is estimated to be 250 billion dollars (Bureau, 2020).

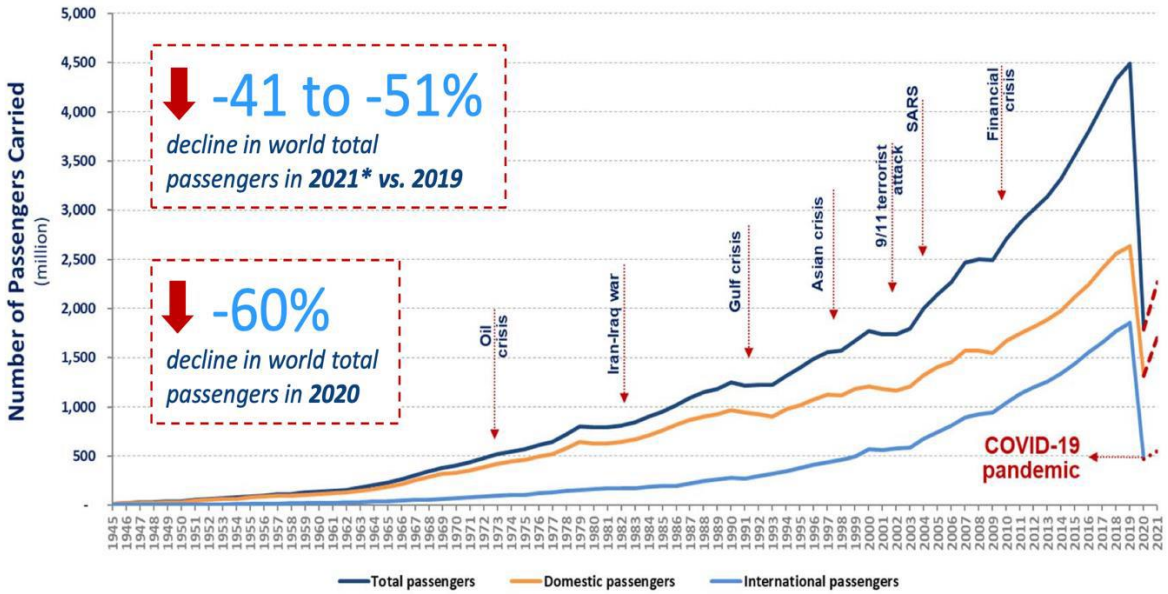

Figure 1: World Passenger Traffic Evolution 1945-2021

Source: ICAO Air Transport Reporting Form A and the A-S and ICAO estimates.

2.6 Economic Effects of the Covid-19 Pandemic

The global pandemic caused by coronavirus has had a variety of effects on people worldwide. As a result, the healthcare systems of many countries are already at capacity and are unable to treat an increase in the number of new patients. As a result of the coronavirus pandemic, thousands of people lost their lives due to poor health, but also left countries in a difficult financial situation. It is estimated that the virus has spread to almost every nation worldwide. In addition to the fact that billions of people worldwide are already experiencing the effects of an economic crisis, a sickness that is causing massive destruction is adding insult to injury. To combat the COVID-19 epidemic, which has had an immediate impact on all global economic decision-making units, it has been planned to implement expansionary fiscal and monetary measures (Abioğlu et al., 2021).

The financial sector is expected to experience the consequences of the COVID-19 pandemic in 2020.This is due to the increased burden that the pandemic will place on the health sector in countries experiencing major outbreaks, the rise in unemployment, and the general slowdown. In their fight against the coronavirus, every nation has employed an approach that is like one another. The coronavirus pandemic has threatened to plunge the economies of the countries into a state of lockdown. As a result of the numerous approaches utilized to acquire personal and health

information, nations have been forced to deplete their financial resources. These approaches include stringent quarantine measures, social distancing regulations, and rigorous testing (Goyal & Gupta, 2020). Countries have behaved in this manner because their economies are in a wide variety of states of disruption. According to projections made by the World Trade Organization (WTO), the volume of international trade is anticipated to decrease by 9.2% in 2020 and by 7.2% in 2021.Nevertheless, these forecasts are susceptible to modification, depending on the progression of the epidemic and the degree to which nations react. In 2020, the World Trade Organization projected that the Gross Domestic Product will experience a decline of 4.8%, followed by an increase of 4.9% in the following year. Analysts anticipate that Asian exports will decrease by 4.5 percent in 2020, whereas Asian imports will decrease by 4.4 percent overall. The global economic slump has caused a decline in both product and service trade, with the pandemic process experiencing a 9 percent decrease compared to the financial crisis. This decline has been observed in both product and service trade (Maliszewska, Mattoo, & Van Der Mensbrugghe, 2020). Both the government and the commercial sector in Somalia are severely impacted by disastrous events that have occurred.

As of the 15th of December, the year 2021, the Somali Health Ministry announced 23,074 confirmed cases and 1,333 fatalities. The majority of confirmed cases have been reported in major cities, such as Mogadishu and Hargeisa, as stated by the Ministry of Health in 2021.Consequently, the government has taken several drastic measures, including issuing an executive order to shut down the country’s primary economic hub if a viral breakthrough occurs. Although the repercussions of the epidemics were felt across the entirety of Somalia's economy, the areas of education, tourism (particularly aviation), imports, and exports were the most severely affected. Compared with other industries, the banking and telecommunications sectors were able to adapt more rapidly. As a result of the consequences of COVID-19 on business, Somalia's trade deficit has become even more severe, and the country's exports of animals have experienced a precipitous decrease. The travel embargo imposed on Gulf countries, particularly Saudi Arabia, presents a significant challenge to the export industry. With the implementation of worldwide quarantine limits, remittances decreased by 15% and by 25%. There are no more transactions of $56 million that will occur. The dramatic decrease in remittances can be largely attributed to layoffs, as well as the constraints placed on the free flow of capital imposed by travel restrictions. Inflationary pressures were produced by decreased economic activity and disruptions in supply networks,

which led to an increase in the total inflation rate of Somalia from 3.1% in February 2020 to 5.2% in March. There has been a significant increase in the cost of food in Somalia as a result of widespread anxiety and the limits placed on shipments around the world. Additionally, there was a significant disparity in the rate of inflation for food across Somalia, with Mogadishu experiencing an increase from 2.6% to 4.8% and Hargeisa experiencing an increase from 0.5% to 2.0%. Demand regressions, which are produced by the policies and laws enacted by governments in response to COVID-19, are the root cause of economic contractions. Among these are limitations placed on mobility, transportation, and production capacity, as well as a reduction in social consumption and the closing of borders (San-Akca, Sever, Yilmaz, & Science, 2020). The COVID-19 pandemic had a disastrous impact on a wide range of businesses, including the manufacturing sector, banking, education, oil and gas, construction and real estate, aviation, tourism, transportation, and the automobile industry, among others. Market volatility can partly be attributed to the uncertainty induced by epidemics. Tourism and aviation businesses are among those that have been hit particularly hard by restrictive measures, such as the closing of borders and suspension of flight operations. The decrease in the market for automobiles and real estate may be directly attributed to the fact that individuals are hoarding their money rather than investing in it. This is a direct consequence of individuals' anxieties regarding society.

2.7 Impacts of Crises on the Labor Force

The terrorist attacks that occurred on September 11, 2001, resulted in the shutdown of airspace in the United States for a week, which had repercussions worldwide. In addition to concerns regarding the possibility of legal action, it was anticipated that airlines in the United States would also consider the future of their sector and how it would be molded. There is little question whether these occurrences have a significant impact on the availability of jobs (Trimarchi, 2022). One consequence was a drop of 30,000 jobs across European airlines, which is equivalent to a 10% decrease in the number of employees. North American Airlines announced that they had added 95,000 new jobs during the same period, equivalent to 20 percent of their total workforce. In addition to airlines, ground services and aircraft manufacturers began in, furloughs and cut their workforces at the same time. As a direct result, industry giants Boeing and Airbus downsized their workforce by 18,000 and 2,000 roles, respectively. Airport-based food and beverage businesses and vehicle rental services were also hampered by this crisis. Transportation companies were also affected. During this period, businesses that leased aircraft had difficulty meeting their financial

obligations, which resulted in industry leaders such as GECAS and ILFC lowering their prices. The value of the aircraft also decreases during this period. Morrell and Alamdari (2002) determined that only 816 out of 1,803 aircraft orders were executed in 2000.This was because of the enormous cancellation of previous aircraft acquisitions. Compared to the effects of the attacks that occurred on September 11, 2001, the global financial crisis had significantly more far-reaching ramifications for the civil aviation industry. Both the demand for passengers and freight experienced a dramatic reduction in the aftermath of the economic crisis, with the former decreasing by 8% and the latter decreasing by 17%. Additionally, there was a 17% decrease in freight demand. As an immediate consequence of the economic crisis in 2008, 13 airlines in the United States filed for bankruptcy. Thousands of people lost their jobs in the United States because of the failure of airlines in 2009.After the terrorist attacks of September 11, 2001, airlines started lying off employees as a result of lessons learned from the catastrophe. As they had begun retiring older, less useful planes in reaction to increased fuel costs at the beginning of 2008, airlines in the United States were able to manage the reduction with greater ease than their counterparts in airlines located in other countries (Harvey & Turnbull, 2015).

A trade embargo imposed on the European region resulted in the loss of thousands of jobs and unemployment of many additional people. Both XL Airways, which had headquarters in the United Kingdom and employed 2800 people, Dalavia, which had headquarters in Russia and employed 1700 people, went out of business in 2008 as a direct result of the downward trend in the economy. A large layoff that eliminated nine thousand positions, which is equivalent to 40 percent of the entire workforce of Scandinavian Air Services, was a significant blow to the European division of the corporation. Instead of making significant staff reductions, Lufthansa chose to limit the amount of work that its 2,600 employees in the cargo operations department were responsible for and created new methods. Several airlines, including British Airways, Virgin, and British Midland Airways (now a division of British Airways) put their salaries on hold during this period to prevent layoffs. Simultaneously, British Airways requested that its employees work without paying for an entire month in a row. A total of 380 employees were temporarily terminated from their positions, while 3,000 were placed on unpaid leave for one month. This occurred even though Finn Air, another European airline, was able to handle the situation with only 120 layoffs (Harvey and Turnbull, 2015).

Because of the economic crisis in the Asia-Pacific region, the labor force employed in the aviation industry was under significant stress. It is possible that Oasis Hong Kong Airlines, which had employed approximately 700 people, went out of business as a result of the job cuts implemented by regional airlines. As a response, Air New Zealand removed 2,000 employees from their positions, followed by Qantas, which eliminated 1,750 employees, and Virgin Blue, which eliminated 400.Virgin Blue not only announced a 30 percent decrease in compensation but also decreased the number of roles available among employees. Forty of the 800 layoffs announced by Jet Airways of India were expected to be part of the company's initial concept when it was first conceived. However, the government decided to put the process on hold to implement more cost-cutting measures. While the firm announced that it would not be extending temporary contracts and would temporarily suspend hiring, it also announced that it would be reducing salaries by between five and twenty-five percent. As an alternative to the practice of implementing worker furloughs, regional airlines operating in the Asia-Pacific region have developed principles of activity. As an example of this, Air India is a fantastic example because, in addition to lying off its employees, the company also suggested that they take three to five years of voluntary unpaid leave. Beginning in April 2009 and continuing throughout the following year, Cathay Pacific strongly encouraged its 14,000 employees to take a four-week sabbatical without receiving any payment. Singapore Airlines requested that its staff members take one day of unpaid or annual leave each month rather than receive their salary during the periods in which they were not being paid. Additionally, in January 2009, Japan Airlines said that it applied for a two-month vacation absence without pay. During this period, the company delayed training (Harvey & Turnbull, 2015).

The worldwide economic slump was responsible for the loss of employment of approximately 38 percent of the workforce in the aviation industry. Other solutions were attempted in addition to furloughs to reduce the number of jobs that were lost; nonetheless, the hiring freeze was the most frequently utilized method and was accepted by practically all individuals and businesses. In addition, airlines responded to the economic crisis that occurred between 2008 and 2009 in a variety of ways (Harvey & Turnbull, 2015). All these actions included the termination of probationary personnel, freezing of salaries, voluntary retirement of employees, provision of unpaid leave, and refusal to extend temporary contracts.

Over time, airlines have gained a greater understanding of the industry and have developed techniques to reduce or eliminate redundancy. Air France-KLM claimed that it could prevent the loss of 3,000 jobs if it held recruitment, did not extend temporary contracts, and did not replace retired staff members. The partnership between British Airways and the British Air Line Pilots Association (BALPA) was formed in the United Kingdom to reduce costs. To benefit the corporation, the objective was to save 26 million pounds. Under this agreement, basic income was reduced by 2.61 percent, and flying allowances were reduced by 20 percent. Both the reductions were implemented. An additional ten million pounds could be saved according to estimates provided by Harvey and Turnbull (2015). If annual duty hours were increased, turnaround times on short flights would be reduced, and some crew arrangements on long-distance flights would be eliminated. When compared to the effects of earlier crises, the COVID-19 pandemic had a significantly more immediate impact on the labor market than those of previous crises. While the labor market was experiencing the effects of crisis-induced cost cutting and furloughs, the aviation industry was already suffering from the effects of these factors. This was because of the existence of a large number of limits and cancellations that were implemented.

The following is a list of some of the consequences that have been agreed upon as a result of COVID-19, but this list is not exhaustive: shorter work hours, salary reductions, paid and unpaid leaves, hiring freezes, and furloughs (Bureau, 2020).

Initially, several airlines made an effort to keep flights operating. However, when the pandemic crisis became more severe, airlines were convinced to refrain from operating the majority of their flights. By taking these moves, airlines are putting themselves in a position where they pose a direct threat to the employment status of the airline crew. There was a time when it was believed that pilots, air traffic controllers, safety authorities, and other vocations related to aviation were less susceptible to risk. However, it was inevitable that their employment would be preserved if there were a shortfall in revenue (Bureau, 2020). Those whose livelihoods are directly affected by the current crisis include, but are not limited to, airline workers, flight attendants, check-in clerks, baggage handlers, airline cooks, housekeepers, and numerous more individuals. In response to the COVID-19 outbreak, Qantas Airways, the national airline of Australia, announced that it would grant leave to more than 20,000 employees (Harvey & Turnbull, 2015).

2.8 Challenges and Recovery

Airline companies worldwide have suffered a commercial disaster on a scale that was never seen before due to the COVID-19 epidemic. After a 21% loss in March 2020 compared with the previous year, there was an abrupt increase in traffic, which led to a further contraction in April, with a total decline of 66%. Knowing that this infectious, transmissible virus can kill in a matter of hours, devastating shockwaves spread across the globe in May, and the precipitous decline continued at alarming levels, dropping even lower to 69%. Over time, the 'fear factor' gained increasing societal traction. According to its estimates, the World Tourism Organization predicted a 70% drop in international tourist arrivals in 2020, which would result in a loss of 700 million visitors and $730 billion in inbound tourism revenue. In 2020, COVID-19 caused eight times more damage than the 2008–2009 financial crisis (Liu et al. 2021).

When the outage was caused by COVID-19, the results showed that customers were most satisfied when they worked together to restore services. According to this study, customer satisfaction with recovery was lower when they were more involved during the service outage caused by the pilot strike. The present study adds to what is already known about customer engagement in service recovery. Additionally, service managers can use this research as a practical resource when determining how much customer involvement is necessary for service recovery (Wang et al., 2022).

Even though the COVID-19 pandemic had significant shortcomings in certain areas, it nonetheless had the effect of creating unforeseen repercussions. Although the pandemic was responsible for the loss of some airlines, current data reveal that it was also responsible for the proliferation of new airlines in several cities and places worldwide. This was even though the epidemic was responsible for the failure of that number of airlines. There have been a great number of established airlines that were once more ready to take risks and prioritize innovation that has been forced out of business as a result of the new generation of airline start-ups(Sun et al., 2022).In addition to Europe, several new businesses have established their operations in Asia. Considering this matter from the point of view of policy, there are numerous challenges that businesses need to conquer.

It must be acknowledged that the epidemic ushered in a new era of corporate culture and ambiance in addition to utterly decimating the tourism business. Every person should give some thought to this issue. Because of this, many people began to doubt the aviation industry's capacity to keep

making money, which caused the tourism and aviation sectors to rethink their current corporate strategies. At the height of the pandemic, many people lost their jobs in the tourism and aviation industries (Sobieralski, 2020). The dismissal of several employees occurred after they became highly competent in their businesses. While some employees departed in the quest for greater chances abroad, others tragically died from sickness. The academic community had good reason to worry that the outbreak may cause major changes in the aviation tourist business (Hall, Scott, & Gössling, 2020).

Knowing how aircraft companies fear rehabilitation is of the highest importance because COVID-19 affects many people's lives, especially those who work in the aviation tourist industry. One must be cognizant of the advantages and disadvantages of technology to understand the technologically driven new normal. Without the facts addressed here, it is difficult to formulate policies, practical solutions, and lessons learned from future pandemics. In this context, the idea of this study first emerged. The goal of this research is to assess the advantages and disadvantages of massive monetary investments. What has become the new normal as a consequence of this change is the focus of this research. Doubts arose during the COVID-19 pandemic, prompting further investigation (Sun et al., 2022).

CHAPTER 3
METHODS AND MATERIAL

3.1 Study Design and Participants

This study was conducted using a cross-sectional design that takes into account the information on the impact of COVID-19 from to 2019-2020 in Somalia. The samples were gathered from Somalian aviation workers following the census method. All civil aviation employees were approached during the data collection period from December 1, 2023, to December 30,2023.

3.2 Variables

- seat capacity reduction
- Flight type – personal flight and cargo service
- Business aviation
- After COVID recovery
- Strategy for recovery from COVID-19

Travel recovery challenges

- loss of experienced personnel
- Delays in departure

3.3 Data Collection tool

The primary method for gathering data in this study was to distribute survey questionnaires to key stakeholders in Somalia's civil aviation industry using Google Forms. These surveys were designed to gather quantitative data on various aspects of the industry, such as the impact of COVID-19, sociodemographic variables, strategies implemented to curb the pandemic, and recovery of the aviation industry.

Moreover, data were collected from Somalia's aviation industry using open-ended and closed-ended questions prepared by reviewing the relevant literature.

3.4 Data Analysis

Data were analyzed for any deviations using SPSS version 25. Means and frequencies were used to describe the variables, and data were presented using graphs, charts, and frequency tables. Tests of independence, such as t-tests or chi-square tests, were conducted, and the means of the different times were compared to see changes related to the impact of COVID-19. Chi-square p-values were used to evaluate whether there was a relationship between variables.

3.5 Ethics

During the data collection process, all participants were asked for their consent and provided written authorization online following ethical procedures that were clearly indicated on the online tool. The data collector informed the aviation industry workers that their information would be kept confidential and that their names would not be disclosed on the questionnaire. Additionally, the participants were informed that they had the right to refuse or stop providing any information at any point during the data collection process.

CHAPTER 4

FINDINGS AND DISCUSSIONS

Table 1 Socio-demographic characteristics of study participants of COVID-19 effects on the aviation industry, 2024

S/No	Variable	Category	Number	%
1	Gender	Male	141	78.3
		Female	39	21.7
2	Age	18-25	27	15.0
		26-35	74	41.1
		36-45	51	28.3
		46-55	17	9.4
		56and above	11	6.1
3	Marital status	Single	99	55.0
		Married	81	45.0
4	Monthly income of the Aviation employee	Less than 500$	31	17.2
		500-1000$	27	15.0
		1000-1500$	39	21.7
		1500-2000$	55	30.6
		>2000$	28	15.6
5	Years of Professional experience	Less than 1 year	20	11.1
		1-5 years	62	34.4
		6-10 years	61	33.9

		11-15 years	25	13.9
		More than 15 years	12	6.7
6	Highest education level	Certificate	7	3.9
		Diploma	8	4.4
		Bachelor's Degree and above	165	91.7

A recovery study was conducted in Somalia's civil aviation industry in response to COVID-19 challenges with a total of 180 participants. Of these participants, 141 (78.3%) were male and 39 (21.7%) were female. The majority of participants fell within the age range of 26-35 years, accounting for 74 (41.1%) of the total, followed by the age range of 36-45 years, which accounted for 51 (28.3%). In terms of marital status, the largest proportion of participants was single, numbering 89 (55.0%). The monthly income of Somalian aviation employees was predominantly within the range of 1000-1500 dollars, with 39 (21.7%) earning this amount and 55 (30.6%) earning between 1500-2000 dollars. With regard to professional experience, the largest proportion of participants had 1-5 years of experience, accounting for 62 (34.4%), followed by those with 6-10 years of experience, who accounted for 61 (33.9%). The majority of participants held bachelor's degrees or higher, with 165 (91.7%) possessing this level of education, and only eight (4.4%) held diplomas (see Table 1).

Table 2 Effects of COVID-19 on aviation industry, 2024

S/No	Variable	Category	Number	%
3	Effect of COVID-19	Yes	178	98.9
		No	2	1.1
4	If yes, what were its effects	Decrease in passengers	8	4.4
		Delay in flights	7	3.9
		Delay in flights, Decrease in passengers	3	1.7
		Financial services effected	1	.6
		Income decline	17	9.4
		Income decline, Decrease in passengers	5	2.8
		Income decline, Delays in flights	7	3.9
		Income decline, Delay in flights, Decrease in passengers	47	26.1
		Income decline, Professional loss	7	3.9
		Income decline, Professional loss, Decrease in passengers	3	1.7
		Income decline, Professional loss, Delay in flights	4	2.2
		Income decline, Professional loss, Delay in flights, Decrease in passengers	65	36.1
		Professional loss	4	2.2
		Professional loss, Delay in flights, Decrease in passengers	2	1.1

In this study, 178 participants (98.9%) indicated that the COVID-19 pandemic had an impact on the aviation industry in Somalia. Moreover, 65 respondents (36.1%) reported the specific effects of the pandemic on the industry, including income decline, professional losses, flight delays, and decreased passenger numbers (Table 2).

Table 3 Effects of COVID-19 on the number of seats in the aviation industry, 2024

S/No	Variable	Category	Number	%
1	Seat reduction during COVID-19	Yes	173	96.1
		No	7	3.9
2	How do you estimate seat reduction?	By half	87	48.3
		By one third	93	51.7
3	The number of increased after COVID-19	Yes	156	86.7
		No	24	13.3

Based on a survey of the aviation industry, 173 respondents (96.1%) indicated that the number of seats had been reduced. According to the respondents' opinions, reducing the number of seats by half was favored by 87 (48.3%) and reducing the number by one-third was preferred by 93 (51.7%). Furthermore, approximately 156 (86.7%) respondents stated that the number of seats increased after the COVID-19 outbreak (Table 3).

Types of flights operational during and after COVID 19

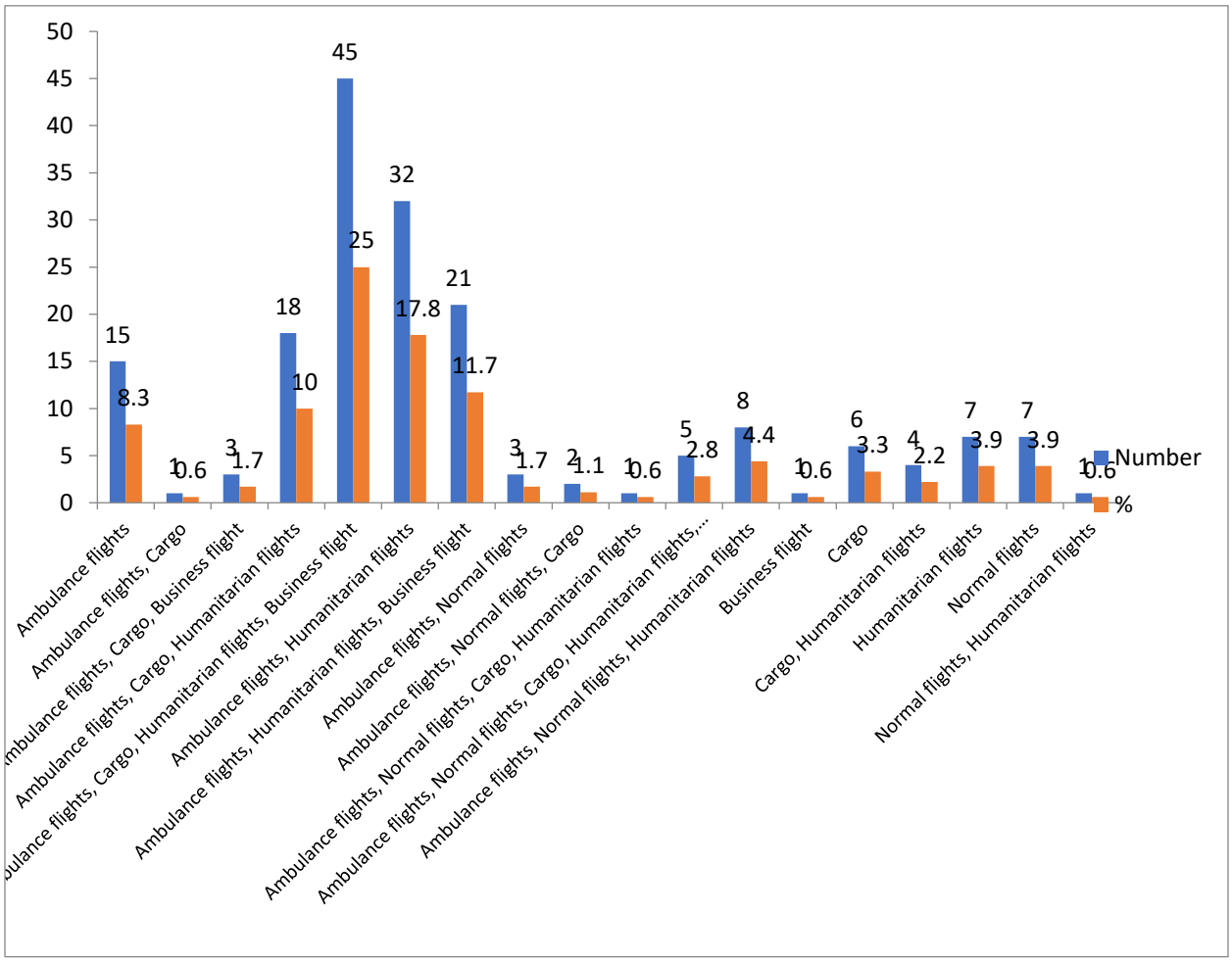

Figure 2: flights operational during COVID 19, 2024

During the COVID-19 pandemic, the majority of flights were categorized as ambulance, cargo, and humanitarian flights. According to the data, 45% of flights fell under the business category, while ambulance and humanitarian flights accounted for 32% of the total. These statistics suggest that a significant portion of the flights were related to emergency services, as indicated in Figure 2.

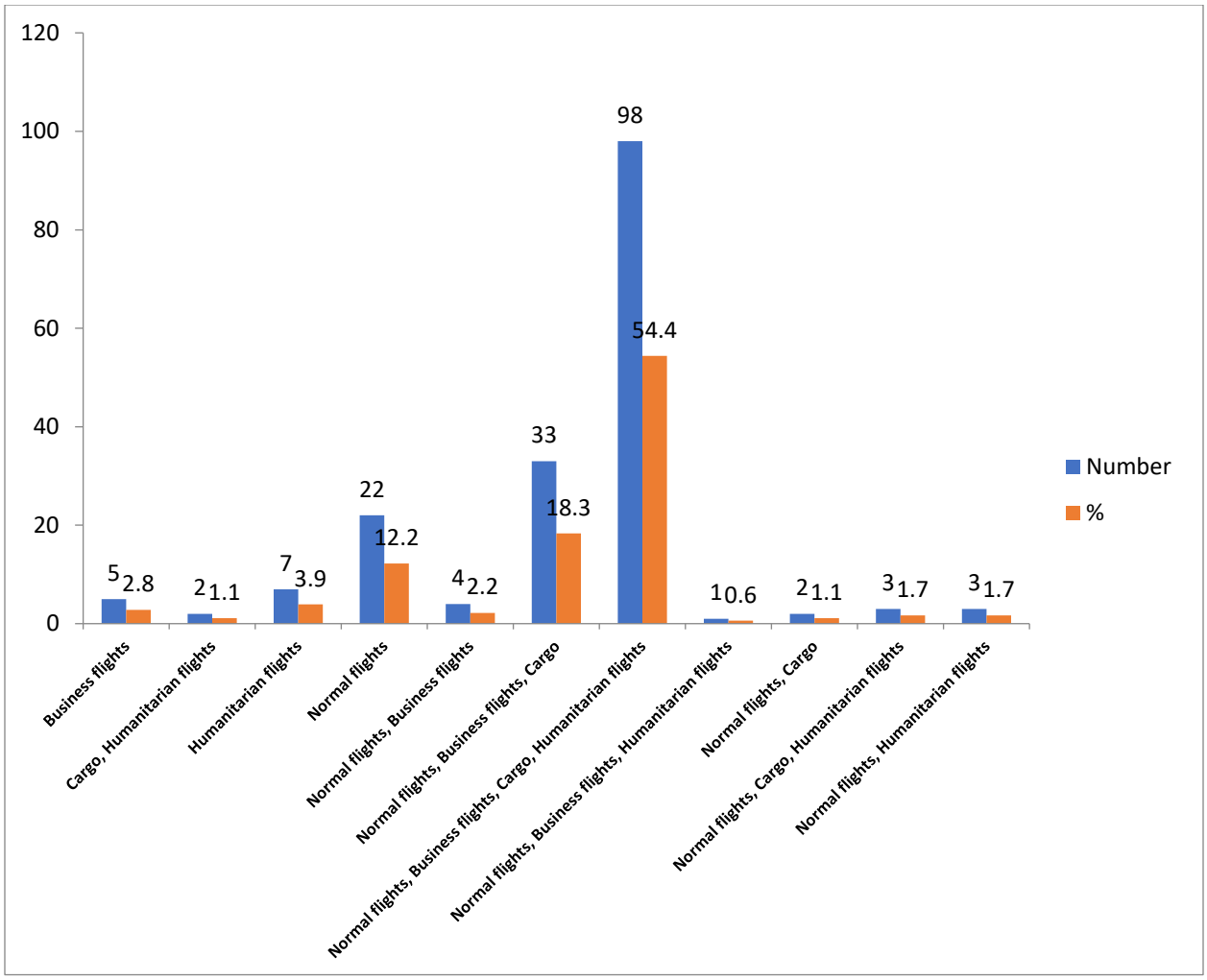

Figure 3: Operational flights after COVID 19, 2024

According to the survey participants, the majority of normal flights, business flights, cargo, and humanitarian flights, 98(54.4%), were operational after the pandemic, followed by normal flights, business flights, and cargo flights, 33(18.3%) (Figure 3). It is noteworthy that compared to flights during the COVID-19 pandemic, the flights after the pandemic consisted mainly of normal, business, and emergency flights. This suggests that the Somalian aviation industry is resuming normal service delivery.

Table 4 Challenges Faced in the Aviation Industry of Somalia, 2024

S/No	Variable	Category	Number	%
3	challenges faced during COVID-19	Yes	174	96.7
		No	6	3.3
4	If so, what are the challenges faced?	Decrease in the number of flights	28	15.6
		Decrease in the number of flights, Difficulty in preventing COVID-19	49	27.2
		Difficulty in managing flights	8	4.4
		Difficulty in managing flights, Decrease in number of flights	13	7.2
		Difficulty in managing flights, decrease in number of flights, Difficulty in preventing COVID 19	70	38.9
		Difficulty in managing flights, Difficulty in preventing COVID-19	2	1.1
		Difficulty in preventing COVID-19	9	5.0
		Economic problem	1	.6

A total of 174 participants (96.7%) indicated that they faced challenges during the COVID-19 pandemic in Somalian aviation. The survey results revealed that the primary challenges experienced by Somalia's aviation sector included difficulties in managing flights (38.9%), decreasing the number of flights (27.2%), and preventing the spread of COVID-19 (see Table 4).

Table 5 Challenges related to aviation personnel in the Aviation Industry of Somalia, 2024

S/No	Variable	Category	Number	%
1	Aviation personnel reduced during the pandemic	Yes	166	92.2
		No	14	7.8
2	If yes, is there a delay in the flight?	Yes	156	86.7
		No	24	13.3
3	Aviation personnel recruited after COVID 19	Yes	127	70.6
		No	53	29.4

The majority 166(92.2%) of the study participants responded that aviation personnel reduced during COVID-19 in the Somalian aviation industry. Due to the reduction of aviation sector workers, about 156(86.7%) respondents said there were flight delays. After the pandemic, 127 (70.6 %) participants indicated that aviation personnel were recruited to improve problems related to human resource shortages (Table 5).

Table 6 Strategies Used to Overcome COVID-19 Lockdown in the Aviation Industry of Somalia, 2024

S/No	Variable	Category	Number	%
1	Are there strategies used to overcome COVID 19 lockdown	Yes	167	92.8
		No	13	7.2
2	If yes, what were strategies used?	Following the COVID-19 prevention protocol	24	13.3
		Following COVID-19 prevention protocol, providing incentives, Requesting support for the aviation sector	1	.6
		Following the COVID-19 prevention protocol, Providing job training	3	1.7
		Following COVID-19 prevention protocol, providing job training, providing incentives	5	2.8
		Following COVID-19 prevention protocol, providing job training, providing incentives, Requesting support for the aviation sector	2	1.1
		Following COVID-19 prevention protocol, providing job training, Requesting support for the aviation sector	2	1.1

		Following the COVID-19 prevention protocol, Requesting support for the aviation sector	1	.6
		Following the COVID-19 prevention protocol, Working on the retention of aviation workers	8	4.4
		Following COVID-19 prevention protocol, working on retention of aviation workers, providing incentives	2	1.1
		Following COVID-19 prevention protocol, working on retention of aviation workers, Providing job training	43	23.9
		Following COVID-19 prevention protocol, working on retention of aviation workers, providing on job training, providing incentives	12	6.7
		Following COVID-19 prevention protocol, working on retention of aviation workers, providing on job training, providing incentives, Requesting support for the aviation sector	50	27.8
		Following COVID-19 prevention protocol, working on retention of aviation workers, providing on job training, Requesting support for the aviation sector	2	1.1

		Following COVID-19 prevention protocol, working on the retention of aviation workers, Requesting support for the aviation sector	4	2.2
		Lockdown	1	.6
		providing incentives	1	.6
		Providing on job training	4	2.2
		Providing on job training, Requesting support for the aviation sector	1	.6
		Requesting support for the aviation sector	4	2.2
		Working on retention of aviation workers	5	2.8
		Working on retention of aviation workers, providing incentives	1	.6
		Working on retention of aviation workers, Providing on job training	1	.6
		Working on retention of aviation workers, providing on job training, Requesting support for the aviation sector	3	1.7

The majority of 167 study participants (92.5%) reported that the aviation industry in Somalia implemented strategies to prevent the spread of COVID-19. Among these strategies, 50 (27.8%) participants noted that the industry adhered to the COVID-19 prevention protocol, which included retaining aviation workers, providing on-the-job training, offering incentives, and requesting

support from the aviation sector. Additionally, 24 (13.3%) participants reported that the industry only followed the COVID-19 prevention protocol (Table 6). The majority of the interviewed participants, 175(97.2%), indicated that the aviation sector was affected by the COVID-19 pandemic. With respect to the recovery of Somalia's aviation industry, around 140(77.8%) respondents reported that the sector had recovered from the effects of the pandemic, while 40(22.2%) indicated that it had not yet fully recovered.

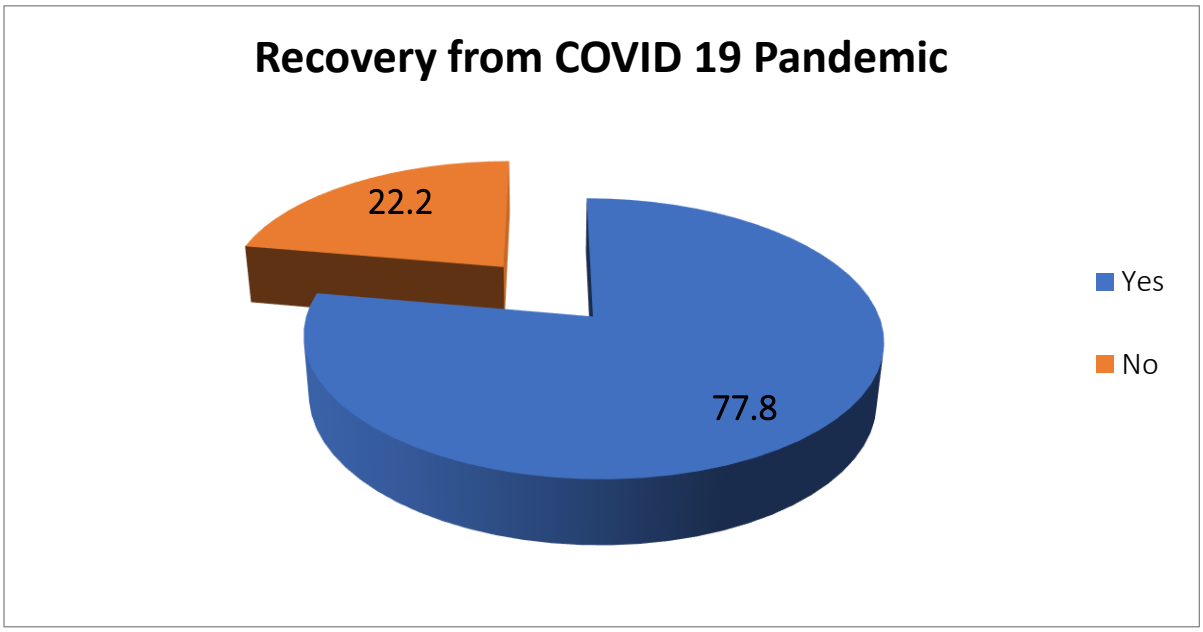

Figure 4: Recovery of the aviation sector from COVID-19, 2024

Table 7 Relationship between sociodemographic variables and COVID-19 recovery of the Somalia aviation industry, 2024

Variable	Category	Recovery of the Aviation sector		p-value
		Yes	No	
Age	18-25	27(25%)	0	0.019
	26-35	57 (40.7%)	17 (42.5%)	
	36-45	36(25.7%)	15(37.5%)	
	>=46	20(14.3%)	8(20.0%)	
Sex	Male	109(77.9%)	32(80%)	0.772
	Female	31(22.1%)	8 (20%)	
Education level	Certificate	5(3.6%)	2(5%)	0.720
	High school	7(5%)	1(2.5%)	
	Bachelor degree and above	128(91.4%)	37(92.5%)	
Marital status	Single	82(58.6%)	17(42.5%)	0.072
	Married	58(41.5%)	23(57.5%)	
Years of professional experience	Less than 1 year	19(13.6%)	1(2.5%)	0.018
	1-5 years	52(37.1%)	10(25%)	
	6-10 years	40(28.6%)	21(52.5%)	
	>11 years	29(20.7%)	8(20%)	
	Less than 500$	30(21.4%)	1(2.5%)	0.012

Monthly income of the Aviation employee	500-1000$	24(17.1%)	3(7.5%)	
	1000-1500$	26(18.6%)	13(32.5%)	
	1500-2000$	39(27.9%)	16(40.0%)	
	>2000$	21(15.0%)	7(17.5%)	

The findings of the study involving 180 participants, with ages ranging from 18 to 25 years (27 participants, 25%), 26 to 35 years (57 participants, 40.7%), 36 to 45 years (36 participants, 25.7%), and 46 years or older (20 participants, 14.3%) revealed that many of the participants, 146(97.8%), had recovered from the impact of COVID-19 on the aviation sector. The results indicated a significant association between age and the recovery of the aviation sector from the COVID-19 impact (p=0.019) (Table 9).

Regarding the participants' perceptions of the overall safety of the aviation industry, 74(59.3%) of the male respondents rated it as safe, while 24(40.1%) specifically assessed the safety of Somalia aviation. A statistically significant association was found between the recovery of the aviation sector and years of professional experience (p=0.018) and monthly income of aviation employees (p=0.012) (Table 12). However, no association was observed between the recovery of the aviation sector and educational level (p =0.72), marital status (p =0.772), or age (p =0.072) (Table 7).

CHAPTER 5
CONCULSION AND RECOMMENDATION

5.1 Conclusion

The study tested hypothesis on whether the level of recovery of aviation high and tested relationship between recovery of the aviation industry and socio-demographic factors was. Regarding the recovery of Somalia's aviation industry, 140 (77.8%) respondents reported that the sector had recovered from the pandemic's effects, while 40 (22.2%) indicated that the sector had not yet fully recovered. There was a significant association between recovery and factors such as age, professional experience, and monthly income of aviation employees ($p < 0.05$). However, no significant association was found between recovery and variables such as education level ($p = 0.72$) and marital status ($p = 0.772$). A survey indicated that 175 (97.2%) of the aviation sector in Somalia was significantly affected by the COVID-19 pandemic.

A similar study highlighted that airline companies worldwide suffered an unprecedented commercial disaster due to the COVID-19 epidemic. After a 21% decline in March 2020 compared with the previous year, there was an abrupt increase in traffic, which led to a further contraction in April, with a total decline of 66%. Knowing that this infectious, transmissible virus could kill in a matter of hours, devastating shockwaves spread across the globe in May, and the precipitous decline continued at alarming levels, dropping even lower to 69%. In 2020, COVID-19 caused eight times more damage than the 2008–2009 financial crisis (Liu et al., 2021).

Approximately 95% of the study participants pointed out that there were significant challenges faced during COVID-19 in the Somalia aviation industry. These challenges included difficulties in managing flights, a decrease in the number of flights, and difficulty in preventing COVID-19. In addition, nearly 95% of the study participants responded that aviation personnel were reduced during the pandemic, and this reduction contributed to flight delays. After the pandemic, 127 (70.6%) participants indicated that aviation personnel were recruited to address human resource shortages and improve related issues.

In this study, nearly 99% of respondents indicated that the COVID-19 outbreak had affected the Somalia aviation industry, primarily through income decline, professional loss, flight delays, and a decrease in passenger numbers. Additionally, the study revealed that approximately 96% of

airline seats were reduced during the pandemic. According to the opinions of the study participants, seat reductions were 87 (48.3%) by half and 93 (51.7%) by one-third. Moreover, 156 (86.7%) participants responded that the number of seats increased after the COVID-19 outbreak. Compared to flights during COVID-19, the flights after the pandemic have resumed to normal, business, and emergency flights. This indicates that normal service delivery is resuming in the Somalian aviation industry.

These findings emphasize the significant impact of the COVID-19 pandemic on the aviation industry in Somalia. The data reveals both the severe challenges faced and the gradual recovery that is taking place. While a majority of the sector has shown signs of recovery, ongoing issues remain that require targeted interventions.

5.2 Recommendation

According to the results of the most recent survey, the COVID-19 pandemic's impacts on Somalia's aviation sector have not yet completely abated. To allocate resources and create efficient recovery strategies, the government must act immediately and exhibit strong leadership in the aviation industry.

Support and Coordination from the Government: The government's financial support in the form of grants and subsidies is essential to the stabilization of the aviation sector. For efficient coordination and strategic planning, the Ministry of Transport and Civil Aviation must create a specific task force.

Pandemic Response Plans: It's critical to create all-encompassing plans to control and lessen the effects of upcoming pandemics. This entails putting in place strict health and safety guidelines and developing backup plans to keep things running in an emergency. Improving preventive actions will reduce disruptions and increase readiness. Promotional Plans and Increased Capacity: It's critical to focus on putting marketing plans into action that will increase passenger confidence and encourage air travel. Optimizing flight operations is crucial to increasing seat capacity, and airlines should be urged to expand their offerings. It is important to remember that this process calls for constant observation and tactical modifications.

Workforce Management and Development: Resolving labor issues is essential to the industry's resurgence. Employing focused training and recruitment initiatives can help draw in and keep seasoned workers. Encouraging diversity and gender equality through inclusive policies and equal work opportunities for all workers can benefit the sector.

By concentrating on important areas, the aviation sector in Somalia may effectively manage the difficulties brought about by COVID-19 and take advantage of emerging opportunities. With the help of this strategy, the aviation sector in Somalia will be able to achieve sustainable growth and put into practice sound recovery techniques, making it more robust and successful overall.

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Appendix A: SURVEY INSTRUMENT

The objective of this survey was to gather insights and perspectives on how the COVID-19 pandemic impacted the aviation industry in Somalia. We aim to understand the challenges faced, the opportunities that have emerged, and strategies for recovery and enhancement. By tapping into your experiences and opinions as an industry professional and stakeholder, we can develop informed recommendations to bolster the resilience of the aviation sector in Somalia.

Thank you for your willingness to participate. Your valuable input will play a pivotal role in advancing our understanding of the impact of COVID-19 on the aviation industry in Somalia as well as the associated challenges, opportunities, and recovery strategies.

Section 1: Socio-demographic Related Questions

Personal Information

Gender

- Male
- Female

What is your age?

- 18-25
- 26-35
- 36-45
- 46-55
- 56 and above

Marital Status

- Single
- Married

What is your average monthly salary? (Please select the range that applies

- Less than $500
- 500 - $1000
- 1000 - $1500
- 1500 - $2000
- More than $2000

What is your educational level?

- Certificate
- Diploma
- Bachelor and above
- Other

How many years have you served the aviation industry?

- Less than 1 year
- 1-5 years
- 6-10 years
- 11-15 years
- More than 15 years

Section 2: Effect of COVID-19 on the Somalia Aviation Industry

Do you think COVID 19 influences the Somalia Aviation industry?

- Yes
- No

If so, what is the effect of COVID-19 on the aviation industry? (Please specify)

- Income decline
- Professional loss
- Delay in flights
- Decrease in passengers

During the COVID 19 pandemic is there a seat reduction you noticed?

- Yes
- No

In your opinion, how do you estimate the seat reduction?

- By half
- One third

After the COVID 19 pandemic, did the number of seats increase?

- Yes
- No

What types of flights were operational during the COVID 19?

- Ambulance flights
- Normal flights
- Cargo
- Humanitarian flights
- Business flight

What types of flights were operational after the COVID 19?

- Normal flights
- Business flights
- Cargo
- Humanitarian flights

Are there challenges faced during the COVID 19?

- Yes
- No

If so, what are the challenges faced?

- Difficulty in managing flights
- Decrease in number of flights
- Difficulty in preventing COVID 19

Are aviation personnel reduced from work during the COVID 19 pandemic?

- Yes
- No

If yes, owing to aviation personnel reduction, is there a flight delay?

- Yes
- No

Are aviation personnel recruited for work after the COVID 19 pandemic?

- Yes
- No

Is there a strategy used to overcome the COVID 19 lockdown?

- Yes
- No

If so, what are the strategies used to overcome the COVID-19 pandemic?

- Following COVID 19 prevention protocol
- Working on retention of aviation workers
- Providing on job training providing incentives
- Requesting support for aviation sector

Do you think the Somalian aviation industry recovered from the effect of COVID 19?

- Yes
- No

Do you think the COVID 19 aviation sector of Somalia was affected by the pandemic?

- Yes
- No

Do you think after the COVID 19 aviation sector in Somalia recovered from the pandemic?

- Yes
- No

Appendix B: TURNITIN REPORT

Abdirahin Abdullahi Ali

ORIGINALITY REPORT

14%	12%	8%	5%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

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