Üçüncü Sektör Sosyal Ekonomi Dergisi
Third Sector Social Economic Review
58(1) 2023, 244-261
doi: 10.15659/3.sektor-sosyal-ekonomi.23.02.2027

Review Article

Changes in Consumer Behaviour in Air Transportation Industry Due to Covid-19 Pandemic: A Literature Review

Covid-19 Pandemisi Nedeniyle Hava Taşımacılığı Sektöründe Tüketici Davranışlarında Meydana Gelen Değişiklikler: Bir Literatür Taraması

Hüseyin Erbil ÖZYÖRÜK	**Mehmet Ali BORAN**
Dr. Öğr. Üyesi, Türk Hava Kurumu Üniversitesi	Yüksek Lisans Öğrencisi, Türk Hava Kurumu Üniversitesi
Hava Ulaştırma Fakültesi	Havacılık Yönetimi
Pilotaj Bölümü	s2108061010@stu.thk.edu.tr
erbilozyoruk@hotmail.com	https://orcid.org/0000-0002-1323-5808
https://orcid.org/0000 0003 2359 1854	

Makale Geliş Tarihi	**Makale Kabul Tarihi**
17.11.2022	**28.01.2023**

Abstract
The Covid-19 pandemic has greatly affected the daily life of all humanity. With quarantines and economic pauses, consumers' behavior began to change soon after the pandemic was declared. The air transport sector has been one of the sectors most affected by the Covid-19 pandemic. This study was conducted to identify and classify changes in consumer behavior in the air transport industry due to COVID-19. The aim is to find gaps in the literature, to provide easy and single-source access to research on this subject, and to be prepared for possible COVID-19-like cases in the future. For this purpose, research on changes in consumer behavior in air transport due to COVID-19 was gathered from the academic databases, analyzed using content analysis method and attempted to be classified systematically. This study enables researchers, managers, and consumers to reach research on this subject in a single study, and thus to find out the studies on the consumers' behavioral changes that occurred in the air transport sector before, during and after the pandemic as a whole.
Keywords: *Covid-19, air transportation industry, consumer behavior, literature review, pandemic*

Öz
Covid-19 salgını tüm insanlığın günlük yaşamını büyük ölçüde etkilemiştir. Karantinalar ve ekonomik durgunluklarla birlikte, pandemi ilan edildikten hemen sonra tüketicilerin davranışları değişmeye başlamıştır. Hava taşımacılığı sektörü, Covid-19 pandemisinden en çok etkilenen sektörlerden biri olmuştur. Bu çalışma, COVID-19 nedeniyle hava taşımacılığı endüstrisinde tüketici davranışlarındaki değişiklikleri belirlemek ve sınıflandırmak için yapılmıştır. Çalışmanın amacı, literatürdeki boşlukları bulmak, bu konudaki araştırmalara kolay ve tek kaynaktan erişim sağlamak ve gelecekte olası COVID-19 benzeri vakalara hazırlıklı olmaktır. Bu amaçla, akademik veri tabanlarından COVID-19 nedeniyle hava taşımacılığı sektöründeki tüketici davranışı değişikliklerine yönelik araştırmalar toplanmış, içerik analizi yöntemi ile analiz edilmiş ve sistematik olarak sınıflandırılması çalışılmıştır. Bu çalışma, araştırmacıların, yöneticilerin ve tüketicilerin bu konudaki araştırmalara tek bir çalışmada ulaşmasına ve böylece hava taşımacılığı sektöründe meydana gelen tüketici davranış değişikliklerinin pandemi öncesi, sırası ve sonrasında bir bütün olarak ele alınmasına olanak sağlamaktadır.
Anahtar Kelimeler: *Covid-19, hava taşımacılığı sektörü, tüketici davranışı, literatür taraması, pandemi*

Önerilen Atıf /Suggested Citation
Özyörük, H. E. & Boran, M. A., 2023 Changes in Consumer Behaviour in Air Transportation Industry Due to Covid-19 Pandemic: A Literature Review, *Üçüncü Sektör Sosyal Ekonomi Dergisi,* 58(1), 244-261

1. Introduction

Following the official global pandemic declaration on March 11, 2020, (World Health Organization, 2020), COVID-19 has greatly affected our lives, with the daily highest number of cases reaching 3.847.142 on January 21, 2022, and the total number of cases exceeding 600 million. The pandemic has caused not only personal protection to be mandated by governments in the form of social distancing, but also the introduction of nationwide quarantines all over the world (Centers for Disease Control and Prevention, 2022; World Health Organization, 2022). The effects of the lockdowns soon manifested as economic crises in not only Turkey but also in many leading economies of the world, causing gross domestic product (GDP) to fall by 0.9% in Turkey and 3.3% overall in the world compared to the previous year (The World Bank, 2022a, 2022b).

The air transport sector has been one of the sectors most affected by the pandemic during this period. A similar negative effect also occurred in the airline sector with the number of passengers falling by approximately 60% in Tukey and 62% globally along with daily flights going down by 50% in Turkey and 41.7% globally in 2020 compared to 2019 (Eurocontrol, 2020; flightradar24, 2021; The World Bank, 2021b, 2021a). Along with the lockdowns and economic downturns, the behavior of consumers began to shift, therefore research on this change also began such as consumers' perception of airlines, changes in travel patterns, mask-wearing intentions, safety perception, and avoidance, and more (e.g.; Afaq et al., 2021; Neuburger & Egger, 2021; Yin & Ni, 2021; Zhang et al., 2021). Although research on changes in consumer behavior in the air transport industry is available as separate articles in the literature; No study has been found that allows researchers, managers, and consumers to reach research on this subject in a single study, and thus to see the studies on the behavioral changes that occurred in the air transport sector before, during and after the pandemic as a whole. This study allows researchers to locate existing gaps in the literature regarding research into consumer behavior in global crises. This will enable researchers to better find topics that will bridge these gaps for future research, as well as a faster way to conceptualize research topics. As such it is necessary to file and group these studies to find any gaps in research regarding the behavioral changes of consumers in air travel due to global shocks such as the current pandemic. Furthermore, managers would find this study useful when searching for research done on consumer behavior; because the managers would have access to such research in a single article to assist them when forming strategies related to similar situations to manage their current situation and establish precautionary strategies for possible similar situations in the future. Lastly, for consumers, this study would allow them to better understand the actions taken by companies serving them, which in turn would allow them to become more aware of their standing as customers. Therefore, this study was conducted to identify and classify research on changes in consumer behavior in the air transport industry due to COVID-19. The aim is to find gaps in the literature, to provide easy and single-source access to research on this subject, and to be prepared for possible COVID-19-like cases in the future.

In this article, the introduction is followed by the methodology and then the results, and it ends with a discussion section in which the author's views on how to expand the literature and close the gaps in the existing literature are given.

2. Methodology

As this study aims to aggregate research on changes in consumer behavior in air transport due to COVID-19, the databases used to access studies need to be reliable and diverse. Therefore, Science Direct, ProQuest, Taylor and Francis, Web of Science, and Google Scholar databases were used in the search process, not only because of their reliability but also because of the large number of topics and journals they cover. In addition, it was decided to include only articles published in academic journals and exclude books and conference proceedings to keep the number of studies at a reasonable level.

The interfaces offered by these databases were used to access studies on consumer behavior changes in air transport due to Covid-19. In order not to miss any articles in the first place, no subject search or journal search tools included in the databases were used, only the language selection tool of the databases was used to limit the language of the articles to English because English is considered the language of science. Then, the period since January 1, 2019, was used for the search, so the screening was done to cover the entire life of the covid-19 pandemic (The World Health Organization, 2020). Afterward, keywords such as 'Covid-19' and 'Pandemic' were used to limit search results at first. In the next step, the search was limited by using keywords such as "Consumer behavior", "airline", "air freight" and "air

cargo" and 560 studies were reached. Among these, duplicate studies were detected by manual scanning and excluded from the data set, resulting in 160 studies. Subsequently, using the content analysis method, it was investigated whether the studies were carried out on the changes in consumer behavior caused by Covid-19 in the air transport sector, by examining the articles one by one in-depth, and it was determined that 38 articles were directly related to the subject. Additionally, as a result of the content analysis, the articles were divided into two main groups, and these groups were named "Changes in consumer attitudes, perceptions or behaviors" and "Changes in industry characteristics and dynamics". Afterward, the main group “Changes in industry characteristics and dynamics” was divided into two subgroups: “Recovery and sustain” and “Demand and supply”, according to the content and themes of the articles. The results section below will summarize the content, methodology, and results of the studies for each group.

3. Results

As mentioned previously the classified articles are presented in the following sections. These groups were formed using keywords provided by the authors of each article. For example, the first group, titled “Changes in consumer attitudes, perceptions or behavior,” were established by agglomerating articles that included the keywords of behaviors, consumer, perception, etc. These articles' content relates directly to the consumers, so they were classified into this group. The remaining articles then were grouped under “Changes in industry characteristics and dynamics”. These articles were included in this study due to their indirect connection to the changes in consumer behavior. Before the articles in each group are discussed, a table containing article information will be presented.

3.1. Changes in consumer attitudes, perceptions, or behavior

As mentioned, Table 1: Changes in consumer attitudes, perceptions, or behavior, which is shown below, includes the articles’ information that are present in this section.

Table 1: Changes in consumer attitudes, perceptions, or behavior

Name of the Study	Authors	Year	Journal
Travel risk perception and travel behaviour during the COVID-19 pandemic 2020: a case study of the DACH region	Larissa Neuburger, and Roman Egger	2020	Current Issues in Tourism
COVID-19: transforming air passengers’ behaviour and reshaping their expectations towards the airline industry	Anam Afaq, Loveleen Gaur, Gurmeet Singh, and Amandeep Dhir	2021	Tourism Recreation Research
Focusing on the big picture while observing the concerns of both managers and passengers in the post-covid era	Simge Samanci, Kumru Didem Atalay, and Feride Bahar Isin,	2021	Journal of Air Transport Management
A qualitative analysis of social and emotional perspectives of airline passengers during the COVID-19 pandemic	Tracy L.Lamb, Keith J.Ruskin ,Stephen Rice, Leili Khorassani, Scott R.Winter, and DothangTruong	2021	Journal of Air Transport Management
The impact of COVID-19 on airline passenger travel behavior: An exploratory analysis on the Chinese aviation market	Linfeng Zhang, Hangjun Yang, Kun Wang, Lei Bian, and Xian Zhang	2021	Journal of Air Transport Management
Air-Travelers’ Perceptions of Service Quality during the COVID-19 Pandemic: Evidence from Tripadvisor Sites	Deniz Sulu, Huseyin Arasli, and Mehmet Bahri Saydam	2021	Sustainability
Factors that predict passengers willingness to fly during and after the COVID-19 pandemic	Tracy L.Lamb, Scott R.Winter, StephenRice, Keith J.Ruskin, and AustinVaughn	2020	Journal of Air Transport Management

Attitudes of ageing passengers to air travel since the coronavirus pandemic	Anne Graham, Frances Kremarik, and Willy Kruse	2020	Journal of Air Transport Management
Mask-wearing intentions on airplanes during COVID-19 – Application of theory of planned behavior model	Jing YuPan, and Dahai Liu	2022	Transport Policy
Negative affectivity and people's return intentions to hospitality and tourism activities: The early stages of COVID-19	Edwin N.Torres, Jorge Ridderstaat, and Wei Wei	2021	Journal of Hospitality and Tourism Management
The impact of the COVID-19 pandemic on current tertiary aviation education and future careers: Students' perspective	Peter Miani, Tarryn Kille, Seung-Yong Lee, Yahua Zhang, and Paul Raymond Bates	2021	Journal of Air Transport Management
COVID-19 event strength, psychological safety, and avoidance coping behaviors for employees in the tourism industry	Jie Yin,and Yensen Ni	2021	Journal of Hospitality and Tourism Management
Can communication messages affect promotion of international air travel in preparation for the post COVID-19 pandemic era?	Seongseop (Sam)Kim, Jungkeun Kim, Youngjoon Choi, Jongwon Shin, and Alastair M.Morrison	2022	Journal of Hospitality and Tourism Management
The impact of COVID-19 on European tourists' attitudes to air travel and the consequences for tourist destination evoked set formation	Inma Gallego, Xavier Font, and M. Rosario González-Rodríguez	2022	Tourism Management Perspectives
Self-check-in kiosk quality and airline non-contact service maximization: how to win air traveler satisfaction and loyalty in the post-pandemic world?	Hyoungeun Gemmy Moon, Heejung Linda Lho, and Heesup Han	May 2021	Journal of Travel & Tourism Marketing

Although this subgroup was named "Changes in consumer attitudes, perceptions or behavior", it is a diverse group. For example, Afaq et al. (2021) and Samanci et al. (2021) conducted research focused on examining Tweets to assess customer expectations and opinions. Although similar, these articles differ in their methodology and the results they seek to achieve. Afaq et al. (2021) explored the interaction between airline service providers and passengers, focusing mostly on the general themes of pre- and post-pandemic interactions. However, Samanci et al. (2021) extended this idea by including managers as part of the research process to prioritize emerging themes. In a study not very different from these, Sulu et al. (2021) focused on finding passenger satisfaction and dissatisfaction through narratives published through online reviews during the Covid-19 pandemic. The authors used TripAdvisor's review feature to collect narratives about passenger flights during the pandemic and examined them to find keywords and themes related to passenger satisfaction and dissatisfaction. The results of the study showed that the most used themes and words associated with passenger satisfaction were terms such as "comfortable", "cleanliness", "seats", "entertainment" and "legroom". Meanwhile, themes and words such as "ticket" (73%), "refund" (57%), "disappointing" (56%), "cancellation" (54%), "booking" (44%), "luggage" (26%), "check-in" (25%), boarding (25%), "COVID-19" (25%), "waiting" (24%), and "airport" were mostly related to passenger dissatisfaction. Similar to the previous study, Kim et al. (2022) focused on communicating with potential travelers to influence their behavior. The study specifically examined the effects of airline massages on potential airline passengers to participate in international travel. In the study, 13 different massage types, including 1 control massage and 6 messages for loss and gain situations were used on 1300 participants along with the post-test control group experimental design method. The results showed that messages with direct monetary gains

affected the behavior of passengers more than indirect or unambiguous messages. It was also revealed that other messages focusing on the difficulties of the airline companies or messages focusing on improving the company image did not have much effect on the behavior of the passengers in this period.
Neuburger & Egger (2021) did not only focus on air transport alone, but they also examined the changes in travel behavior. The authors investigated changes or cancellations in travel plans based in the DACH region (covering Germany, Austria, and Switzerland). The study was conducted using surveys conducted at two different times, one at the beginning of March 2020 and the other two weeks later. The results of this research showed that people not only have an increased perception of risk but also that they are divided into very different groups in terms of risk. Similarly, Torres et al. (2021) focused on the broader use of the hospitality sector. Their study investigated the changes in the consumption of hospitality services due to COVID-19. While covering the hospitality sector, this study also included air transportation. The authors used a national survey done on consumers in the United States, to find how and what changes the consumption behavior of the consumers. The findings demonstrated how timing, frequency, and strength of emotions impact on customer behavior. Following this, emotions like "upset" or "distressed" sped up the utilization of these services while emotions like "afraid" slowed it down. The study contended that demographic factors affect consumers' propensity to use hospitality services again. Being younger and earning more money were personality factors that boosted the desire to travel abroad, but being older and earning less money diminished that desire.
Lamb et al. (2020) focused on the willingness to fly during COVID-19. The authors specifically emphasized the factors that affect the willingness to fly on both business-related trips and leisure trips. The study tested 23 possible predictors utilizing a survey of 632 United States-based participants and a regression model to test these predictors. As a result, four predictors, namely perceived threat from COVID-19, agreeableness, affect, and fear were found to be the factors that affected the willingness to fly. Lamb et al. (2021) focused on the emotional response of passenger behaviors, specifically, on gaining insight into the emotion, trust, and fears of airline passengers. The study used data from phone interviews with 15 people, based on questions that focus on these topics. The results of the research can be summed up as trust issues felt towards airports and other individuals, along with the development of fear and anxiety towards taking a flight increased due to Covid-19.
Pan et al. (2022) explored the purpose behind wearing a mask during flight. The study investigated the behavior of passengers regarding wearing masks on flights using the theory of planned behavior (TPB) model. The authors used survey data collected from Amazon Mechanical Turk (MTurk), which resulted in 1124 respondents. The results of the study showed that variables such as attitude, risk aversion, descriptive norms, and information seeking are the most explanatory in this regard and their importance varies according to the demographic structure. For example, young and middle-aged passengers focused on the presence of positive or negative attitudes towards masks in their in-flight decisions, while older passengers focused on avoiding COVID-19 rather than mask-oriented attitudes. Also, the study found that people were willing to pay more to switch to an airline with a mask requirement than a non-mask-required one. This decision-making process has been heavily influenced by demographics such as education, income, and travel frequency during COVID-19.
Graham et al. (2020) examined the change in attitudes of aging passengers (65+ years) towards air travel. The study used an online survey of aging passengers in the UK to find out their attitudes toward flights over the following 12 months. The results showed that while most of the passengers (60%) were still planning to fly, the frequency of flights with international routes decreased due to the pandemic. Also, it revealed that services such as flexible ticket booking, fewer ancillary services, and contactless self-service made less sense for most of the respondents. The authors suggested that the results show almost no difference between the different demographics of the respondents, and the seniors' market may be more homogeneous than previously thought. In addition, when it comes to the stages of the flight in terms of the risk of Covid-19, the journey to the airport was seen by the elderly as safer than the time spent in the terminal and on the plane.
Zhang et al. (2021) focused on changes in the travel behavior of passengers in the Chinese market. The authors used passenger demographic data such as age, and gender along with ticket class, and passenger ticket reservation data, which includes ticket information such as flight information and dynamic flight data. These datasets were used to determine passengers' travel intentions based on flight timing and reservations. The results of the study revealed that the psychology of the passengers has changed significantly, and although the regulations made during the pandemic helped the passenger volume to

recover more quickly, it took more time for the passengers to book tickets in advance. Moreover, it was found that local recoveries during the pandemic did not cause a significant change in passenger numbers but had a greater impact on the number of refunds and ticket changes. And finally, the authors argued that due to government regulations and restrictions, passengers arrive at airports earlier than before the pandemic, arguing that this situation can be exploited for possible expenses.

Yin & Ni (2021) focused on employee behavior changes rather than customers as a result of COVID-19. The authors surveyed all tourism-related industries, not just airlines, to detect behavioral and attitude changes due to the pandemic in China. The study used an online questionnaire to collect data and used the Stimulus-organism-response (SOR) model, a model used to predict responses that originate from external threats, to conduct the study. The results showed that the COVID-19 event had both positive and negative effects on Fear of External threat (FET) and Psychological security (PS), respectively. Second, FET negatively affects PS. This may be due to the negative impact of COVID-19 on the economy, with the tourism industry underutilized during the time of the study. Then, Avoidance Coping Behavior (ACB) was adopted by those working with FET instead of PS. In addition, ACB is indirectly affected by COVID-19, not directly, through FET and PS. Finally, supervisor security support can be used as a moderator of perceived PS and ACB as supervisors can find issues before they arise and take appropriate action that could result in a decrease in ACB due to increased security.

Miani et al. (2021) explored students' perspectives on the aviation industry as future professionals. The study collected data through a questionnaire that included questions about the future, such as whether students have sufficient skills, whether they are considering postgraduate education, and whether they think they can help with post-COVID recovery. This questionnaire was administered only to Australian aviation students. The results offered comparisons between the perceptions of students and current professionals in the aviation industry. Most of the answers given by students were in line with professionals, such as the excess of aviation professionals and critical thinking/analytical skills being more important than non-technical skills. However, some differences emerged, because some non-technical skills ranked higher by professionals, such as digital literacy and citizenship, were ranked lower by students.

Moon et al. (2021) examined the effects of self-check-in kiosks (SCKs) on traveler satisfaction and loyalty. In the study, a 20-item questionnaire was used to determine the quality of SCKs along with passenger satisfaction, loyalty, and innovation. The results found that SCK quality, as well as the personalization of kiosks, is essential for passenger satisfaction. There was also a spillover effect, where satisfaction with kiosks also influenced satisfaction with the airline as a whole. Finally, it was found that the innovativeness of the passengers positively affects their loyalty to the airlines, that is, the passengers who want to experience new technologies are more likely to prefer the airlines that offer these technologies.

Gallego et al. (2022) investigated the attitudes of European tourists toward air travel under COVID-19 restrictions and its effects on designated destinations. The authors focused mainly on outbound flights to Spain and used flight searches and selections done on Skyscanner. These searches and selections were then used to construct a Sauerbeck complex index to find variations in attitude to travel. The results showed that German passengers took a more determined stance when it came to international travel. The results also revealed that almost all other European markets have a positive attitude towards Spain when it comes to international travel, except for Portugal, where the authors argue that road connectivity is the main reason. Finally, the authors argued that the most beneficial markets for Spain are Germany and the UK, as these markets find the other countries more attractive in risky periods.

3.2. Changes in Industry Characteristics and Dynamics

As mentioned earlier, the second main group was named “Changes in consumer attitudes, perceptions or behavior” and it was split into two sub-groups called “Demand and supply” and “Recovery and sustain” respectively. This classification was done via the previously mentioned method of using keywords and the context of the articles in the groups. Due to being spilt into two sub-groups the tables for this part will be given separately, each located at the beginning of their respective sub-groups.

3.2.1 Demand and supply

Following Table 1, Table 2: Demand and supply, which is given below, will give the names of the studies in this group much like Table 1. And as mentioned Table 3 will be given at the sub-group “Recovery and sustain”.

Table 2: Demand and supply

Name of the Study	Authors	Year	Journal
Pandemics, tourism and global change: a rapid assessment of COVID-19	Stefan Gössling, Daniel Scott, and C. Michael Hall	Journal of Sustainable Tourism	2020
Changes in air passenger demand as a result of the COVID-19 crisis: using Big Data to inform tourism policy	Inmaculada Gallego, and Xavier Font	Journal of Sustainable Tourism	2020
Impact of COVID-19 on air transport passenger markets: Examining evidence from the Chinese market	David Warnock-Smith, Anne Graham, John F.O'Connell, and Marina Efthymiou	Journal of Air Transport Management	2021
Testing the differentiated impact of the COVID-19 pandemic on air travel demand considering social inclusion	Luca J.Santos, Alessandro V.M.Oliveira, and Dante Mendes Aldrighi	Journal of Air Transport Management	2021
Covid −19, the collapse in passenger demand and airport charges	Peter Forsyth, Cathal Guiomard, and Hans-Martin Niemeier	Journal of Air Transport Management	2020
Estimating the impact of COVID-19 on air travel in the medium and long term using neural network and Monte Carlo simulation	Dothang Truong	Journal of Air Transport Management	2021
Benchmarking the recovery of air travel demands for US airports during the COVID-19 Pandemic	Yi Gao	Transportation Research Interdisciplinary Perspectives	2022

The ‘Demand and supply’ part of ‘Changes in industry characteristics and dynamics’ groups encompasses articles that are mainly focused on demand and supply changes along with predictions, such as Gallego & Font, (2021)’ s research. This study developed a way to measure demand using Skyscanner. The authors investigated it using ForwardKeys, a paid platform that makes big data easier to analyze, used global air capacity for supply and Skyscanner for demand. The result was a supply and demand prediction model based on big data.

Gao (2022) aimed to benchmark US airports in terms of travel demand. To do so, the study used the number of passengers going through the airport security checkpoints in US primary hub airports, provided by the Transportation Security Administration as its main variable referred to in the article as “TSA numbers”. The hubs were further divided by their size as large, medium, and small primary hub airports as designated by the Federal Aviation Admission (FAA). The study gathered the data between March 4, 2019- “Thanksgiving week of 2021” to March 2, 2020, serving as the pre-COVID-19 period. The TSA numbers were then aggregated first by checkpoint numbers and then by hourly to determine the daily number of passengers going through an airport. This data was then further refined into timetables that match the days of the week to adjust the pre-Covid numbers to Covid numbers; this was done to determine the demand recovery of the airports. Cluster analysis was then performed. The results showed that airports located in the same region show similar demand recovery, and some large hub airports behave this way as well. But not all sizes of hub airports demand recovery clusters in a similar pattern.

Truong (2021) used neural networks and Monte Carlo simulations to forecast air travel demand in the USA. The author used factors such as the “Population not staying home” and the “Total number of trips” measured in miles per day and the “Weekly economic index (WEI)” which includes indicators of actual economic activity along with daily COVID-19 cases, tests, deaths, and hospitalizations. In the study, travel restrictions both domestic and international were used as inputs and the number of U.S. domestic and international flights served as outputs. A neural network model was used to link these inputs to the

identified outputs. The result of this study showed that in both the domestic U.S. market and international flights from the U.S., WEI plays the most important role in affecting consumer behavior.
According to Warnock-Smith et al. (2021), the effect of COVID-19 on Chinese airlines was examined in terms of the number of available seats and passengers, airline revenues, average prices, and airport frequencies. The study also looked at China's exports to Europe and other Asian countries in addition to the home Chinese market. The supply data set was taken from the subscription database Official Airline Guide (OAG), which tracks travel itineraries around the world, and the demand data set was taken from the Sabre AirVision Market Intelligence Data Tapes (MIDT) dataset. The authors reviewed both the supply and demand of airlines. The MIDT algorithm calculates the direct reservations by gathering information on passenger demand, rates, and airline income from indirect bookings, such as those made through online travel agents. The information covers the time frame of January 2017 through December 2020. The findings showed that the routes that were flown by the airlines with the most funding suffered the least in the Chinese market. Similar outcomes were obtained for the least affected routes by COVID-19 and the least restricted routes. There were a variety of outcomes on the airport side. But in contrast to airports that prioritize local carriers, those with a higher volume of foreign flights appear to have suffered more.
A unique study by Santos et al. (2021) took social inclusion into account. The authors focused on expanding an already existing demand formula by adding variables such as Human Development Index, access to cell phones, households' access to credit, and household indebtedness as proxies for social inclusion, digital inclusion, and financial inclusion. The formulas were all based on previous flight data between two cities selected for this research. The results revealed that greater social inclusion areas experienced a greater drop in demand compared to those with less.
In the literature, some studies investigated the effects of airport charges, such as Forsyth et al. (2020). The authors examined the price-changing options airport took during the pandemic. The airports included in this study consist of European airports and the study also classified airports. These classifications were based on the owner and operation types of the airports. Ultimately, the study intended to give insights and advice on airport prices during crises such as the recent pandemic. Gössling et al. (2021) studied the economic impact of the pandemic specifically on the tourism sector. The study was done via examination and comparison of the previous pandemics/epidemics to other types of global crises. This also serves as a look at the current pandemic to check if it was an unknowable risk. Then, the study investigated the impact of the pandemic on a global scale such as travel restrictions along with the further possible impact of the pandemic on a sectoral basis. Implications of the pandemic were discussed last compiling various demand fall predictions.

3.2.2 Recovery and sustain

Table 3: Recovery and sustain maintains the same functions as Table 1 and Table 2 and is also shown below.

Table 3: Recovery and sustain

Name of the Study	Authors	Year	Journal
Analysis of airline employees' perceptions of corporate preparedness for COVID-19 disruptions to airline operations	Seock-Jin Hong, Michael Savoie, Steve Joiner, and Timothy Kincaid	Transport Policy	2022
Impact of entry restriction policies on international air transport connectivity during COVID-19 pandemic	Siping Li, Yaoming Zhou, Tanmoy Kundu, and Fangni Zhang	Transportation Research Part E: Logistics and Transportation Review	2021
Risks, resilience, and pathways to sustainable aviation: A COVID-19 perspective	Stefan Gössling	Journal of Air Transport Management	2020
Hub airport slot Re-allocation and subsidy policy to speed up air traffic recovery amid COVID-19 pandemic --- case on the Chinese airline market	Meng Hou, Kun Wang, and Hangjun Yang	Journal of Air Transport Management	2021

A novel model to manage air cargo disruptions caused by global catastrophes such as Covid-19	Ibrahim Abdelfadeel Shaban, F.T.S. Chan, and S.H. Chung	Journal of Air Transport Management	2021
Impact of perception of COVID-19 on NPI, job satisfaction, and customer orientation: Highlighting three types of NPIs for the airline industry	Choong-Ki Lee, Eun-Kyo Jung, Sung-Eun Kang, James F.Petrick, and Yae-Na Park	Journal of Air Transport Management	2022
Exogenous shocks and managerial preparedness: A study of U.S. airlines' environmental scanning before the onset of the COVID-19 pandemic	Richard S.Brown, and William A.Kline	Journal of Air Transport Management	2020
To bargain or not to bargain: Airlines, legitimacy and nonmarket strategy in a COVID-19 world	Yusaf H.Akbar, and Maciej Kisilowski	Journal of Air Transport Management	2020
The effect of aviation responses to the control of imported COVID-19 cases	Meng Yu, and Zhenhua Chen	Journal of Air Transport Management	2021
An airport operations proposal for a pandemic-free air travel	Diego Alonso Tabares	Journal of Air Transport Management	2021
Future aircraft turnaround operations considering post-pandemic requirements	Michael Schultz, Jan Evler, Ehsan Asadi, Henning Preis, Hartmut Fricke, and Cheng-Lung Wu	Journal of Air Transport Management	2020
European airline response to the COVID-19 pandemic – Contraction, consolidation and future considerations for airline business and management	Lucy Budd, Stephen Ison, and Nena Adrienne	Research in Transportation Business & Management	2020
COVID-19 and business renewal: Lessons and insights from the global airline industry	Joseph Amankwah-Amoah, Zaheer Khan, and Ellis L.C.Osabutey	International Business Review	2021
COVID-19 social distancing and the US service sector: What do we learn?	Samet Gunay, and Bekir Emre Kurtulmuş	Research in International Business and Finance	2021
Will COVID-19 Threaten the Survival of the Airline Industry?	Xiao Xuan, Khalid Khan, Chi-Wei Su, and Adnan Khurshid	Sustainability	2021
Passenger, airline, and policy responses to the COVID-19 crisis: The case of South Korea	Myeonghyeon Kim, and JeongwoongSohn	Journal of Air Transport Management	2022

The 'Recovery and sustain' sub-group can be rather self-explanatory in terms of the articles that are included with a couple of exceptions such as Lee et al. (2022) and Hong et al. (2022)'s research, which focus on employee job satisfaction and perception. The main difference between these studies is that Hong et al. (2022) focused on risk management policies undertaken by companies. Specifically, it focused on the perception of these policies by US-based airline employees. The research was conducted through a survey constructed around the topic. Results showed that the companies did their best using non-routine procedures to make flights feel safe further for future pandemics. The study suggested three

attributes that will be more vital for risk management in unforeseen situations, risk responsiveness, risk evaluation, and risk monitoring. Meanwhile, Lee et al. (2022) investigated the non-pharmaceutical interventions (NPI) effects on job satisfaction and customer orientation of flight attendants in Korean airlines. This research, much like the previous one, used a survey based on factors such as "perception of COVID-19"," individual NPI"," organizational NPI"," governmental NPI"," job satisfaction" and "customer orientation". The result of this study revealed that job satisfaction for flight attendants correlates strongly with governmental NPI not only that but NPI itself also correlates to job satisfaction as well.

There is also research such as Amankwah-Amoah et al. (2021) and Budd et al. (2020)'s that examined the responses of airlines during the pandemic to map out recovery plans based on the action taken by those airlines. Amankwah-Amoah et al. (2021) researched the history of Pakistan international airlines (PIA) and Sri Lankan airlines (SLA) specifically. This study used the archival research method, in which archival records were examined, to find the strategic renewal (SR) strategies for both airlines separately. The results indicated that in both airline cases, most SR was a response rather than being proactive. Budd et al. (2020) studied the actions that European airlines took during the COVID-19 period of March-May 2020. 40 European airlines were selected, which cover over 85% of the European passenger market share. The data was taken from Eurocontrol and backed with official press releases from the websites of the selected airlines. Further, four operational attributes were formed for framework analysis, first one is "Impact on flight operations". This attribute referred to whether the airline started operations as of 29 May 2020, whether the airline received state or financial aid until 29 May 2020, and the planned day of restarting their services. Another attribute was "Impact on the fleet", questioning if there have been any changes to the fleet. The third was "Impact on labor", to ask if there have been any changes to staff including terms and conditions such as pay changes. The last attribute was "Impact on Network and Capacity", to examine whether there have been any announcements made on future network changes, this includes withdrawing services as well as expanding services. The study further explained the results of the analysis and ended with suggestions based on the results regarding the need for international coordination regarding biosecurity and how airlines can reassure passengers that it is safe to fly again.

Yu & Chen (2021) explored the assessment of strategies regarding the control of imported cases of COVID-19 in China. This study used non-recursive structural equation models (SEM) to test three different policies. First was the "circuit breaker", which mandates that all international passengers arriving in China must be tested for COVID-19 upon which if a certain number of passengers has positive results, the airline is suspended for several weeks ranging from one to four. The second policy was the "negative NAT" whereby passengers heading to China must present negative COVID-19 Nucleic Acid test results within five days before departing for China. The last policy was named "double negative tests" where the passengers took both nucleic acid and IgM antibody tests along with an application of certified health forms 48 hours before boarding. The results found that the implementation of a "circuit breaker" in conjecture with the "double negative tests" prevented the import of COVID-19 cases more than the other policies.

Gunay & Kurtulmuş (2021) investigated the relationships between four relevant service sectors due to social distancing. The authors specifically studied the interconnectivity of hotels, entertainment, restaurants, and airlines using the stock market caps of the five biggest companies in each sector and the changes that occurred after the pandemic. This allowed Gunay & Kurtulmuş (2021) to review the changes in the service industries as a whole and determine the effects of each sector on others.

Brown & Kline (2020) focused on managerial readiness towards exogenous shocks. They specifically went through U.S. airlines' preparedness for global crises such as COVID-19. This study examined over 20 years of corporate reports and financial statements to gauge the managerial readiness of U.S. airlines. The results revealed that despite recent disease outbreaks, the firms were not focused on the magnitude of an event like this. In fact, for most companies' other risks outweigh disease outbreaks or disease outbreaks do not exist on their risk factors.

M. Kim & Sohn (2022) compared the before-COVID-19 to the after-COVID-19 period of the airline sector in South Korea. Specifically, the study explained the changes that happened to passenger behaviors, airlines' strategic policies, and government policies that happened in South Korea after the pandemic. The authors then discussed possible short to mid-term changes that can happen to all stakeholders, such as an increase in domestic passenger demand due to a decrease in COVID-19 cases

along with the popularity of no-destination flights. Further, the authors suggested government policies that help the recovery of international passenger demand, such as opening quarantine-free travel corridors with countries of similar disease-tracking capabilities along with transparent reports on information regarding COVID-19. In the long term, the authors recommended more diverse business models for airlines such as selling flight-themed meals.

Xuan et al. (2021) ran through the effects of COVID-19 on airline industry revenues using vector autoregression. The authors specifically concentrated on forecasting the future possible recovery of the airline industry revenues and the variables that are associated with the recovery. The authors implied that gross domestic product (GDP) and air cargo are the best predictors of airline industry revenues and predicted that the industry should recover by 2023. Gössling (2020) focused on the risk that air transportation bears during the COVID-19 pandemic. The author put forward the risks imposed by air transportation as a whole in the case of the spread of disease and climate change. The study first discussed these two topics followed by how much air transportation is in use and its economic benefits and vulnerabilities. The study ended with a discussion of different possibilities of current and alternative recovery policies.

Schultz et al. (2020) and Alonso Tabares (2021) also had similar subjects in that they proposed new procedures for aircraft turnaround and airport operations respectively. Schultz et al. (2020) examined aircraft turnaround operations, specifically the sanitation requirements of the cabin boarding process, and how these processes can be done at the before-pandemic rates. To do this, a plane was divided into a grid of equal squares, and then the ground operations were simulated with the transmission of the virus along with distance rules accounted for. The results led to six different seat configurations that limit the transmissions of COVID. The study also formed strategies on how to reduce the time needed to complete the operations under the new pandemic requirements. However, the time required at best took 10% longer compared to pre-pandemic levels. Alonso Tabares (2021) concentrated on airport operations that cover both the passengers and airport and airline employees. This study reviewed the already existing guidelines released by air travel authorities and builds upon them via a multi-layered risk management approach. The strategic proposal was then explained step by step in further detail; these steps were "Technical advances on infectious detection means", "Testing to mitigate or replace quarantines", "Build of appropriate industry standards and State regulations", "Adequate health screening responsibility management", "Public opinion demand and support", "Backing of the air travel industry", and the study ended with roadmaps for how these steps can be implemented in and between airports. In a similar vein to this research, Hou et al. (2021) proposed new hub airport slot reallocation and subsidy policies to speed up air traffic recovery. Hou et al. (2021) looked further at the liberalization of slot allocation in China and its effects on air traffic recovery. While doing this, government subsidies toward small airports were also considered. The study constructed a simple analytical economic model of a hub airport along with a small airport and a third airport to analyze the effects of the proposals. The results of the study suggested that liberalization can speed up the air traffic recovery for both the small and hub airports which leads to fewer subsidies required to maintain the small airport. However, over-subsidizing done by the government to increase airport traffic recovery can harm overall social welfare.

Li et al. (2021) searched for the effect of entry restrictions on international air transport networks (IATN). Specifically, the authors quantified the Chinese international air transport network (CIATN), which is represented as nodes (countries) connected via edges (flight connections), using network efficiency as a means of measuring the international connectivity (IC) of CIATN. Then, the effects of entry suspensions were defined, such as direct flight suspension in which the passengers need to use transits from other countries to travel into the country they desire, and complete entry suspension in which all passengers from China are not allowed to enter at all, as well as their effects on the IC of CIATN. This enabled the construction of an IC index that allows for the ranking of connected countries based on how much of the IC that country represents.

Akbar & Kisilowski (2020) focused on the responses of airlines to COVID-19 from a nonmarket strategy perspective, specifically focusing on the governmental policy response of nonmarket strategies. The authors used "legitimacy" as a means of linking market and nonmarket strategies that can be taken by the airlines regarding the COVID-19 policies and this was then arranged in a 2x2 matrix. On the vertical side of the matrix, there was "Policy measure's health impact on society", from here onward referred to as "health", and on the horizontal side, there was "Policy measure's economic impact on airlines", from here onward referred to as "economic", both divided into "small" and "large" to form a 2x2 matrix. At

the crossing of health-large and economic-small lay “quadrant A”, “Nonbargaining, compliance”, where the companies agree to governmental policies without negotiation and comply with those policies on the field fully. At the crossing of health-small and economic-small lay “quadrant C”, “Nonbargaining, selective avoidance”, where companies behave similarly to quadrant A but avoid the full application of policies regarding hygiene dictated by the government. At the crossing of health-large and economic-large lay “quadrant B”, “Bargaining, the partnership”, where airline companies use bargaining to lessen the economic impact of hygiene policies dictated by the government. An example was the removal, or the de-densifying of the cabin space later being changed into just requiring face masks for passengers. At the crossing of health-small and economic-large lay “quadrant D”, “Bargaining, conflictual”, where negative economic effects of the policies are so big that airlines are usually bailed due to the extra route costs that would be occurred by the governments if the airline were to dissolve.

Shaban et al. (2021) suggested a “novel model” for managing air cargo operations. The authors utilized a Puppet Cournot model to balance the cargo route utilization of airlines. The proposal focused on the Puppet Cournot-Quantity Discount model, in which a quantity discount policy was introduced to the Puppet Cournot model to balance the utilization of the two different proposed routes, one being a hot-selling route (route 1) and the other an underutilized route (route 2). The quantity discount policy was used on the underutilized route in which a discount is applied based on the quantity of the service being sold, this thus changed the quantity utilization of both routes. A second proposal was to find the optimum quantity combinations of route 1 and route 2 using the Puppet Cournot model.

4. Discussion

This study has investigated the changes in consumer behavior in the air transportation industry due to the COVID-19 pandemic. Databases of Science Direct, ProQuest, Taylor, and Francis online, Web of Science, and Google Scholar were scanned using the keywords ‘Covid-19’, ‘Pandemic’, ‘Consumer behavior’, ‘airline', 'air transport’ and ‘air cargo’, to gather the articles for review. These articles were then classified into two separate groups named “Changes in consumer attitudes, perceptions, or behavior” and “Changes in industry characteristics and dynamics” using the content analysis method. The “Changes in industry characteristics and dynamics” group was then divided into two sub-groups referred to called “Demand and supply” and “Recovery and sustain” based on the keywords, titles, and contents of the articles.

The methodology used in the articles classified in this study varies widely. The authors of studies in "Changes in consumer attitudes, perceptions, or behavior" group used social media research, big data algorithms, online and paper surveys, and narrative structures to conduct their research. These articles generally focus on finding themes, emotions, preferences, and travel patterns, among other variables. Findings from these articles indicated that negative emotions such as fear, and distress are often prevalent in influencing passengers' desire to fly during and after the pandemic. In addition to employee satisfaction, it has been revealed by researchers that there is a slight decrease in the desire to travel by air compared to the pre-pandemic period, and these are also affected by these negative feelings. Those studies may be useful even after the current pandemic, as most research focuses on creating frameworks that can easily adapt to other external events. But of course, studies are not without their shortcomings, most of them concentrate on a nation or a region of the world. Those with international coverage (especially those with a focus on social media) focus on one or two websites and one or two different languages. This, of course, can make a difference in results, as some articles have shown. Expanding the scope to push these studies forward may have a more universal outcome. Research focusing on social media may focus on social media as a whole, not just one or two sites and more languages may be chosen to achieve a more universal outcome. This also applies to survey-based research. But in their case, a more uniform demographic in multiple countries will result in more uniform and comparable research. Another suggestion would be to increase variable diversity by adding product details such as seating arrangement and waiting times, which may affect the results of some studies that focus specifically on passenger behavior.

The methodologies used in “Changes in industry characteristics and dynamics” group articles vary by the sub-groups. For instance, “Demand and supply” group studies focus mostly on flight data and the reserved number of tickets in their demand and supply calculations. Meanwhile “Recovery and sustain” group studies use archival research methods, online and offline surveys, stock market comparisons, etc. This means that “Demand and supply” studies are relatively consistent within themselves when it comes to calculating demand and/or supply. This is of course reflected in the results of the articles as well, in

"Demand and supply" studies, most articles propose similar demand curves, and "Recovery and sustain" articles that discuss demand recovery also posted similar results to "Demand and supply" articles.
Moreover, the results of the "Recovery and sustain" sub-group vary a lot. The main reason for the results being so deviated is simply the variety of research topics in "Recovery and sustain" group studies, which range from airport operations to demand recovery. This makes the results of this sub-group more varied compared to the other groups and sub-groups. However, most of the operation-based research concentrated on providing more efficient ways to operate under pandemic restrictions, while the rest focused on strategic analysis of similar past events to prepare for post-pandemic conditions or to prepare for a possible next pandemic. The most demand-focused articles point towards a predicted demand and supply recovery by 2023 or earlier. Although the articles in this group also tend to concentrate on one country or region, the results of the demand and supply-based research do not differ as much as the articles in "Changes in consumer attitudes, perceptions, or behavior". This is most likely due to the similarities in variables used in these articles. Use of different or more variables such as broadening the period or including ticket cancellations or upgrades, comparisons to other forms of transport modes such as the effects of travel by train demand on air travel demand or supply, or private forms of transport may further be researched. Moreover, changing or expanding upon the existing variables would help to gather more consistent results unaffected by the regional limitations or limitations that stem from looking at a single company or one or two specific routes for the articles in "Recovery and sustain".
Finally, this article faced multiple limitations, firstly, this study only examines a limited number of databases, with the tools provided by the previously mentioned databases. This limits the overall capabilities of the study as it may miss articles that are not in these databases but are covered by alternative ones. The second major limitation is the period in which the articles are handled. As this study focused on the effects of the COVID-19 pandemic on consumer behavior in the air transport industry, the duration had to be limited. This means that previous research on other similar global events has been excluded. Third, this study focused on the air transportation industry, meaning that articles on passenger travel, cargo, and airport operations were included. However, studies on other airline and airport facilities carrying out various commercial activities at airports, such as customs shops or restaurants in airport terminals, were not incorporated. Fourth, the language of the reviewed articles was limited to English only to maintain international accessibility, limiting the number of articles included. A future study may expand the study by adding different languages and databases to resolve these limitations. Also, it might be worthwhile to build an algorithm that can scan all available databases of any language at any time, and then compile a study with a structure similar to this. Future work may also check for other forms of crisis, such as natural disasters or economic crises, and expand to other modes of transport or travel.

5. Notes:

There are no special notes.

6. References

Afaq, A., Gaur, L., Singh, G., & Dhir, A. (2021). COVID-19: transforming air passengers' behaviour and reshaping their expectations towards the airline industry. Tourism Recreation Research, 1–9. https://doi.org/10.1080/02508281.2021.2008211

Akbar, Y. H., & Kisilowski, M. (2020). To bargain or not to bargain: Airlines, legitimacy and nonmarket strategy in a COVID-19 world. Journal of Air Transport Management, 88, 101867. https://doi.org/10.1016/j.jairtraman.2020.101867

Alonso Tabares, D. (2021). An airport operations proposal for a pandemic-free air travel. Journal of Air Transport Management, 90, 101943. https://doi.org/10.1016/j.jairtraman.2020.101943

Amankwah-Amoah, J., Khan, Z., & Osabutey, E. L. C. (2021). COVID-19 and business renewal: Lessons and insights from the global airline industry. International Business Review, 30(3), 101802. https://doi.org/10.1016/j.ibusrev.2021.101802

Brown, R. S., & Kline, W. A. (2020). Exogenous shocks and managerial preparedness: A study of U.S. airlines' environmental scanning before the onset of the COVID-19 pandemic. Journal of Air Transport Management, 89, 101899. https://doi.org/10.1016/j.jairtraman.2020.101899

Budd, L., Ison, S., & Adrienne, N. (2020). European airline response to the COVID-19 pandemic – Contraction, consolidation and future considerations for airline business and management.

Research in Transportation Business & Management, 37, 100578. https://doi.org/10.1016/j.rtbm.2020.100578

Centers for Disease Control and Prevention. (2022, August 16). CDC Museum COVID-19 Timeline. https://www.cdc.gov/museum/timeline/covid19.html

Eurocontrol. (2020). Daily Traffic Variation - States (2020). https://www.eurocontrol.int/Economics/2020-DailyTrafficVariation-States.html

flightradar24. (2021, January 1). Commercial flights in 2020 down 41.7% from 2019. https://www.flightradar24.com/blog/commercial-flights-down-42-in-2020/

Forsyth, P., Guiomard, C., & Niemeier, H.-M. (2020). Covid −19, the collapse in passenger demand and airport charges. Journal of Air Transport Management, 89, 101932. https://doi.org/10.1016/j.jairtraman.2020.101932

Gallego, I., & Font, X. (2021). Changes in air passenger demand as a result of the COVID-19 crisis: using Big Data to inform tourism policy. Journal of Sustainable Tourism, 29(9), 1470–1489. https://doi.org/10.1080/09669582.2020.1773476

Gallego, I., Font, X., & González-Rodríguez, M. R. (2022). The impact of COVID-19 on European tourists' attitudes to air travel and the consequences for tourist destination evoked set formation. Tourism Management Perspectives, 41, 100945. https://doi.org/10.1016/j.tmp.2022.100945

Gao, Y. (2022). Benchmarking the recovery of air travel demands for US airports during the COVID-19 Pandemic. Transportation Research Interdisciplinary Perspectives, 13, 100570. https://doi.org/10.1016/j.trip.2022.100570

Gössling, S. (2020). Risks, resilience, and pathways to sustainable aviation: A COVID-19 perspective. Journal of Air Transport Management, 89, 101933. https://doi.org/10.1016/j.jairtraman.2020.101933

Gössling, S., Scott, D., & Hall, C. M. (2021). Pandemics, tourism and global change: a rapid assessment of COVID-19. Journal of Sustainable Tourism, 29(1), 1–20. https://doi.org/10.1080/09669582.2020.1758708

Graham, A., Kremarik, F., & Kruse, W. (2020). Attitudes of ageing passengers to air travel since the coronavirus pandemic. Journal of Air Transport Management, 87, 101865. https://doi.org/10.1016/j.jairtraman.2020.101865

Gunay, S., & Kurtulmuş, B. E. (2021). COVID-19 social distancing and the US service sector: What do we learn? Research in International Business and Finance, 56, 101361. https://doi.org/10.1016/j.ribaf.2020.101361

Hong, S.-J., Savoie, M., Joiner, S., & Kincaid, T. (2022). Analysis of airline employees' perceptions of corporate preparedness for COVID-19 disruptions to airline operations. Transport Policy, 119, 45–55. https://doi.org/10.1016/j.tranpol.2022.02.008

Hou, M., Wang, K., & Yang, H. (2021). Hub airport slot Re-allocation and subsidy policy to speed up air traffic recovery amid COVID-19 pandemic --- case on the Chinese airline market. Journal of Air Transport Management, 93, 102047. https://doi.org/10.1016/j.jairtraman.2021.102047

Kim, M., & Sohn, J. (2022). Passenger, airline, and policy responses to the COVID-19 crisis: The case of South Korea. Journal of Air Transport Management, 98, 102144. https://doi.org/10.1016/j.jairtraman.2021.102144

Kim, S. (Sam), Kim, J., Choi, Y., Shin, J., & Morrison, A. M. (2022). Can communication messages affect promotion of international air travel in preparation for the post COVID-19 pandemic era? Journal of Hospitality and Tourism Management, 51, 252–267. https://doi.org/10.1016/j.jhtm.2022.03.019

Lamb, T. L., Ruskin, K. J., Rice, S., Khorassani, L., Winter, S. R., & Truong, D. (2021). A qualitative analysis of social and emotional perspectives of airline passengers during the COVID-19 pandemic. Journal of Air Transport Management, 94, 102079. https://doi.org/10.1016/j.jairtraman.2021.102079

Lamb, T. L., Winter, S. R., Rice, S., Ruskin, K. J., & Vaughn, A. (2020). Factors that predict passengers willingness to fly during and after the COVID-19 pandemic. Journal of Air Transport Management, 89, 101897. https://doi.org/10.1016/j.jairtraman.2020.101897

Lee, C.-K., Jung, E.-K., Kang, S.-E., Petrick, J. F., & Park, Y.-N. (2022). Impact of perception of COVID-19 on NPI, job satisfaction, and customer orientation: Highlighting three types of NPIs

for the airline industry. Journal of Air Transport Management, 100, 102191. https://doi.org/10.1016/j.jairtraman.2022.102191

Li, S., Zhou, Y., Kundu, T., & Zhang, F. (2021). Impact of entry restriction policies on international air transport connectivity during COVID-19 pandemic. Transportation Research Part E: Logistics and Transportation Review, 152, 102411. https://doi.org/10.1016/j.tre.2021.102411

Miani, P., Kille, T., Lee, S.-Y., Zhang, Y., & Bates, P. R. (2021). The impact of the COVID-19 pandemic on current tertiary aviation education and future careers: Students' perspective. Journal of Air Transport Management, 94, 102081. https://doi.org/10.1016/j.jairtraman.2021.102081

Moon, H. G., Lho, H. L., & Han, H. (2021). Self-check-in kiosk quality and airline non-contact service maximization: how to win air traveler satisfaction and loyalty in the post-pandemic world? Journal of Travel & Tourism Marketing, 38(4), 383–398. https://doi.org/10.1080/10548408.2021.1921096

Neuburger, L., & Egger, R. (2021). Travel risk perception and travel behaviour during the COVID-19 pandemic 2020: a case study of the DACH region. Current Issues in Tourism, 24(7), 1003–1016. https://doi.org/10.1080/13683500.2020.1803807

Pan, J. Y., & Liu, D. (2022). Mask-wearing intentions on airplanes during COVID-19 – Application of theory of planned behavior model. Transport Policy, 119, 32–44. https://doi.org/10.1016/j.tranpol.2022.01.023

Samanci, S., Didem Atalay, K., & Bahar Isin, F. (2021). Focusing on the big picture while observing the concerns of both managers and passengers in the post-covid era. Journal of Air Transport Management, 90, 101970. https://doi.org/10.1016/j.jairtraman.2020.101970

Santos, L. J., Oliveira, A. V. M., & Aldrighi, D. M. (2021). Testing the differentiated impact of the COVID-19 pandemic on air travel demand considering social inclusion. Journal of Air Transport Management, 94, 102082. https://doi.org/10.1016/j.jairtraman.2021.102082

Schultz, M., Evler, J., Asadi, E., Preis, H., Fricke, H., & Wu, C.-L. (2020). Future aircraft turnaround operations considering post-pandemic requirements. Journal of Air Transport Management, 89, 101886. https://doi.org/10.1016/j.jairtraman.2020.101886

Shaban, I. A., Chan, F. T. S., & Chung, S. H. (2021). A novel model to manage air cargo disruptions caused by global catastrophes such as Covid-19. Journal of Air Transport Management, 95, 102086. https://doi.org/10.1016/j.jairtraman.2021.102086

Sulu, D., Arasli, H., & Saydam, M. B. (2021). Air-Travelers' Perceptions of Service Quality during the COVID-19 Pandemic: Evidence from Tripadvisor Sites. Sustainability, 14(1), 435. https://doi.org/10.3390/su14010435

The World Bank. (2021a). Air transport, passengers carried. https://data.worldbank.org/indicator/IS.AIR.PSGR?end=2020&start=1970&view=chart

The World Bank. (2021b). Air transport, passengers carried - Turkiye. https://data.worldbank.org/indicator/IS.AIR.PSGR?end=2020&locations=TR&start=1970&view=chart

The World Bank. (2022a, September 29). GDP growth (annual %). https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG

The World Bank. (2022b, September 29). GDP growth (annual %) - Turkiye. https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?locations=TR

The World Health Organization. (2020, April 27). Archived: WHO Timeline - COVID-19. https://www.who.int/news/item/27-04-2020-who-timeline---covid-19

Torres, E. N., Ridderstaat, J., & Wei, W. (2021). Negative affectivity and people's return intentions to hospitality and tourism activities: The early stages of COVID-19. Journal of Hospitality and Tourism Management, 49, 89–100. https://doi.org/10.1016/j.jhtm.2021.08.021

Truong, D. (2021). Estimating the impact of COVID-19 on air travel in the medium and long term using neural network and Monte Carlo simulation. Journal of Air Transport Management, 96, 102126. https://doi.org/10.1016/j.jairtraman.2021.102126

Warnock-Smith, D., Graham, A., O'Connell, J. F., & Efthymiou, M. (2021). Impact of COVID-19 on air transport passenger markets: Examining evidence from the Chinese market. Journal of Air Transport Management, 94, 102085. https://doi.org/10.1016/j.jairtraman.2021.102085

World Health Organization. (2020, March 11). WHO Director-General's opening remarks at the media briefing on COVID-19 - 11 March 2020. https://www.who.int/director-

general/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020

World Health Organization. (2022, September 29). WHO Coronavirus (COVID-19) Dashboard. https://covid19.who.int/

Xuan, X., Khan, K., Su, C.-W., & Khurshid, A. (2021). Will COVID-19 Threaten the Survival of the Airline Industry? Sustainability, 13(21), 11666. https://doi.org/10.3390/su132111666

Yin, J., & Ni, Y. (2021). COVID-19 event strength, psychological safety, and avoidance coping behaviors for employees in the tourism industry. Journal of Hospitality and Tourism Management, 47, 431–442. https://doi.org/10.1016/j.jhtm.2021.04.017

Yu, M., & Chen, Z. (2021). The effect of aviation responses to the control of imported COVID-19 cases. Journal of Air Transport Management, 97, 102140. https://doi.org/10.1016/j.jairtraman.2021.102140

Zhang, L., Yang, H., Wang, K., Bian, L., & Zhang, X. (2021). The impact of COVID-19 on airline passenger travel behavior: An exploratory analysis on the Chinese aviation market. Journal of Air Transport Management, 95, 102084. https://doi.org/10.1016/j.jairtraman.2021.102084

Derleme Makale

Changes in Consumer Behaviour in Air Transportation Industry Due to Covid-19 Pandemic: A Literature Review

Covid-19 Pandemisi Nedeniyle Hava Taşımacılığı Sektöründe Tüketici Davranışlarında Meydana Gelen Değişiklikler: Bir Literatür Taraması

Hüseyin Erbil ÖZYÖRÜK	**Mehmet Ali BORAN**
Dr. Öğr. Üyesi, Türk Hava Kurumu Üniversitesi	Yüksek Lisans Öğrencisi, Türk Hava Kurumu Üniversitesi
Hava Ulaştırma Fakültesi	Havacılık Yönetimi
Pilotaj Bölümü	s2108061010@stu.thk.edu.tr
erbilozyoruk@hotmail.com	https://orcid.org/0000-0002-1323-5808
https://orcid.org/0000 0003 2359 1854	

Genişletilmiş Özet

COVID-19, Mart 11 2020 de küresel bir pandemi ilan edilmesinden sonra hayatlarımızı ciddi bir şekilde etkiledi. Pandemi ilanından sonra başlayan karantinalar ve kısıtlamalar dünya ekonomisi yanı sıra ülke ekonomisine düşüşe yol açmıştır. Hava taşımacılığı sektöründe de bu kısıtlamalardan kaynaklı dünya çapında ve Türkiye'de günlük uçuşlarda düşüşler yaşanmıştır. Bu kısıtlamalar insanların davranışlarını da etkiledi ve değişiklere yol açmıştır (örn; tüketicilerin havayollarına karşı algısı, seyahat modellerindeki değişiklikler, maske takma niyetleri, güvenlik algısı ve kaçınma ve daha fazlası). Bu tarz araştırmalar birbirinden bağımsız olarak yapılmış ve yayınlanmış, ancak onları tek bir çatı altında toplayan bir çalışma gözlemlenmemiştir. Bu çalışmaların tek bir çatı altında toplanması araştırmacıların literatürdeki açıkları kolay bir şekilde bulmasına ve onları kapatmaya yönelik araştırma konularını tespit etmelerine olanak sağlayacaktır. Yöneticiler için ise Kovid pandemisine benzer durumlarda kullanılabilir stratejileri tek bir makalede bütüncül olarak görme ve yeni strateji uyarlama sürecini hızlandırmaya ilişkin olumlu katkıda bulunabilir. Tüketicilerin ise yapılan uygulamaların neden yapıldığını keşfetmesine, tüketici olarak kendi durumlarını daha iyi anlamalarına ve geliştirmelerine yardımcı olacaktır. Bu amaca ulaşmak için bu çalışmada, COVID-19 nedeniyle hava taşımacılığı sektöründe tüketici davranışlarındaki değişiklikler üzerine yapılan araştırmaları gruplandırmak ve sınıflandırmak için içerik analizi yöntemi kullanılmaktadır. Makalelerin taranması için hakemli akademik dergilerin yayınlandığı veri tabanlarından yararlanılmıştır. Science Direct, ProQuest, Taylor ve Francis, Web of Science ve Google Scholar veritabanları, geniş konu kapsamı ve güvenilir itibarları nedeniyle seçilmiştir. Ayrıca bu çalışmada, yalnızca bu veri tabanlarını tarayan arama araçları kullanılmıştır. Arama sonuçlarında, her veritabanı için veri tabanlarının arama araçları tarafından sağlanan herhangi bir dergi veya konu seçim fonksiyonu kullanılmamıştır. Öncelikle, COVID-19 ile ilgili yapılan hiçbir makaleyi veya araştırmayı kaçırmamak için araştırılan tüm makaleler için arama süresi 1 Ocak 2019'dan itibaren olarak belirlenmiştir. Ardından sonuçları sınırlandırmak için 'Covid-19' ve 'Pandemi' gibi anahtar kelimeler seçilmiştir. Arama sonuçlarını konuyla sınırlandırmak için " Tüketici davranışları ", " havayolu ", " hava taşımacılığı " ve " Hava kargosu " anahtar kelimeleri eklenmiş ve sonuç olarak 560 makaleye rastlanmıştır. Bu makaleler arasından tekrar eden çalışmalar tespit edilmiş ve veri setinden çıkarılmıştır. Ayrıca her makale, hava taşımacılığı sektöründe Covid-19'un neden olduğu tüketici davranışındaki değişikliklerle doğrudan ilgili olmayan makaleleri çalışma dışında bırakmak için içerik analizi yöntemi kullanılarak manuel olarak kontrol edilmiştir. Bu tarama, 38 çalışma ile sonuçlanmış ve makalelerin içerikleri ve temalarına göre "Tüketici tutumlarındaki, algılarındaki veya davranışlarındaki değişiklikler (Changes in consumer attitudes, perceptions or

behaviors)" ve "Endüstri özellikleri ve dinamiklerindeki değişiklikler (Changes in industry characteristics and Dynamics)" adlı 2 ana gruba ayrılmıştır. "Endüstri özellikleri ve dinamiklerindeki değişiklikler " grubu daha sonra, aynı yöntemle "Kurtarma ve sürdürme (Recovery and sustain)" ve "Arz-talep (Demand and supply)" adlı 2 alt gruba ayrılmış ve bu grupların içindeki makaleler araştırmaların amaçları, yöntemleri ve sonuçları sırasını takip eden kısa özetler şeklinde düzenlenmiştir. " Tüketici tutumlarındaki, algılarındaki veya davranışlarındaki değişiklikler" grubunun makaleleri, pandemi sırasında ve sonrasında yolcuların uçma isteklerini etkilemede genellikle korku ve sıkıntı gibi olumsuz duyguların yaygın olduğunu göstermiştir. Çalışan memnuniyetinin yanı sıra havayolu ile seyahat etme isteğinde pandemi öncesi döneme göre hafif bir azalma olduğu ve bunların da olumsuz duygulardan etkilendiği araştırmalarda görülmüştür. Ayrıca, bu çalışmalar gelecekteki diğer benzer krizler için faydalı olabilecek modeller oluşturmak amacıyla da yapılmıştır. "Endüstri özellikleri ve dinamiklerindeki değişiklikler" grubundaki sonuçlar, alt gruplara göre değişiklik göstermiştir. "Arz-talep" alt grubunun makaleleri, muhtemelen benzer değişkenlerin kullanımı ve makalelerin küresel kapsamından dolayı, pandemi sırasında ve sonrasında benzer talep ve arz eğrileri ortaya koymuştur. "Kurtarma ve sürdürme" grubundaki makalelerin metodoloji ve sonuçları bakımından önemli farklılıklar göze çarpmıştır. Sonuçlar, dışsal olaylar ve COVID-19 kısıtlamalarına yönelik önlemler için stratejiler ve uygulamalar önermektedir. Ancak bazı ortak eksiklikler öne çıkmıştır: "Tüketici tutumlarındaki, algılarındaki veya davranışlarındaki değişiklikler" grubunda daha yaygın olmasına rağmen, her iki grubun araştırmaları, çalışmalarını yürütürken bir veya iki belirli bölge veya ülkeye odaklanmıştır. Sosyal medyaya odaklanan araştırmalar da bir veya iki dilde, bir iki belirli web sitesine odaklanarak bu eğilimi takip etmiştir. Bu elbette benzer çalışmalarda bile farklı sonuçların ortaya çıkmasına sebep olmuştur. "Arz-talep" alt grubu, daha önce de belirtildiği gibi, çalışmaların sonucunu etkileyebilecek birbirine benzer değişkenler kullanılmıştır. Bulunan araştırmaların kapsamlarının genişletilmesi çıkan sonuçları daha karşılaştırılabilir yapabilir. Ek olarak sıra ve koltuk oturma düzenleri gibi değişkenlerin eklenmesi kullanıcı davranışlarına odaklanan araştırmalar için faydalı olabilir. "Arz-talep" alt grubu için diğer ulaşım araçlarına, tren ve otobüs gibi, olan talebin hesaplamalara eklenmesi farklı sonuçlar ortaya çıkarabilir. "Kurtarma ve sürdürme" için ise birden fazla şirket veya rota kullanmak çıkan sonuçlar için faydalı olabilir.