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ANALYSIS AND CLASSIFICATION OF APPLICATIONS BY AIRLINES TO PROTECT CONSUMERS DURING THE COVID-19 PANDEMIC PERIOD

COVİD-19 PANDEMİSİ DÖNEMİNDE TÜKETİCİLERİ KORUMAK İÇİN HAVAYOLLARININ YAPTIĞI UYGULAMALARIN ANALİZİ VE SINIFLANDIRILMASI

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Öz

Havayolu şirketleri, Covid-19 pandemisi sırasında ticari faaliyetlerini sürdürebilmek ve tüketicileri koruyabilmek için belirli önlem ve uygulamalar geliştirmiştir. Örneğin, bazı havayolları uçakların ve bagajların dezenfektasyonu gibi hijyen önlemleri alırken, bir kısmı da yolcuların uçuş haklarını kaybetmemesi için biletlerine belirli zaman esneklikleri getirmişlerdir. Öteki yandan yolcuları web sayfaları aracılığı ile bilgilendirmişler ve sosyal mesafenin korunması ve kalabalığın azaltılması adına da birtakım uygulamaları olmuştur. Bu çalışmada, Uluslararası Hava Taşımacılığı Birliği'ne (IATA) üye havayollarının resmî web sayfaları incelenmiş, firmaların tüketicileri hastalıktan korumak ve onların hak kayıplarını minimuma indirmek veya telafi etmek için yürüttükleri uygulamalar tespit edilmiş ve bu uygulamalar amaçlarındaki benzerlikler esas alınarak sistematik olarak gruplandırılmıştır. Ayrıca IATA'nın bölgesel sınıflandırması temel alınarak, havayollarının uygulamaları arasındaki bölgesel farklılıklar da incelenmiştir. Literatürdeki çalışmalar bu uygulamaları tek tek ele alsa da bu çalışma, bu kapsamdaki tüm uygulamaları bir araya getirmiş ve sistematik olarak ilk kez sınıflandırmıştır. Böylece, covid-19 vakalarında tekrar hızlı bir artış veya benzeri başka bir pandemi durumunda bulaşı azaltmak, tüketicileri korumak ve hak kayıplarını telafi etmek için havayolu ile yolcu taşımacılığı sektöründe yapılabilecek uygulamaları tek bir çalışmada bulmak mümkün hale gelmiştir. Pandemi döneminde esnek bilet ve self-servis teknoloji uygulamalarının pandemi sonrasında da devam ettirilmesi tüketicilere fayda sağlayacaktır, bu uygulamalara devam eden havayolu

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firmaları rakip firmalarla aralarında fark yaratacaktır. Pandemi döneminde alınan hijyen önlemleri ve uygulamalarının da önemi büyüktür.Havayolları hijyen önlemlerini uygulamaya devam ettiğinde grip, nezle gibi bulaşıcı hastalıkların yayılımı engellerken; yolcularına güven sağlar.
Anahtar Kelimeler: Covid-19 pandemisi, havayolu şirketleri, önlemler, uygulamalar, tüketicileri koruma
JEL Sınıflandırılması: M31

Abstract

Airline companies have developed specific measures and practices to maintain their commercial activities and protect consumers during the COVID-19 pandemic. For example, while some airlines take hygiene measures such as disinfection of airplanes and luggage, others have introduced certain time flexibility on their tickets so that passengers do not lose their flight rights. On the other hand, they informed the passengers through their web pages and had some practices to maintain social distancing and reduce the crowd. In this study, the official websites of the member airlines of the International Air Transport Association (IATA) were examined, the practices carried out by the companies to protect consumers from disease and to minimize or compensate for their loss of rights were determined, and these practices were systematically grouped based on the similarities in their purposes. Also, regional differences between airlines' practices were examined based on the regional classification of IATA. Although the studies in the literature deal with these practices one by one, this study brought them together and classified them systematically for the first time. Thus, in the event of a rapid increase in COVID-19 cases or another similar pandemic, it has become possible to find applications that can be made in the airline passenger transportation sector in a single study to reduce transmission, protect consumers, and compensate for the loss of rights. Continuing flexible ticketing and self-service technology applications during the pandemic will also benefit consumers after the pandemic, and airline companies that continue these applications will make a difference between them and their competitors. Hygiene measures and practices taken during the pandemic are also necessary. While preventing the spread of infectious diseases such as colds provides confidence to its passengers.
Keywords: COVID-19 pandemic, airline companies, precautions, practices, protect consumers
JEL Classification: M31

1. Introduction

The COVID-19 pandemic has brought unprecedented problems worldwide, and among the most important of these are economic problems. While the Annual Gross Domestic Product worldwide grew by 3.6% in 2018 and 2.9% in 2019, it shrank by 3.1% in 2020 and 6.1% in 2021 due to the negative impact of the coronavirus on the economy (International Monetary Fund [IMF], 2022) Many sectors such as construction, education, tourism, transportation, and aviation have been affected by the Covid 19 pandemic (Loewenstein & Dey, 2020). One of the most adversely affected among these was the aviation sector because, with the emergence of the epidemic, restrictions on air transportation came all over the world. The World Tourism Organization (WTO) stated that, in 2020, all countries restricted travel, and 72% closed their borders completely (WTO, 2020). Airline companies suffered severe losses due to the travel restrictions imposed to prevent the spread of the disease. It has been observed that airline flights increased from 2011 to 2019 to 39,203,774 but decreased to 20,458,481 in 2020 worldwide (The World Bank Group, 2022), so air traffic decreased by 47.81% in a year. There was a slight increase in international air transportation in 2021 compared to the previous year. Still, even after this increase, air passenger transportation could only reach half of the pre-pandemic level (International Civil Aviation Organization [ICAO], 2022). With this sudden drop in passenger

traffic caused by the epidemic, health organizations and industry experts tried to identify measures to prevent or reduce the spread of the disease, thereby ensuring the continuation of air transport activities. As a result, many airline companies quickly implemented the recommended measures and developed practices to compensate for the loss of rights of consumers due to the epidemic.

In this study, the measures taken by aviation companies to protect consumers during the epidemic and their practices to eliminate the loss of rights were investigated, systematically classified, and presented on a regional basis. The study is the first to investigate and bring together the practices of airline companies to reduce the possibility of consumers catching the disease and to eliminate the loss of rights due to the pandemic. In this context, the main contribution of the study is to present a bird's-eye view of the efforts of airline companies to protect airline consumers from a broad perspective. In this way, it is possible to see at a single glance what can be done in case the pandemic becomes severe again or a similar pandemic occurs in the future. To determine the practices by airlines to protect their customers during the COVID-19 pandemic, first, the websites of the member airlines of the IATA were examined, and the airlines were grouped according to their regions. Then, the detected measures were classified according to their similarities. Thus, both the practices of the airlines in the different areas of the world are presented, and the measures applied worldwide are given together to be benefitted in case of a re-increase in the number of cases or a new epidemic.

The literature and research methodology are explained in the next section of the study. Then, the measures determined are brought together, classified, tabulated, and described in the analysis and results sections. Finally, the findings and the theoretical/managerial applications and limitations were discussed.

2. Literature Review

Due to the coronavirus pandemic, many countries and health authorities have worked to detect the disease, strict hygiene and social distance rules have been applied, and the spread of the disease has been tried to be reduced with restrictions (Haleem et al., 2020). It was observed that the minimum physical distance rules applied reduced the spread of SARS-CoV-2 (Chu, et al., 2020). Li & Linton (2020) developed a model that determines when the epidemic will peak and works on the rise and fall of the daily number of cases. Yue and others (2020) worked on early warning, coping with risk, and monitoring and analyzing risk.

As Covid-19 spreads worldwide, strict measures have been taken to prevent it. Borders were closed, travel bans were imposed to reduce the spread of the disease, and many people avoided traveling—canceling upcoming flights seriously hurt airlines (Gupta et al., 2020). Nakamura Managi (2020) argued that to prevent air travel transmission, authorities should limit travel frequencies, impose quarantine at home, and restrict flights of passengers suspected of being infected with COVID-19. China controlled the domestic spread with heavy mask measures, flight tracking, and rerouting in March 2020 but could not prevent the transmission of COVID-19 to the rest of the world due to nonstop international flights (Yu & Chen, 2021).

IATA Medical Advisory Group stated that the use of masks prevents the spread of small particles, that it can be used in areas where there is no social distance, and that gloves and masks should be used not only by the passengers but also by the cabin crew, and that mutual protection can only be provided in this way (IATA Medical Advisory Group, 2020). The group pointed out that social distancing in the airport and the boarding process, including the management of the embarkation and disembarkation, the restriction of the cabin baggage of the customer, and the coordination to reduce the contact of customers on board, can be easily achieved. However, they stated that seating arrangement is limited by the ability and availability of the airline and related to passenger budget (IATA Medical Advisory Group, 2020). Pavli and others (2020) emphasized the importance of rapid case detection, isolation, and taking necessary precautions in flight to reduce the spread of the disease and claimed that in this way, the spread of the disease can be controlled. The author clarified that using masks in the cabin is a must for both the passengers and the crew and that even the use of masks can be infected. Chen and others(2020) also pointed out that COVID-19 spread during the flight. Although there is no covid contamination in food preparation and service, Shahbaz, Bilal, Moiz, Zubair, & Iqbal (2020) stated that the preparation and presentation of meals should be done according to hygiene and social distance rules; otherwise, there is a risk of covid spread for both food service and customers.For this reason, some airlines have started implementing packaged food services, while others have removed food services. Schultz and Fuchte (2020) claimed that in-flight cabin air should constantly be circulated and passed through high-efficiency particulate air (HEPA) filters that remove 99% of bacteria and viruses.

Moreover, according to Bagshaw & Illig (2019), infectious diseases spread in the cabin. Still, more research is needed, and no evidence exists of the disease spreading through HEPA-filtered air. From past to present, in-flight disinfection is applied before take-off, during flight, and after landing of airplanes coming from regions where there are highly pathogenic agents such as Ebola/Lassa fever virus, SARS-/MERS-CoV, pandemic influenza virus (Alshahrani et al., 2021; Klaus et al., 2016).

COVID-19 tests performed 72 hours before the flight are vital in detecting the disease and preventing transmission (Dollard et al., 2020). Disinfection of luggage has also been suggested to reduce the spread of disease. Using disinfection tunnels at airports was thought to prevent the spread (Murthy, 2020). Contrary to widespread belief, it has been seen that a passenger loading from the back to the front while boarding the plane affects the transmission of the disease. Leaving the middle seats empty reduces exposure, and the prohibition of using cabin baggage minimizes the contact between the passengers moving and sitting in the aisle (Islam et al., 2021).

After the COVID-19 virus was declared a global epidemic by the World Health Organization, countries struggled to reduce the transmission of the disease by taking the necessary precautions (MACİT & MACİT, 2020); (Hopancı et al., 2021). Turkey first stopped its flights to China and then brought its citizens abroad to the country in a gradual and controlled manner. In specific periods, quarantine was applied to those who came from abroad to reduce the spread of the disease. Flights to countries with increased cases were restricted; International flights were suspended occasionally due to rising cases (SHGM, 2020a). Pehlivanlı (2020), to determine the possible effects of COVID-19

on the Turkish aviation sector, the performances of airports before and during the COVID-19 period were compared. It was observed that productivity decreased during the Covid-19 period. Although the efficiency of the airports decreased, Gürsoy and Ateş (2022) observed that during the pandemic, passengers at the airports waited longer in line due to the length of the procedure. They drew attention to the importance of applications such as self-service kiosks, baggage drop, and online check-in, which have been actively used during the pandemic.

The pandemic, which hit aviation activities, caused a 54% decrease in air traffic in 2020 compared to 2019 in Turkey (EUROCONTROL,2021). Airlines introduced certain practices for safe transportation. For this reason, steps have been taken to reduce the time spent at airports and in the cabin and to reduce the transmission of the disease during this time. During the pandemic, Turkish Airlines, Turkey's flag carrier, has implemented several practices. Turkish Airlines informed its passengers and employees about signs of illness, masks, and disinfection; disinfected the inside of the aircraft and reduced the on-board refreshments; the magazine removed the newspapers; products such as blankets, pillows, and headphones were disinfected and replaced with new ones and distributed as disposable (MACİT & MACİT, 2020).

3. Methodology

In this study, the practices carried out by airline companies to protect their customers during the COVID-19 period were investigated using the content analysis method. A list of airline companies that are members of the IATA was compiled from the association's official website (IATA, 2022). The total number of IATA member airlines is 289. Cargo airlines were excluded from our population, so 265 airline companies were in the population.

Official websites of 265 IATA member airlines were scanned to identify the ones who shared official information regarding their practices to protect consumers during the COVID-19 outbreak, and a total of 53 airlines were included in the sample. This way, 53 airlines were selected to create a sample using the convenience sampling method.

The practices carried out by the airline companies to protect the customers were taken from the official websites of the airline companies and classified into four main groups by conducting content analysis. These groups are called hygiene procedures, procedures to reduce the loss of rights, informative and regulative procedures, and actions to ensure social distance and reduce crowds. The practices in each group were then classified into sub-groups. After that, five different regions, as given on the IATA official website (IATA, 2022), were analyzed to reveal the regional differences: Africa, Middle East, Asia Pacific, China North Asia, Europe, and The Americas. The number of airline companies in each region is given in Table 1. In this study, the measures and practices taken will be examined and brought together; regional differences will be revealed. No analysis program was used for content analysis. The sample selection and the collection of data from the data source were made manually by the researchers, as described above.

Table 1: Number of the Airline Companies Included in the Sample

Region	Total Number of Airlines	Sample Size
Europe	92	18
Africa & Middle East	56	11
Asia Pacific	44	9
China & North Asia	35	7
The Americas	38	8

This study compares the measures taken by airlines in different parts of the world to protect their passengers from the disease during the pandemic, and it aims to evaluate these practices on a regional basis and to reveal regional differences.

4. Analysis and Results

This study revealed what the airlines are doing to protect their customers during the pandemic. In Appendix 1, the list of all practices found on the websites and the number of airlines applying them are given per region.

The practices in Appendix 1 were then divided into main groups, and those with a common base were classified in the same group. The main groups established are Main Group 1-Hygiene Precautions, Main Group 2 – Loss of Rights, Main Group 3-Informative Regulative Precautions, and Main Group 4-Social Distancing Precautions.

4.1. Main Group 1– Hygiene Precautions

The Covid 19 pandemic has changed the way all industries process. In this context, hygiene has become one of the most critical issues. It was observed that the hygiene measures in Appendix 2 were applied by the airline companies in the sample. These include HEPA filters, aircraft disinfection, a fly safety kit, protective clothing and gloves, hygienic food service, and luggage disinfection.

4.1.1. HEPA Filter

High-efficiency particulate air filters reduce airborne transmission of 'contagious' aerosols. HEPA filters have been proven effective at keeping tiny particulate bacteria, fungi, and viruses circulating in the air (Khatib et al., 2020). As a result, it was observed that HEPA filters are used by 70% of all companies in the sample, and all in the Americas region use this filter. China North Asia is in second place with a usage rate of 71%. In the European region, the usage of HEPA filters was at its lowest at 61%.

4.1.2. Aircraft Disinfection

The disinfection process kills the harmful micro-organisms on the surfaces and helps to remove them.

To ensure in-flight hygiene, airlines periodically disinfect the interior of the airplane. During the disinfection application, the decontamination team wears their protective equipment and performs their duties. The general cleaning procedure is applied in the second stage of the disinfection process. At this stage, every point that customers meet, especially overhead cabinets, windows, headrests, seat edges, and pockets, is thoroughly cleaned. Some airlines prefer disinfecting the planes before each flight, while others disinfect them daily. The application rate of aircraft disinfection is 81% in general. All the companies from the China-North Asia region apply the in-flight disinfection procedure. While 100% applies disinfection in the China-North Asia region, this rate drops to 63% in The Americas.

4.1.3. Luggage Disinfection

It has been found that the COVID-19 virus lives on inanimate surfaces for up to 3 days (Doremalen et al., 2020). The fact that COVID-19 can stay alive for such a long time increases the possibility of transmission of the disease in environments where there is a human flow. Airports bring people from different countries together as they are the doors that open countries to each other. On the other hand, airlines carry passengers both in the country and abroad and bring people together. Thus, disinfection began to be applied to passenger baggage. Passenger baggage passes through many regions after receiving it from airline companies. For this reason, airline companies find it suitable to carry out the disinfection process before delivering the luggage to the customers. Nine percent of airlines have been doing this. This measure has yet to be implemented in the Europe and Asia Pacific region but is mostly applied in the China-North Asia region with a 29% implementation rate.

4.1.4. Protective Clothes and Gloves

With the emergence of SARS-CoV-2, the use of masks and gloves, which are protective equipment, has become common (Xue et al., 2020). It is aimed to prevent contamination with the use of masks and protective clothing applied all over the world during the pandemic process. These measures have also taken their place in the aviation sector. As for health control, Africa and the Middle East region are at the forefront in this regard.

4.1.5. Food Serving Arrangement

Hygiene has been the most critical subject affecting service quality during the pandemic process. Not taking any health precautions during this period creates a negative attitude (Al-Marzouqi & Ben, 2021). Since serving food increases contact and passengers must remove their masks while eating, food services changed during this epidemic period. The food to be served has been packaged under hygienic conditions to reduce contamination. Some airlines preferred to take pre-flight orders for the food preferences of the customers; with the support of technology, passengers could make their meal choices in advance of embarkation through mobile applications or web pages to minimize the

communication time between passengers and cabin attendants. In this way, customer-specific meals were packed hygienically. The frequency of application is 9%, and this application has not been found in China, North Asia, vs Africa Middle East countries. Passengers were free to take off masks during the meal; throughout this process, in-flight ventilation systems continued to work, aiming to reduce contamination. It was observed that necessary precautions were taken in food services at a rate of 36%. In the China& North Asia region, 57% of the airlines took measures, followed by The Americas region at 50%. On the other hand, 27% of the airlines in the Africa Middle East region applied them, and the least used area was Africa Middle East.

4.1.6. Fly Safe Kit

Airlines distributed the kit called fly safe kit, which includes a mask and disinfectant wet wipes. With this application, the comfort and hygiene of the customers were aimed. This practice was widely carried out in Asia Pacific countries at 44% compared to other countries. However, this practice was rare among airlines in general. While 32% of airlines distributed Fly Safe Kits, it was distributed by 14% of the airlines in the China-North Asia region.

4.2. Main Group 2 – Loss of Rights

Due to the pandemic, the admission conditions of 208 countries in the world are constantly changing. This can complicate passenger transfers and create grievances. Considering the spread of the disease, airline companies have seen the necessity to take some initiatives to protect the rights of consumers. Appendix 3 includes the measures taken by airlines to protect passenger rights.

4.2.1. Flexible Ticket

Flexible ticketing was applied by changing ticket dates according to passenger demand. As many schedules changed during the pandemic, travelers needed to update dynamically. Flexible ticketing is essential so that the ticket rights of the purchased customers are recovered. Also, uncertainty causes a decrease in demand, and flexible products will increase revenues when there is a low demand for airlines (Duduke & Venkataraman, 2022). Ticket flexibility occurs when the dates on the ticket bought can be changed on request, and 81% of airline companies in the sample offered the flexible ticket option to protect their customers' rights against uncertainty. As a result of the region-based analyses, the flexible ticketing application was used more widely, with 94% in Europe and 89% in the Asia Pacific, China, and North Asia region lags far behind with 29%.

4.2.2. Travel Insurance

The travel and tourism industries are open to external risks such as pandemics and other events that threaten security (Bassil et al., 2017), and tourists prefer insurance to cope with uncertainties such

as health problems (Choe et al., 2022). Due to the uncertainty caused by the COVID-19 pandemic, insurance packages have become attractive to passengers.

Pandemic conditions have brought a new perspective to insurance. Insurance companies included not only health insurance but COVID insurance in addition to health insurance. As a result, there were several differences in the coverage of insurance packages. Airlines were trying to reduce ambiguity by sharing the information of their contracted insurance companies or by offering insurance with unconditional tickets. Pandemic packages were included in the insurance coverage, and it was stated that if the passenger was COVID-19 positive at the destination, the insurance would cover this situation. While this practice was common with Middle Eastern and African airlines, it was rarely practiced by airlines from other regions.

4.2.3. Travel Document Confirmation

Due to the pandemic, the entry conditions to the countries were constantly updated, and these conditions were given on the IATA website (IATA, 2022). Each country has changed the required documents for acceptance to reduce the spread of the disease. However, this made it difficult for passengers to follow the frequently changing acceptance conditions. The airlines aimed to prevent the problems that the passengers may experience in case of missing or incorrect documents by checking the flight documents of the passengers before the flight. It has been observed that airlines provided services to check the flight documents of their customers and whether they met the documental requirements of the destination country, with 11% of airlines in both Europe and the Asia Pacific and 9% in Africa and the Middle East. As can be seen, the rate of airlines providing this service was relatively low.

4.3. Main Group 3 – Information Providence

This group explains the types of information provided by airline companies to prevent loss of rights. First, the passengers learn the acceptance conditions of the destination country, and then they are given the COVID-19 test center information, which has become mandatory. Informative regulatory measures are included in this group and detailed in Appendix 4.

4.3.1. Destination Country Acceptance Conditions Information

IATA Travel Centre's (2022) official website includes the acceptance, Covid test, and vaccination requirements for all countries which have IATA-member airlines. This website helps travelers learn about the conditions for admission to the country. 83% of the airlines in the European region shared this information with their passengers. In Africa and the Middle East region, this rate was 82%. Despite the application rates in these two regions being high, the rate of 43% for the China-North Asia region was relatively low.

4.3.2. Covid-19 Test Center Information

Soon after the emergence of the COVID-19 pandemic, tests that detect the disease have been developed (Chau et al., 2020). It has become mandatory for passengers to demonstrate a valid negative Covid test to be admitted to the airplane. These tests quickly became a necessity in most countries. Thus, airlines started to contract with test centers, offer customers discounts at those centers, and provide COVID-19 test reservations. While America implemented this practice at a rate of 63%, China and North Asian countries were less interested in it, with a rate of 29%.

4.4. Main Group 4 – Social Distancing

In this group, the measures taken to maintain social distance and prevent the spread of the disease were classified. For this purpose, airlines took measures to reduce contamination, such as increasing the use and functionality of mobile applications, designing the seating positions of passengers on airplanes to prevent the spread of Covid 19, boarding the airplane in small groups, regulating the number and capabilities of shuttle services, and checking the health of the flight crew before the flight. Appendix 5 presents the practices applied per region.

4.4.1. Mobile Application

Many airlines have used mobile applications for operations such as checking flight status, mobile check-in, mobile boarding pass creation, seat availability, seat choice, and flight changes (Burmistrov, 2009). Airlines offered online check-in, contactless boarding, and flight cancellation opportunities by uploading COVID test results through mobile applications. Thanks to those practices, the processing times were shortened, and the contact time was reduced (Pretty, 2018). As a result of our investigation, we have seen that mobile applications were widely used in the Asia Pacific, China North Asia, and American regions, with an overall implementation rate of 89%

4.4.2. Seating Arrangement and Shuttle Service Arrangement

Some people infected with SARS-CoV-2 were asymptomatic; the diagnosis of this disease was difficult among the passengers who had a flight, and these passengers continued to spread the disease to many people during the flight (Freedman & Wilder-Smith, 2020). Leaving an empty seat between the passengers in the aircraft cabin is regarded as one of the solutions to prevent the spread of the disease (Pavlik et al., 2022). For this reason, some airlines arranged a seating plan with as much space between two passengers as possible, while others recommended that the passengers buy a ticket for the seat next as a precaution. The seating arrangements of the passengers were also prepared in line with the pandemic measures. This practice was uncommon, so it occurred in only 26% of the sample. Airlines also cared about the health of passengers before take-off and after landing. For this reason, they organized the shuttle services used in passenger transfer according to measures such as increasing the number of shuttle services and seating the passengers according to the distance rules.

4.4.3. Group Boarding

Airlines can arrange how people board flights at the gate using boarding groups. Typically, boarding groups are given to passengers at check-in. However, they can sometimes be predefined depending on the airline or other specific classifications, such as families or travelers with impairments (Siegel & Gold, 2023). Group boarding takes passengers waiting for boarding on the airside to the airplane in groups of various sizes. Airlines began to organize boarding in small groups to reduce contact between customers during boarding. Although this practice was applied by 38% of the airlines in The Americas region and 21% in general, this practice has not been found in the airlines of the Asia Pacific region.

4.4.4. Pre-flight Health Check of Flight Crew

Although many measures have been taken worldwide, Covid-19 has devastated many areas (Chowdhury et al., 2020; Lian et al., 2020). Covid-19 has shown how quickly epidemic diseases spread among the masses through the airlines. This has shown how vital the health checks of the airlines' personnel and the COVID-19 tests requested from the passengers (Grout & Leggat, 2021). For this reason, airline companies have taken some measures to reduce the effects of the disease. One of them was to try to prevent the spread of the disease by checking the health of flight personnel before flights. First, the airline conducts Covid-19 tests and health checks on the flight crew to reduce the risk of disease transmission among the crew. The airline's personnel are responsible for checking crew health and should ensure the tests are clean before assigning the flight crew (The Economic Times, 2020). While this practice was 27% common in the African & Middle East region, this rate was relatively low in other regions.

5. Discussion and Conclusion

This study investigated the practices that airlines put forward to protect consumers during the Covid-19 pandemic period. The fact that technology is such a part of our lives has given airlines the chance to use this opportunity. As Burmistrov (2009) stated, practices such as online check-in, loading vaccination cards and changing ticket routes, online boarding, and kiosks were provided through mobile applications. Mobile applications were widespread during the pandemic, and 89% of the airlines in our sample enabled passengers to perform their transactions remotely via mobile applications. All airlines in the Asia Pacific, China & North Asia, and America region used mobile apps.

Basically, by improving screening processes, reducing the possibility of letting pre – or asymptomatic patients board, and ensuing implementation and observance of straightforward hygiene precautions that stop the spread of diseases, flying will become safer, and super spreading incidents will be reduced (Bielecki, et al., 2020). Although social distancing was an essential precaution, surprisingly, only 21% of the sample applied group boarding, and this practice has never been seen in the Asia Pacific

region. It was thought that taking passengers from the back to the front would reduce passenger contact and crowding and thus reduce the transmission of the disease; it has later been revealed that it carries much more infection risk than a random boarding model (Islam et al., 2021). The implementation rate of the seating arrangement, which places the passengers in the cabin by leaving a space between them, was 26% and was applied at least in The Americas region. Although leaving the middle seats empty on the plane increased the social distance and reduced the infection rate, IATA did not support this practice for economic reasons. Because leaving the middle seats empty meant the plane was between 50% and 66% occupied. However, the plane had to be 77% occupied to meet its expenses (Bielecki, et al., 2020). By using the shuttle service arrangement method, which is applied for a similar purpose to the seating arrangement, was aimed to ensure that the passengers sit in space and are close to the doors to maintain a physical distance during transportation to the aircraft. However, the application rate was only 13%, and no example has been found in the North Asian Region of China. As a result, these methods minimized interpersonal contact and allowed passengers to manage their journey (Pretty, 2018). Thus, we may claim that the Covid-19 period has contributed positively to the use of technology in our lives, and the aviation industry has been affected in this way.

During the pandemic, ICAO and Shahbaz, Bilal, Moiz, Zubair, & Iqbal (2020) recommended that passengers' seating arrangements should be adjusted according to social distancing rules, food services should be reduced to reduce physical contact time for passengers and crew, pre-packaged meals should be served, or catering on short-haul flights should be removed entirely. However, we found that only 36% of the airlines provided catering services following the COVID-19 measures. In Africa and the Middle East region, this rate was the lowest at only 27%. However, 50% of China & North Asia airlines provided catering services following the COVID-19 measures. Considering the risk of transmission of the disease to the cabin crew, who are in contact with many customers during the day, the airlines performed pre-flight health checks on the cabin crew. This practice was implemented by only 13% of airlines. The European region, on the other hand, was the region that applied this practice the least, with 6%.

In addition, some airlines gave importance to the use of protective clothing and gloves by the cabin crew. 32% of the airlines in the sample applied this measure. Surprisingly, only 14% of airlines located in the China & North Asia region, which is the starting point of the disease, were involved in this practice. While airline personnel were using protective equipment, they also offered passengers a "fly-safe kit" containing disinfectant wet wipes and a mask. Like the use of protective equipment and gloves, the airlines in the China & North Asia region have carried out this the least with a rate of 14%.

It has also been approved by ICAO to use HEPA filters to activate the circulation system. While 70% of the airlines in our sample used HEPA filters, all airlines in The Americas region used HEPA filters. Additionally, it was stated by the ICAO that in-cabin disinfection should be provided at appropriate frequencies. The rate of airlines disinfecting aircraft was 81%, greater than the HEPA filter usage rate. All the airlines in the sample taken from the China-North Asia region regularly conducted disinfection. Although baggage disinfection was thought to have a positive effect on preventing the

spread of COVID-19 (Murthy, 2020), luggage disinfection has been applied in only 9% of our sample. It is not used at all in the Asia Pacific and Europe regions.

Visitor acceptance conditions of countries differ in international journeys. Some airlines shared the requirements of all countries on their web pages to inform consumers correctly. While 75% of the airlines did this, the China and North Asia region was the least informative, with 43%. Some airlines shared the information of their contracted COVID test centers so that their passengers can have their COVID-19 tests. They aimed to help their customers get accepted on their trips by offering services such as online test appointments and special discounts on test fees. These types of practices were implemented by 51% of all airlines, but China and the North Asia region lagged with an implementation rate of 29%. However, while IATA antigen tests are sufficient for test use, Some countries found this test insufficient and requested PCR tests. While the reliability of antigen tests was questioned, there were also difficulties in the supply of the PCR test (Guglielmi, 2020); (Dube, Nhamo, & Chikodzi, 2021).

Airlines introduced an application called flexible ticketing to end the grievances that occur due to uncertainties and international restrictions regarding the journeys of consumers. With this method, the tickets purchased by passengers on specific dates can be changed without canceling them. This practice was commissioned by 81% of our sample, and the European region was the most applied region with a 94% implementation rate. As another precaution, airlines changed their insurance coverages. They implemented an insurance system that, in addition to travel insurance, can cover hospital and care costs in case the passenger catches the COVID-19 disease at the destination. While this practice was widely used in Africa and the Middle East region with 55%, only 32% of the airlines in the sample offered this option.

On the other hand, the least applied practice was traveling document approval. It was implemented by only 8% of our sample. Each country set different prerequisites for passenger admission during the pandemic. Requested documents to be admitted to the destination country included antibody tests, vaccine cards, vaccine dose amounts, and COVID test results. Only four airlines checked the required documents of their passengers before the flight. Checking these documents, which passengers are unfamiliar with, and detecting missing or inaccuracies may increase the customers' confidence in the airline company and provide consumers a journey without doubts. It may be thought that implementing this practice will boost the confidence of the customers in an airline company and air travel itself and change their attitude.

The COVID-19 pandemic has forced airlines to take several measures that can protect their consumers from the disease, and this study brought together the practices implemented by airline companies to protect consumers during the COVID-19 pandemic. While many of the measures or practices have been addressed separately in the literature, this study grouped the measures and practices aiming for the same purpose. At the same time, the practices and precautions of the airlines are highlighted based on different regions. This study presents together the measures and practices that can be used to reduce the spread of an increased number of cases or a new infectious disease.

For the continuity of the aviation industry, it is essential to take special measures in extraordinary disease conditions. The results of the study will help airlines find their regional shortcomings and see their differences from other regions. This study compiled all the measures that can be used in the event of an increase in COVID-19 cases and the emergence of other mass-spreading diseases. ICAO, which represents the countries' aviation authorities, and IATA, which is the representative of the airlines, published guides containing recommendations during the pandemic process. However, the implementation of the measures is left to the airlines. Instead, the mandatory imposition of some of the advisory measures on airlines could effectively reduce the spread of the disease.

The Covid-19 virus has had an unavoidable impact on the aviation industry. Lange (2020) of Airbus has emphasized that they have no experience managing this process, and many airlines have stopped making predictions and plans for the future. They are trying to develop new forecasting approaches. Ruhlin (2020), on the other hand, stated that due to the restrictions of many countries, they had a hard time estimating the demand of passengers, and everything changed very quickly. These restrictions have forced airlines to be prepared in any case. When restrictions are lifted, airlines must have the potential to meet demand (Cleaz-Savoyen & Richard, 2020). In systematic studies reviewing travel restrictions, it has been seen that travel restrictions have a limited effect in general, and this effect depends on the size of the epidemic, the period of restrictions, and the transmission efficiency of the virus (Bielecki, et al., 2020).

On the other hand, airlines took several measures to reduce contact and transmission in this process. Amankwah-Amoah (2021) examined practices such as in-flight social distance, use of contactless technologies at airports, disinfection of airplanes with UV, open middle seat policy, use of accelerated biometrics during check-in, and COVID-19 insurance during the COVID-19 epidemic period. Although there are studies on these measures, regional studies of practices and measures are included.

After the COVID-19 pandemic, there are expected to be some changes in the aviation sector, which was affected by this epidemic. Flexible and changeable ticket applications will continue in airlines after the COVID-19 pandemic (Garrow & Lurkin, 2021). It is recommended that the verification process of the health checks of passengers be put into practice. Passengers have started to use self-service services during the pandemic process.

Therefore, it completes transactions such as ticket purchase, check-in, and reservations via digital rather than physical transactions. For this reason, strengthening online sales channels and using steps such as online check-in and mobile boarding pass purchase in boarding procedures have become widespread. While airlines need to strengthen themselves at these points, The shortening of the boarding process, which is the result of self-service technologies, will bring commercial concerns to the agenda as passengers spend less time at the airport (Choi , 2021). At the same time, continuing hygiene measures such as HEPA filters and in-flight disinfection will continue to provide confidence to airline customers.

Author Contribution

CONTRIBUTION RATE	EXPLANATION	CONTRIBUTORS
Idea or Notion	From the research idea or hypothesis	Hüseyin Erbil Özyörük
Literature Review	Review the literature required for the study	Aysun Asena Aslan
Research Design	Designing method, scale, and pattern for the study	Hüseyin Erbil Özyörük Aysun Asena Aslan
Data Collecting and Processing	Collecting, organizing, and reporting data	Hüseyin Erbil Özyörük Aysun Asena Aslan
Discussion and Interpretation	Taking responsibility in evaluating and finalizing the findings	Hüseyin Erbil Özyörük Aysun Asena Aslan

Conflict of Interest

The authors reported no conflict of interest.

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Appendix 1-Precautions List

		Region					
No	Precaution	Europe	Afrika & Middle East	Asia Pacific	China & North Asia	The Americas	Total
1	HEPA Filter	11	7	6	5	8	37
2	Aircraft Disinfection	14	9	8	7	5	43
3	FlySafe Kit	6	3	4	1	3	17
4	Protective Clothing and Gloves	4	5	4	1	3	17
5	Food Serving Arrangement	5	3	3	4	4	19
6	Luggage Disinfection	0	2	0	2	1	5
7	Flexible Ticket	17	9	8	2	7	43
8	Travel Insurance	7	6	1	2	1	17
9	Travel Document Confirmation	2	1	1	0	0	4
10	Destination Point Information	15	9	7	3	6	40
11	Covid-19 Test Center Information	11	5	4	2	5	27
12	Mobile Application	14	9	9	7	8	47
13	Seating Arrangement	5	2	2	4	1	14
14	Group Boarding	4	3	0	1	3	11
15	Shuttle Service Arrangement	2	2	2	0	1	7
16	Pre-flight Health Check	1	3	1	1	1	7

Appendix 2-Hygiene Precautions

Hygiene Precautions						
	HEPA Filters		Aircraft Disinfection		Luggage Disinfection	
	# Of Airlines	Percent	# Of Airlines	Percent	# Of Airlines	Percent
Europe	11	61%	14	78%	0	0%
Africa Middle East	7	64%	9	82%	2	18%
Asia Pacific	6	67%	8	89%	0	0%
China North Asia	5	71%	7	100%	2	29%
The Americas	8	100%	5	63%	1	13%
Total # and % of airlines applying the precaution	37	70%	43	81%	5	9%
Hygiene Precautions						
	Protective Clothing and Gloves		Food Served Compatible with Covid		Fly Safe Kit	
	# Of Airlines	Percent	# Of Airlines	Percent	# Of Airlines	Percent
Europe	4	22%	5	28%	6	33%
Africa Middle East	5	45%	3	27%	3	27%
Asia Pacific	4	44%	3	33%	4	44%
China North Asia	1	14%	4	57%	1	14%
The Americas	3	38%	4	50%	3	38%

Total # and % of airlines applying the precaution	17	32%	19	36%	17	32%

Appendix-3 Loss of Right

Loss of Rights						
	Flexible Ticket		Travel Insurance		Travel Document Confirmation	
	# of Airlines	Percent	# of Airlines	Percent	# of Airlines	Percent
Europe	17	94%	7	39%	2	11%
Africa&Middle East	9	82%	6	55%	1	9%
Asia Pasific	8	89%	1	11%	1	11%
China&North Asia	2	29%	2	29%	0	0%
The Americas	7	88%	1	13%	0	0%
Total # and % of airlines applying the precaution	43	81%	17	32%	4	8%

Appendix4 – Loss Information Regulation

Information/Regulation				
	Destination points information		Covid-19 Test Center Information	
	# Of Airlines	Percent	# Of Airlines	Percent
Europe	15	83%	11	61%
Africa Middle East	9	82%	5	45%
Asia Pacific	7	78%	4	44%
China North Asia	3	43%	2	29%
The Americas	6	75%	5	63%
Total # and % of airlines applying the precaution	40	75%	27	51%

Appendix5 – Actions to Ensure Social Distancing and Reduce Actual Contagion

Actions to Ensure Social Distancing and Reduce Actual Contagion										
	Mobile Application		Seating Arrangement		Group Boarding		Shuttle Service Arrangement		Pre-flight Health Check	
	# Of Airlines	Percent	# Of Airlines	Percent	# Of Airlines	Percent	# Of Airlines	Percent	# Of Airlines	Percent
Europe	14	78%	5	28%	4	22%	2	11%	1	6%
Africa Middle East	9	82%	2	18%	3	27%	2	18%	3	27%
Asia Pacific	9	100%	2	22%	0	0%	2	22%	1	11%
China North Asia	7	100%	4	57%	1	14%	0	0%	1	14%
The Americas	8	100%	1	13%	3	38%	1	13%	1	13%

Total # and % of airlines applying the precaution	47	89%	14	26%	11	21%	7	13%	7	13%

Resume

Hüseyin Erbil ÖZYÖRÜK (Assoc. Prof.), was born and raised in Aydın, Turkey. He received his master's degree in marketing in 2012 and his doctorate in the same field in 2017 from Hacettepe University. Mr. Özyörük is interested in consumer behavior and marketing research. He is also a theoretical knowledge instructor and full-time lecturer at the University of Turkish Aeronautical Association in Ankara, Turkey.

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