

# Pre and during COVID situation and Impact of COVID-19 on Aviation Industry

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## Abstract

As Corona virus started to spread as a pandemic then many countries shut down and many stopped the Air Service as well and India was one of those countries in which Airline Service was totally shut for 3 months. This study is created to know the Impact of COVID-19 on Airline Industry and what all changes we can see in Customer behavior. This study will help you to know the Consumer behavior and how Corona Virus impacted Airline service. This study will help you gain knowledge about the current trend and current process to complete the Airline service. The frequency of travel through air has been decreased due to the fear of COVID. Airline service has also started to work according to the customer need and want. They properly start to sanitize the aero plane and airport and following safety measures for safe journey. This study more Reponses from the age group of 18-25. There are also many of students in the responses. SPSS Tool for Statistics is used for the testing and analysis and performed tests like ANOVA and One sample T Test.

**Keywords:** Airline Industry, COVID-19, Safety measures (Sanitization, Social Distancing etc.), Consumer Behavior, Airline Service.

## Introduction

Corona virus disease 2019 (COVID-19), a respiratory disease is one of the biggest ongoing threat Worldwide. COVID-19 was originated from China and reported its first case on December, 2019. India reported its first case of COVID-19 on January, 2020. Country went into complete lockdown from 24<sup>th</sup> March, 2020. Many sector including Airline sector went into shutdown; all International and Domestic flights were suspended from 22 March 2020 and 25 March 2020 respectively. The airline service came to

stand still for a period of time but it started coming into action when Governments initiative named Vande Bharat Mission May, 2020 was launched. It was a mission initiated by the Government to bring back stranded Indians from different parts of the World back to India. By the end of May domestic flight started to operate under strict guidelines like wearing a face mask and face shield, no onboard food served, Health Screening, and compulsion to install Arogya Setu App, Social Distancing, etc. The Impact of COVID-19 on airline industry has also impacted the behavior of consumer towards airline service. Due to this the frequency of travel has reduced as the people have become meticulous. People prefer to travel mostly in Emergency situation instead of other reasons like Vacation, visiting relatives, Festival etc. to prevent themselves from ongoing outbreak. During the emergency travel also, consumer is more focused towards following the safety measures.

Thus, the Impact of COVID-19 can be seen in Consumer Behavior as well as Airline Industry which is justified in this study.

## Objectives

1. To study the impact of COVID 19 on Airline Industry.
2. To study the consumer behavior towards the airline services during COVID-19.
3. To study the measures taken by the Airline Industry and the consumer satisfaction towards the same.

## Purpose

India being the 3<sup>rd</sup> largest domestic aviation market in the world, which will overtake the UK by 2024, to become the 3<sup>rd</sup> largest Air Passenger Market. This largest aviation market has been hit harder by the novel coronavirus spread all over the world. Due to the impact of Coronavirus the industry got

temporarily shut for a period of time. Thus, this study aims to know the impact and consumer behavior towards the aviation industry, due to this pandemic. Though the situation and the industry both are well known but there are not many studies conducted in the literature on the same. Therefore, this study will provide some insights considering the impact of COVID-19 on the aviation industry and how the industry has adapted to this situation.

### **Limitations of the study**

- Due to COVID Face to Face Interaction was not possible.
- Negligence of factors due to time constraint.
- Due to current scenario we were not able to reach the people who have actually experienced the changes in service.
- People approached for the survey were unwilling to respond.

### **Literature Review**

WASTNAGE (2020), proposed a comprehensive overview on “WHAT WILL THE AIRLINE INDUSTRY LOOK LIKE POST COVID-19?” The article stated that the COVID-19 would destroy the travel and tourism industry. Commercial air transport had been hit harder than any other sectors and even the aerospace that is the industry of making aircraft has been hit hard as well. “The World Travel and Tourism Council estimates a decline of 13 per cent of economic input from the sector globally within a month (April)”. The article stated that around US\$250 billion will be in lost income for the year as per International Air Transport Association. The article suggested that the airlines will focus on flying in medical supplies as this could provide short term meaning to their employees and communities. The global Air Transport system might collapse if there would be complete border shutdowns till end of 2020. The article also stated some way in which the Air industry would respond such as onboard social distancing, rise in cargo operations, end to thinner routes and many more and it also stated the way the government would respond. (WASTNAGE, 2020)

Mhalla (2020), proposed a comprehensive overview on “The Impact of Novel Coronavirus (COVID-19) on the Global Oil and Aviation Markets.” The researcher described the spread of Corona Virus and also discussed its impact on the world economy focusing majorly on the oil industry and Aviation industry. The researcher stated that China was world’s third largest aviation market in December 2019 but its ranking dropped to 25th place in January

2020 due to the breakout of Novel Corona virus. The researcher stated that slowdown in demand of air industry lead to reduce the flight programs and put in place saving measures. This is causing crisis among international airlines which are worried about the negative repercussion on their activities. The major problem faced is to decide whether to leave planes on ground or to redeploy them to other markets. The positive impact here for aviation industry is decline in prices of oil due to drop in its demand. Thus, the researcher stated that COVID-19 would severely affect the air travel and the aviation industry in the short run. (Mhalla, 2020)

Pongpirul, Kaewpounggam, Chotirosniramit & Theprugsa (2020), proposed an overview on “Commercial airline protocol during COVID-19 pandemic: An experience of Thai Airways International.” The researcher surveyed passengers using a questionnaire and in-depth interview with aircrews of two randomly selected repatriation flights operated by Thai Airways International. The researchers stated that the aviation industry has been affected greatly by the COVID-19. The researchers explain that the physical distance seemed to be context sensitive as stated by the respondent. The researchers mentioned that the passengers reported varying degrees of physical distancing at check-in, boarding, and in-flight and that the in-flight body temperature check was possible. They also mentioned that several preventive measures for in-flight transmission of the SARS-CoV-2 has relied on past experiences and raised financial and feasibility concerns to the airline industry. Thus, they mention that the protocol of The Thai Airways was well received by the passengers and aircrews. (Kaewpounggam, Chotirosniramit, Pongpirul, & Theprugsa, 2020)

Suzumura, Kanezashi, Dholakia, Ishii, Napagao, Pérez-Arnal & Garcia-Gasulla (2020), proposed a comprehensive overview on “The Impact of COVID-19 on Flight Networks.” The researchers mentioned here that due to spread of Novel Corona virus government have enforced travel restrictions to prevent further spread of virus but these restrictions have affected directly the volume of international flights which resulted in extensive social and economic costs. The researchers have used the Open sky network data method. They found that the number of daily flights decreased gradually and dropped 64% during the second half of March 2020. The number of incoming flights dropped just after the travel restriction by the government of Spain on March 16. Thus, after the declaration of a pandemic

by WHO on March 11 and government announcements of travel restrictions during the following week, the number of international flights around the world drastically declined, particularly in Europe. Although many domestic flights were still in operation in the US, the frequency gradually declined. (Suzumura, et al., 2020)

*Stefano Maria Iacus, Fabrizio Natale, Carlos Santamaria, Spyridon Spyrtatos, Michele Vespe (2020)* proposed a comprehensive overview on “*Estimating and projecting air passenger traffic during the COVID-19 coronavirus outbreak and its socio-economic impact*”. Due to the coronavirus world crisis, most countries had place in situ restrictive measures so as to confine the pandemic and contain the number of casualties. Among the restrictive measures, traffic suspension was actually quite effective in reducing the quality on the world scale within the short term however it additionally has high socioeconomic impact on the long and short term. the most focus is to gather and prepare information on air passengers’ traffic worldwide with the scope of analyze the impact of travel ban on the aviation sector. Based on historical information from January 2010 until Oct 2019, a prognostication model is enforced so as to line a reference baseline. creating use of aero plane movements extracted from on-line flight pursuit platforms and on-line booking systems, this study presents additionally a primary assessment of recent changes on the wing activity round the world as a result of the COVID-19 pandemic. to review the results of aviation ban on aviation and successively its socio-economic, many eventualities square measure created supported past pandemic crisis and also the discovered flight volumes. It seems that, according to these hypothetical scenarios, within the half-moon of 2020 the impact of aviation losses may have negatively reduced World GDP by zero.02% to 0.12% in step with the discovered information and, in the worst case eventualities, at the top of 2020 the loss may be as high as one.41–1.67% and job losses might reach the value of 25–30 millions. specializing in EU27, the GDP loss might quantity to one.66–1.98% by the top of 2020 and also the number of job losses from four.2 to five million within the worst-case eventualities. Some countries are going to be a lot of affected than others within the short run and most European airlines corporations can suffer from the travel ban. we have a tendency to hope that these preliminary results are also of facilitate for enlightened political views style of exit ways from this world crisis.

*Joseph Amankwah-Amoah (2020)* proposed a comprehensive overview on “*Stepping up and stepping out of COVID-19: New challenges for environmental sustainability policies in the global airline industry*”. The attract for businesses to jettison short-run expensive processes, restrictive demands and inexperienced business practices (GBPs) within the turbulent times of COVID-19 remains sky high. though GBPs and eco-friendly policies deliver ends up in the future in terms of market aggressiveness (MC), in several industries companies have sought-after to jettison well-rooted practices within the face of the existential threats stemming from COVID-19. during this paper, we have a tendency to examine the new modern challenges of adopting and implementing environmental property policies within the international airline trade within the wake of COVID-19. The analysis sheds light-weight on firms’ level property initiatives like upgrading to environmentally friendly craft and countervailing emission footprint, and institutional initiatives like the EU Union Emissions mercantilism System and also the Carbon countervailing and Reduction theme for Aviation. Our analysis demonstrates that some airlines and industrial bodies sought-after to sidestep environmentally friendly commitments and practices to beat new challenges like value pressures, survival threat and deprioritizing environmental property initiatives. we have a tendency to establish and examine the implications of the analysis.

*Hien Lau, Veria Khosrawipour, Piotr Kocbach, Agata Mikolajczyk, Hirohito Ichii, Maciej Zacharski, Jacek Bania, Tanja Khosrawipour (2020)* proposed a comprehensive overview on “*The association between international and domestic air traffic and the coronavirus (COVID-19) outbreak*”. Background: the planet Health Organization (WHO) has declared the present outbreak of the novel coronavirus (COVID-19) a world pandemic. several countries face increasing numbers of COVID-19 cases, which are, in their origin principally attributed to regular international flight connections with China. This study aims to research this relation by analyzing offered knowledge on traffic volume and also the unfold of COVID-19 cases. Methods: and findings: we have a tendency to analyzed offered knowledge on current domestic and international passenger capacity and flight pathways and compared these to the distribution of domestic and international COVID-19 cases. Results: Our knowledge indicate a robust linear correlation between domestic COVID-19 cases and passenger volume for regions at

intervals China ( $r^2 = 0.92$ ,  $p < 0.01$ ) and a big correlation between international COVID-19 cases and traveler volume ( $r^2 = 0.98$ ,  $p < 0.01$ ). Conclusions: the amount of flight routes still as total traveler volume area unit extremely relevant.

T. Islam, M. Sadeghi Lahijani, A. Srinivasan, S. Namilae, A. Mubayi, and M. Scotch (2020) proposed a comprehensive overview on "From Bad to Worse: Airline Boarding Changes in Response to COVID-19". Airways have introduced a back-to-front boarding process in response to the COVID-19 pandemic, it's actuated by the need to cut back passengers' probability of passing on the point of seated passengers once they take their seats. However, our previous work on the danger of viral hemorrhagic fever unfold in airplanes advised that the thrust for increased exposure to infection transmission risk is the cluster of passengers whereas awaiting others to pack their bags and take their seats. In this work, we tend to examine whether or not the new boarding processes result in increased or shriveled risk of infection unfold. we tend to additionally study the explanations behind the danger variations related to totally different boarding processes. we tend to accomplish this by simulating the new boarding processes victimization pedestrian dynamics and compare them against alternatives. Our results show that back-to-front boarding roughly doubles the infection exhibit compared with random boarding. It additionally will increase exposure by around five hundredth compared to a typical boarding method before the eruption of COVID-19. whereas keeping middle seats empty yields a considerable reduction in exposure, our results show that the various boarding processes have similar relative strengths during this case like middle seats occupied. we tend to show that the increased exposure arises from the proximity between passengers moving in the aisle and whereas seated. Our results counsel that airlines either revert to their earlier boarding method or adopt the higher random method.

Tracy L. Lamb, Scott R. Winter, Stephen Rice, Keith J. Ruskin, Austin Vaughn (2020) proposed a comprehensive overview on "Factors that predict passengers' willingness to fly during and after the COVID-19 pandemic". Previous analysis has examined client disposition to fly during a type of things, together with throughout disease outbreaks. However, to date, no study that we all know of has known what kind of person is willing to fly during the COVID-19 pandemic. Methods: 600 and xxxii participants from the US was asked to finish a survey

designed to capture demographics, temperament measures, emotional states and travel functions. the information was collected in 2 stages so as to each develop a descriptive equation and a prophetic model. Results: Regression equations were created for each business and pleasure travel, and therefore the following predictors were vital for each scenario: perceived threat from COVID-19, agreeableness, affect, and fear. These models accounted for 66–67% of the variance in disposition to fly. Conclusion: Airlines and governments might use these findings to assist management the message to potential passengers on actions being taken to supply a secure flying expertise, like mask sporting policies and craft disinfectant procedures.

Abu-Rayash & Dincer (2020), conducted a study on "Analysis of mobility trends during the COVID-19 coronavirus pandemic: Exploring the impacts on global aviation and travel in selected cities." This study was practically based on the impact of COVID-19 on the transportation sector. The researchers have mentioned how the global pandemic has impacted the whole transportation industry and how everything came to a standstill which ultimately resulted in reduction in Green House Gases and energy savings. This study also shows how people are so nervous and anxious about the global pandemic, that it will take a long time for the transportation to get back to normal.

Tahanisaz (2020), studied on "Evaluation of passenger satisfaction with service quality: A consecutive method applied to the airline industry." This study showcased how service quality and passenger's satisfaction is essential for market growth of that particular airlines. The study has also talked about various models used by airlines for customer satisfaction. Kano Model was used to study customer satisfaction by measuring their expectations with the help of the model. Based on the same a satisfaction analysis study was also done to identify various service quality pointers.

Coffas, L. A., Delcea, C., Milne, R. J., & Salari, M. (2020) proposed a comprehensive overview on "Evaluating Classical Airplane Boarding Methods Considering COVID-19 Flying Restrictions." The novel coronavirus has imposed the need for a series of social distancing restrictions worldwide to mitigate the scourge of the COVID-19 pandemic. This applies to numerous areas, including plane loading up and seat tasks. Airline are giving priority to their passengers' safety during the pandemic so the boarding method should be evaluated and social distancing norms and it should result in efficiency of

the airline. Researchers use the simulation platform in NetLogo to test six common boarding methods under various conditions. The airline should come up with social distancing norms and the back to front by row boarding has the advantage of providing the lowest health risk for two metrics. Those two measurements depend on travelers conceivably contaminating those travelers recently situated in the columns they cross. With increased aisle social distancing, the passengers wait less in the aisle and, thus, transmit fewer COVID-19 droplets onto the seated passengers they pass. This observation can be generalized to other contexts that have nothing to do with airplanes.

**Sector Profile**

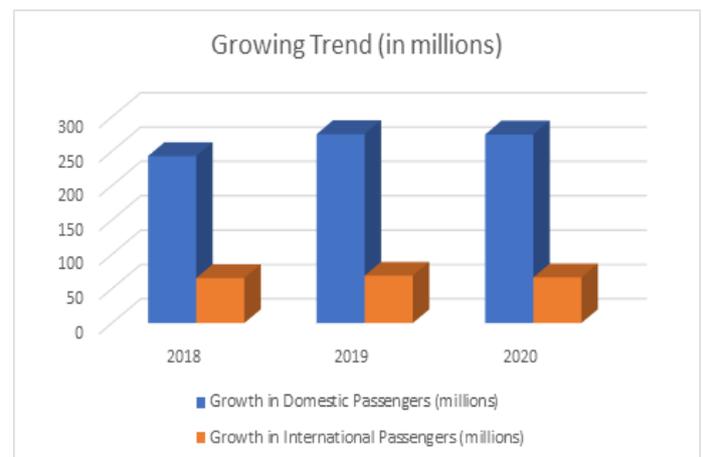
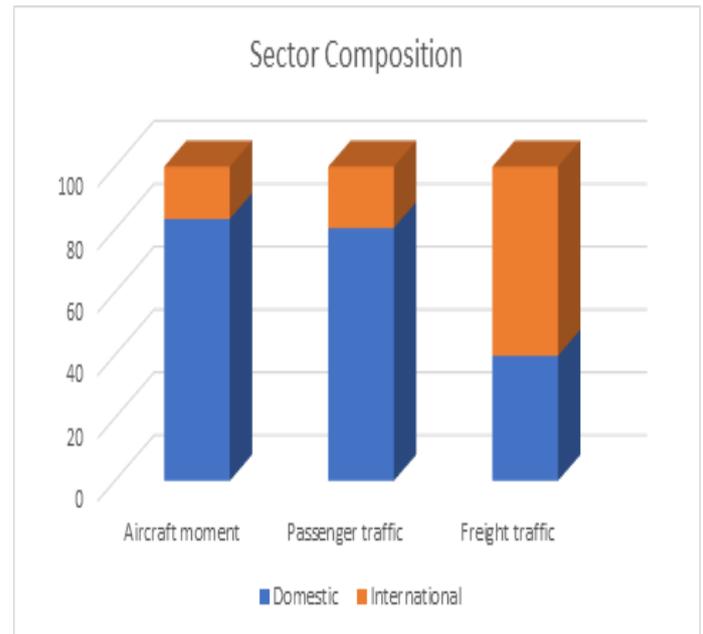
**History: -**

The Indian Aviation industry came into existence in the Year of 1912 and the first flight took off between Karachi and Delhi. This was a collaboration of Indian Air Service and Imperial Airways, a UK based company. To strengthen the Aviation industry of India, a Joint sector company was created by the Government of India and Air India in 1948. In the year of 1953 Domestic Civil Aviation sector came into existence. In mid1990’s the Indian Aviation industry was dominated by government owned airlines. The Indian Aviation industry had a major transformation because of the open sky policy adopted by the Government. In the year 2000, privatization in Indian airlines came into existence and companies like Go Air, Spice Jet and Deccan Airlines started to dominate the market.

**Market Size: -**

India being the 3<sup>rd</sup> largest domestic aviation market in the world, which will overtake the UK by 2024, to become the 3<sup>rd</sup> largest Air Passenger Market.

- ☐ In 2020 the India’s passenger traffic is at 341.05 million.
- ☐ The CAGR of the year 2016-20 was 11.13 percent.
- ☐ The Domestic passenger traffic is at 274.50 million while the International passenger traffic is at 66.54 million, in 2020.
- ☐ There was a rise in the Freight traffic from 2.70 million tons to 3.33 million tons during 2016-20.
- ☐ The Government of India has been focusing on increasing the operational airports due to rise in air traffic and is currently having 139 airports, aiming at having 190-200 by 2024.



Source - <https://www.ibef.org/industry/indian-aviation/infographic>

**Developments in Indian Aviation Industry: -**

- ☐ India’s first three water aerodromes were planned by AAI in Andaman & Nicobar in the year 2019-20.
- ☐ IndiGo became the first Indian carrier to operate 1500 flights per day in 2020.
- ☐ Guwahati, Agartala, Imphal and Dibrugarh will be developed as inter-regional hubs as planned by AAI.

**Investments in India’s Aviation Industry: -**

- ☐ By the approval of CCI, Adani Properties Private Limited (APPL) acquired the shareholdings in MIAI in year 2019.
- ☐ An investment of US \$150 million was planned in India by France based Safran group.

- ☐ To develop the facilities and infrastructure at airports, an investment of Rs. 25000Crore was planned by AAI.
- ☐ An investment of Rs. 950 cr. was made in Turbo aviation's new airline TruStar by a UK group.

### **Government Initiatives: -**

- ☐ A new initiative 'Lifeline Udaan' was started by the Government of India to supply medical cargo to various parts of the country, during the pandemic in April 2020.



- ☐ To be the helping hand to farmers to transport the agriculture products to domestic and international routes, the Government introduced the 'Krishi Udaan' scheme in 2020-2021.
- ☐ Making the India's Aviation market self-dependent, the Government promoted aircraft financing and leasing activities in 2019-2020.
- ☐ The growth of a new Greenfield airport which is located at Hirasar, Gujarat was approved by the government with an investment of Rs. 1405 cr. in 2019.
- ☐ The Global Aviation Summit in Mumbai in January 2019 was programmed by the government, which had 1200 delegates from 83 countries.
- ☐ To make Indian air cargo and logistics more proficient, a National Air Cargo Policy was confined to 2019 by the government.

### **Research Methodology**

#### **Statement of Problem:**

The problem statement here is to know the impact of COVID-19 in the Aviation Industry, how the consumer behaves towards the changed service by airlines during COVID and to know how satisfied the customers are towards the measures taken by Airline Industry during this situation.

#### **Research Hypothesis:**

- $H_0$ : COVID-19 has no impact on the Airline Industry.
- $H_{01}$ : There is no change in the behavior of consumer towards the services of airline industry during COVID-19.
- $H_{02}$ : Consumers are not satisfied by the measures taken by the airline industries during COVID.
- $H_1$ : COVID-19 has an impact on the Airline Industry
- $H_{11}$ : There is change in the behavior of consumer towards the services of airline industry during COVID-19.
- $H_{12}$ : Consumers are satisfied by the measures taken by the airline industries during COVID.

#### **Research Design:**

##### **Type of research: Quantitative research**

This study is a quantitative research study because it tries to know the consumer behavior towards the changed Airline services during COVID and it also put light on the measures taken by Airline Industry during this pandemic. The data is collected using a structured questionnaire circulated via Google form and is quantified by coding the responses to reach at an anticipated conclusion.

##### **Type of research design: Descriptive Research Design**

The descriptive research design used in this study is because of the characteristics of the research which are well planned objectives, clearly defined information and problem, structured questionnaire, formation of hypothesis and use of statistical tools to analyses the data.

##### **Population/Universe-**

Population is a set of people with common characteristics which forms the subject for a particular study. Here, the population are people of age groups from 18-50 & above living in different parts of the country.

##### **Sampling technique:**

The researcher has used Convenience sampling under non-probability sampling due to the time and cost constraint and also ongoing situation. So, the researchers have approached the population which comes under their convenience area. Thus, the researchers collected the information through

structured questionnaire circulated among the population via google form as per the convenience.

**Sampling unit:**

Sampling unit are the respondents who are asked out to fill the questionnaire to collect the data. Here, the

sampling unit includes students, business people, housewives, employees, etc.

**Sampling size:**The sample size will be restricted to only 200, which comprised of people from different regions of the country.

**Age group:** 18 to 50 & above.

**Type of Data-**

**Type of data: Primary data**

Primary data is the data collected for the first time by the researcher using various methods as questionnaire, survey, interview, etc.

Here, the researchers have used primary data collection method which is structured questionnaire for gathering information related to the research. The questionnaire having 15 questions was circulated through Google form. It was circulated among 200 people of different age groups, residing in different regions of the country.

**Type of data: Secondary data**

The secondary data is a data that is already available for use. The sources of secondary data could be newspapers, articles, academic researches, etc.

Here, the secondary data includes various articles, website of airline companies and various researches conducted over time.

**Data Analysis & Interpretation**

**Table: 1 Demographics of the respondent.**

<u>Parameter</u>	<u>No. of respondent</u>	<u>Percentage</u>
<b><u>Age Group</u></b>		
Between 18-25	106	53%
Between 25-30	31	15.5%
Between 30-40	34	17%
Between 40-50	16	8%
50 & Above	13	6.5%
<b>Total</b>	200	100
<b><u>Gender</u></b>		
Male	107	53.5%
Female	97	48.5%
<b>Total</b>	200	100
<b><u>Profession</u></b>		
Employed	48	24%
Other	18	9%
Self-employed	49	24.5%
Student	83	41.5%

Unemployed	2	1%
<b>Total</b>	200	100
<b>Income</b>		
Rs. 0-1 Lakh	100	50%
Rs. 1-2 Lakh	16	8%
Rs. 2-5 Lakh	34	17%
Rs. 5 & above	50	25%
<b>Total</b>	100	100

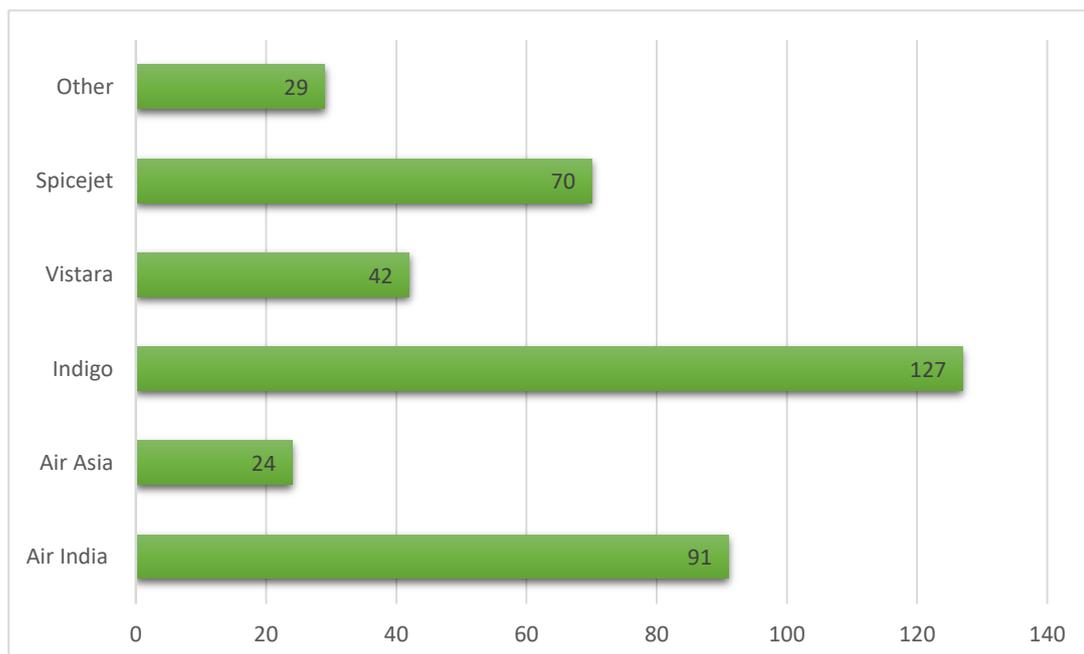
The above table and graph represent the demographic features of the respondent as age, gender, profession and income.

- We can depict that 53% of the respondent were of the age group of 18-25 years, while 15% were of the age group of 25-30years and 17% were of age group of 30-40years. 8% and 7% of the respondent were of age group between 40-50 years and 50 & above respectively. Thus, majority of the respondent were of age group 18-25 years.
- 54% of the respondent were male whereas rest of the respondent that is 46 % of them were female.
- The other demographic features presented is profession.42% of the respondent were students, 24% were self-employed whereas 24% are employed. 9% and 1% of them are other and unemployed respectively.
- 50% of the respondent are of income between 0-1Lakh where as 25% of them are of income 5 lakh and above. 17% and 8% of them are of income between 2-5 lakh and 1-2 lakh respectively.

**Table: 2 Other Characterises**

<b>Table 2.1: Which of the following airlines do you prefer?</b>	
Air India	91
Air Asia	24
Indigo	127
Vistara	42
SpiceJet	70
Other	29

**Graph 2.1:**

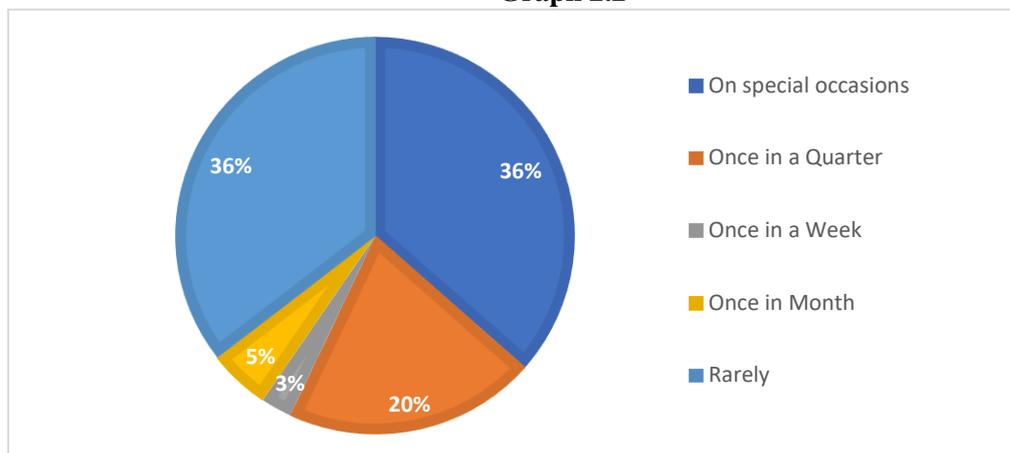


**Interpretation 2.1:** The above table and graph represents the preference of airline by the respondents. We can see that most of the respondent prefer to travel by Indigo airlines while second most preferred airline by respondents is Air India and then comes the Spice jet. The least preferred is Air Asia Airlines.

**Table 2.2: On an average, how often you used to travel by air Pre-COVID?**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	On special occasions	73	36.5	36.5	36.5
	Once in a Quarter	41	20.5	20.5	57.0
	Once in a Week	5	2.5	2.5	59.5
	Once in Month	10	5.0	5.0	64.5
	Rarely	71	35.5	35.5	100.0
	Total	200	100.0	100.0	

**Graph 2.2**

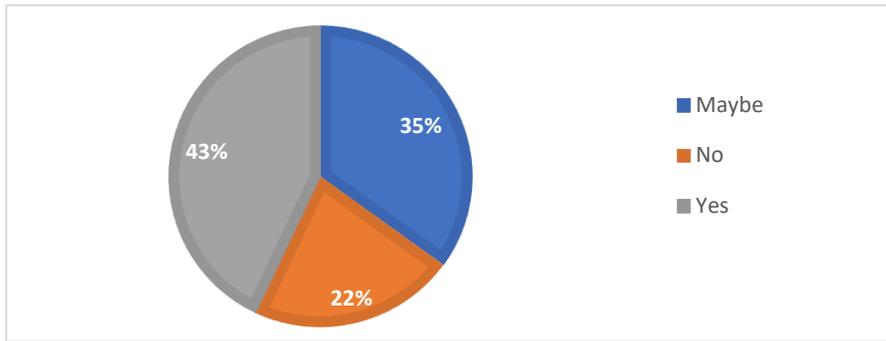


**Interpretation: 2.2:** From above Table and Graph, we are depicting the frequency of travel of the respondents and that is seen- 36.5% of the respondents used to travel on Special Occasions in the pre-COVID scenario while 35.5% travelled rarely. 20% of the respondents travelled Quarterly while, only 5% and 3% travelled once in a month and once in a week respectively.

**Table 2.3: Would you prefer Air travel over any other mode of transportation during COVID 19?**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Maybe	70	35.0	35.0	35.0
	No	44	22.0	22.0	57.0
	Yes	86	43.0	43.0	100.0
	Total	200	100.0	100.0	

Graph 2.3:

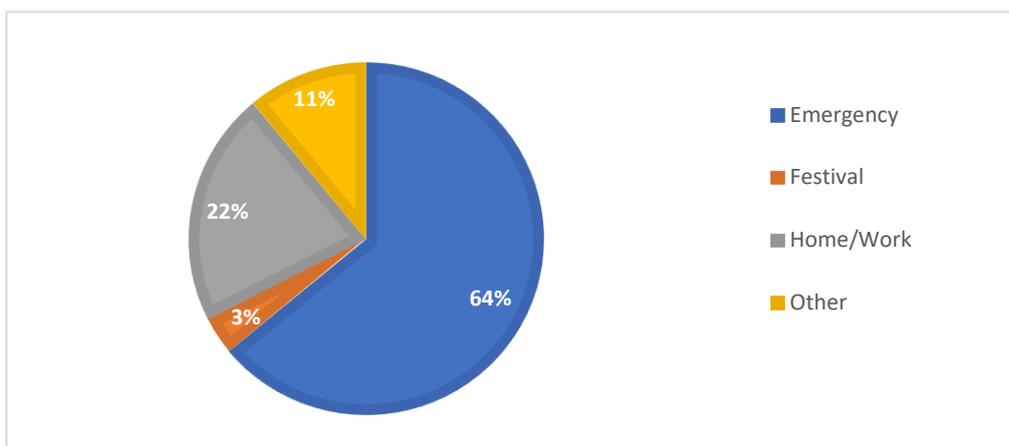


**Interpretation 2.3:** From the above Table and Graph, 43% of respondents would prefer Air Travel over any other mode of transportation during COVID-19, whereas, 22% of respondents would preferably not use Air as a mode of transportation during COVID. 35% of respondents are not sure whether they will prefer air travel over other mode of transportation or not during COVID-19. Thus, majority of people would not prefer air travel over other mode of transportation during COVID-19 may be due to some fear or other reasons.

**Table 2.4: What could be the reasons for your travel by air during COVID?**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Emergency	128	64.0	64.0	64.0
	Festival	7	3.5	3.5	67.5
	Home/Work	43	21.5	21.5	89.0
	Other	22	11.0	11.0	100.0
	Total	200	100.0	100.0	

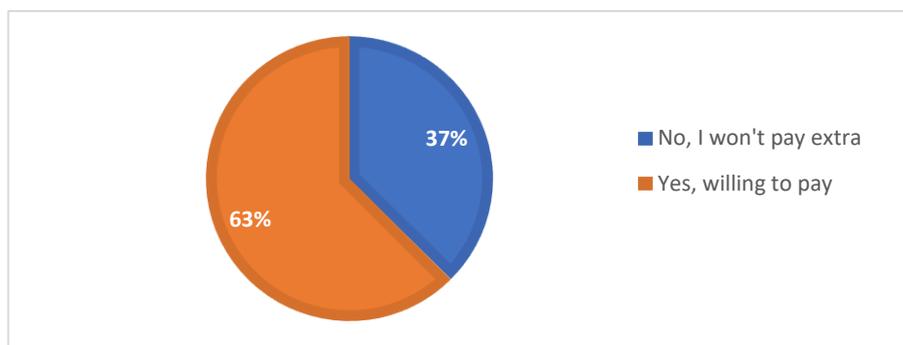
Graph 2.4:



**Interpretation 2.4:** The above table and graph shows the reason of travel by air during COVID-19. We can see that 64% of respondent would travel in the case of emergency while 21.5% of respondent travelled to return back to their home or for the work purpose. 3.5% and 11% of respondent travelled to attend some festival and for other reasons respectively. Thus, we can say that mostly respondent travelled only in case of emergency.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No, I won't pay extra	75	37.5	37.5	37.5
	Yes, willing to pay	125	62.5	62.5	100.0
	Total	200	100.0	100.0	

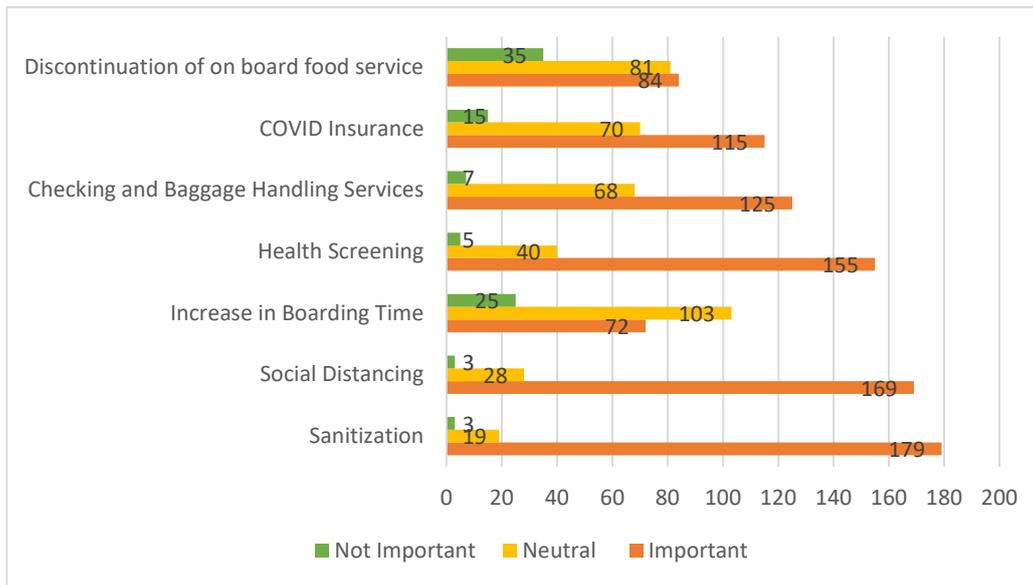
**Graph 2.5:**



**Interpretation 2.5:** The above table and graph depict that whether respondent would prefer to pay more for the safety measures or not. We can see that 62.5% of the respondent preferred to pay more for their safety measures while 37% of the respondent preferred not to pay more for their safety purpose. We can depict that for majority of the respondent safety is more important and therefore they are ready to pay more for their safety measures

	Important	Neutral	Not Important
Sanitization	179	19	3
Social Distancing	169	28	3
Increase in Boarding Time	72	103	25
Health Screening	155	40	5
Checking and Baggage Handling Services	125	68	7
COVID Insurance	115	70	15
Discontinuation of on-board food service	84	81	35

**Graph 2.6:**

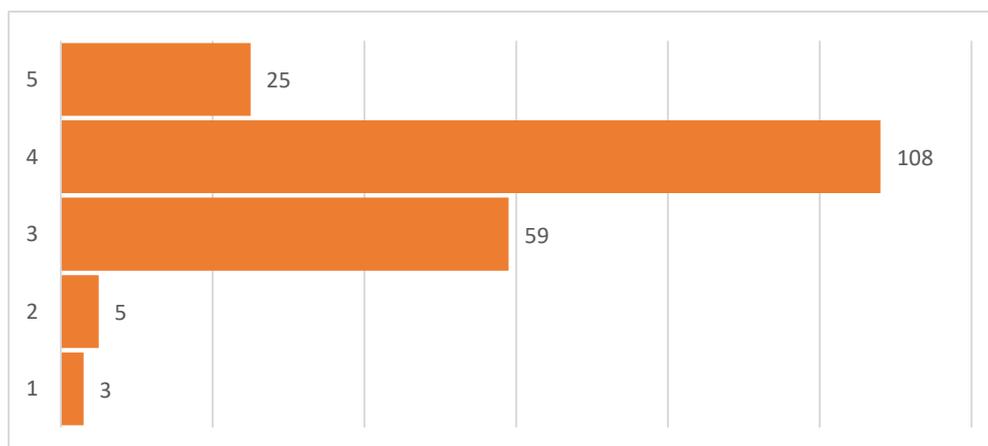


**Interpretation 2.6:** From the survey we can say that most of the respondent prefer sanitization, social distancing and health screening as the most important safety measures amongst the rest. Increasing in boarding time and discontinuation of on-board food services are considered to be least important by the respondents.

**Table 2.7: How satisfied are you with the overall changed services of the airlines?**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	3	1.5	1.5	1.5
	2	5	2.5	2.5	4.0
	3	59	29.5	29.5	33.5
	4	108	54.0	54.0	87.5
	5	25	12.5	12.5	100.0
	Total	200	100.0	100.0	

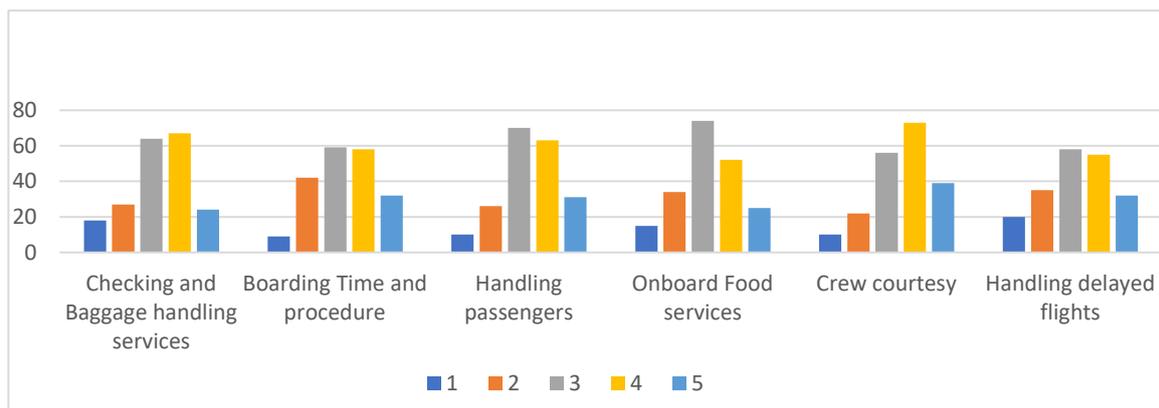
**Graph2.7:**



**Interpretation 2.7:** The above table and graph depict the satisfaction level of respondent towards overall changed service of Airline. We can see that most of the respondent are satisfied with the same. Out of 200 respondents, 108 of them have rated the services as 4 out of 5 which portrays their level of satisfaction.

	1	2	3	4	5
Checking and Baggage handling services	18	27	64	67	24
Boarding Time and procedure	9	42	59	58	32
Handling passengers	10	26	70	63	31
On-board Food services	15	34	74	52	25
Crew courtesy	10	22	56	73	39
Handling delayed flights	20	35	58	55	32

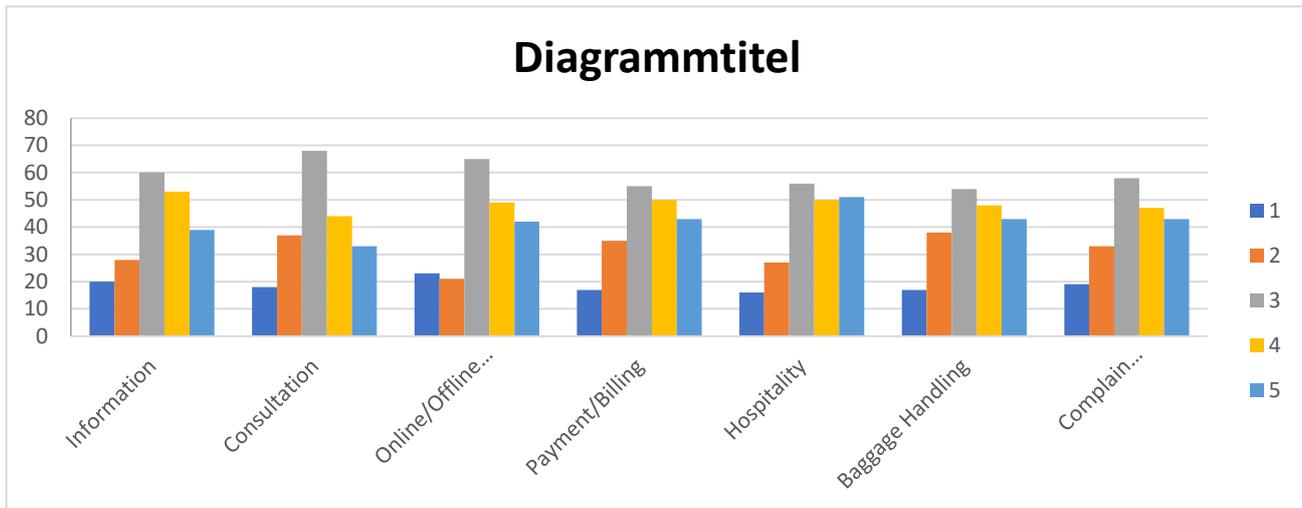
**Graph 2.8:**



**Interpretation 2.8:** The above data shows the preference of the respondent towards the services in the pre-COVID scenario. 67 respondents have given 4 as a rating out of 5 to Checking and Baggage handling services, 59 respondents have given 3 as a rating to Boarding Time and procedure. Most of the respondent preferred to rate 3 to Handling passengers, on-board food services and handling delayed flights while 73 respondents have given crew courtesy 4 out of 5 rating.

	1	2	3	4	5
<b>Information</b>	20	28	60	53	39
<b>Consultation</b>	18	37	68	44	33
<b>Online/Offline reservations</b>	23	21	65	49	42
<b>Payment/Billing</b>	17	35	55	50	43
<b>Hospitality</b>	16	27	56	50	51
<b>Baggage Handling</b>	17	38	54	48	43
<b>Complain Handling/Problem Solving</b>	19	33	58	47	43

Graph 2.9:



**Interpretation 2.9:** The data given shows the preferences of the respondents towards the airline service elements during COVID. Most of the respondents have given 3 as a rating out of 5 to all of the elements which shows that respondent’s preference is neutral towards service element during COVID.

**Hypothesis Testing**

ANOVA					
Have you noticed any changes in the airline services during COVID-19?					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	13.022	4	3.255	4.350	.002
Within Groups	145.933	195	.748		
Total	158.955	199			

$F(4,95) = 4.35, p < .002$

We have a significant result. The value of F is 4.350, which reaches significance with a p-value of .002 (which is less than the .05 alpha level). This means there is a statistically significant difference between the means of the different levels of the variable.

We compared two questions here one where respondents responded about noticing the change in service and second was about their satisfaction which the change in service. From the above table we can justify that there is been a significant difference.

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
Checking and Baggage handling services	200	3.26	1.117	.079
Handling passengers	200	3.40	1.056	.075
Handling delayed flights	200	3.22	1.204	.085
Onboard Food services	200	3.19	1.095	.077
Boarding Time and procedure	200	3.31	1.109	.078
Crew courtesy	200	3.55	1.079	.076

One-Sample Test						
	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Checking and Baggage handling services	3.291	199	.001	.260	.10	.42
Handling passengers	5.291	199	.000	.395	.25	.54
Handling delayed flights	2.585	199	.010	.220	.05	.39
Onboard Food services	2.453	199	.015	.190	.04	.34
Boarding Time and procedure	3.953	199	.000	.310	.16	.46
Crew courtesy	7.145	199	.000	.545	.39	.70

**Tailed Hypothesis Test interpretation:**

Since Sig.(p) < 0.05. At 5 % (0.05) level of significance that means 95% of confidence level the mean difference is exactly the test value 3. So, the null hypothesis has the acceptance succeeded through 2-tail test from the analysis tool IBM SSPS for performing the hypothesis test.

As the scale here says that 5, 4, 3, 2, and 1. So, the interpretation goes that as the Checking and Baggage handling services, Handling passengers, Handling delayed flights, Onboard Food services, Boarding Time and procedure and Crew courtesy these are more than 3 units mean difference which is test value considered from the observations that means they are 3/5 important.

This analysis showed that the consumer perception or attitude on travelling through air is showing more importance to Checking and Baggage handling services, Handling passengers, Boarding Time and procedure and Crew courtesy at Airline Service.

As the assuming alpha here is 0.05 (95% confidence Interval) and the assuming population mean is 3. Through the difference of t-value and t-test the test of hypothesis is performed. There are certain elements that has to be understood for using IBM SPSS Statistics Tool such as:

1. The tool doesn't show numbers after 3 decimal digits. As the sig.(p-value) can't be zero but it is close to zero which can't be seen in the analysis above.
2. The Critical Value (the p-value from the t-table) is derived from the tool itself and not mentioned it in the analysis above.

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
Sanitization	200	1.21	.596	.042
Social Distancing	200	1.30	.700	.050

Increase in Boarding time	200	2.15	.925	.065
Health Screening	200	1.43	.805	.057
Checking and Baggage Handling Services	200	1.72	.942	.067
COVID Insurance	200	1.78	.937	.066
Discontinuation of on-board food service	200	1.99	.910	.064

One-Sample Test						
	Test Value = 1					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Sanitization	4.868	199	.000	.205	.12	.29
Social Distancing	5.957	199	.000	.295	.20	.39
Increase in Boarding time	17.662	199	.000	1.155	1.03	1.28
Health Screening	7.469	199	.000	.425	.31	.54
Checking and Baggage Handling Services	10.729	199	.000	.715	.58	.85
COVID Insurance	11.692	199	.000	.775	.64	.91
Discontinuation of on-board food service	15.300	199	.000	.985	.86	1.11

**2-Tailed Hypothesis Test interpretation:**

Since Sig.(p) < 0.05. At 5 % (0.05) level of significance that means 95% of confidence level the mean difference is exactly the test value 1. So, the null hypothesis has the acceptance succeeded through 2-tail test from the analysis tool IBM SSPS for performing the hypothesis test.

As the scale here says that Important, Neutral and Not Important. So, the interpretation goes that as the Sanitization, Social Distancing, Increase in Boarding time, Health Screening, Checking and Baggage Handling Services, COVID Insurance and Discontinuation of on-board food service these are more than 1 units mean difference which is test value considered from the observations that means they are important.

This analysis showed that the consumer perception or attitude on travelling through air is showing more importance to Information, Hospitality, Online/Offline reservations, Payment/Billing, Baggage Handling and Complain Handling/Problem Solving at Airline Service.

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
Information	200	3.32	1.222	.086
Consultation	200	3.19	1.182	.084

Online/Offline reservations	200	3.33	1.245	.088
Payment/Billing	200	3.34	1.233	.087
Hospitality	200	3.47	1.231	.087
Baggage Handling	200	3.31	1.242	.088
Complain Handling/Problem Solving	200	3.31	1.246	.088

One-Sample Test						
	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Information	3.646	199	.000	.315	.14	.49
Consultation	2.213	199	.028	.185	.02	.35
Online/Offline reservations	3.750	199	.000	.330	.16	.50
Payment/Billing	3.842	199	.000	.335	.16	.51
Hospitality	5.340	199	.000	.465	.29	.64
Baggage Handling	3.531	199	.001	.310	.14	.48
Complain Handling/Problem Solving	3.519	199	.001	.310	.14	.48

**2-Tailed Hypothesis Test interpretation:**

Since Sig.(p) < 0.05. At 5 % (0.05) level of significance that means 95% of confidence level the mean difference is exactly the test value 1. So, the null hypothesis has the acceptance succeeded through 2-tail test from the analysis tool IBM SSPS for performing the hypothesis test.

As the scale here says that 5, 4, 3, 2, and 1. So, the interpretation goes that as the Information, Hospitality, Online/Offline reservations, Payment/Billing, Baggage Handling and Complain Handling/Problem Solving these are more than 1 units mean difference which is test value considered from the observations that means they are important.

This analysis showed that the consumer perception or attitude on travelling through air is showing more importance to Information, Hospitality, Online/Offline reservations, Payment/Billing, Baggage Handling and Complain Handling/Problem Solving at Airline Service.

### **Findings.**

- The study is mostly based on the age group of 18-25 years who preferred to travel by air on special occasions in pre-COVID scenario and Indigo airline was one of the most preferred airlines by the respondents.
- In the pre-COVID scenario, the respondents have rated Crew courtesy as one of the highest preferred service while they were neutral towards all other services.
- 57 percent of the respondents would not prefer air travel over any other mode of transportation during COVID.
- From the survey we can see that 64 percent of the respondents travelled during COVID in emergency situations and 21.5 percent of the respondents traveled to return back to home or for work purpose.
- Looking at the COVID scenario, the respondents have become more precautious towards their safety and therefore 62.5 percent of them are willing to pay higher for their safety measures.
- Respondent have given more preference to sanitization, social distancing and health screening as the highest rated safety measures, whereas increasing in boarding time is least preferred by them during COVID.
- From the survey it is found that respondents are neutral towards the different service elements that are information, consultation, online/offline reservations, payment & billing, hospitality, baggage and complain handling.
- From the study it is found that 54 percent of the respondents are satisfied with the overall change in the services provided by the airlines for their safety during COVID.

### **Conclusion**

COVID-19, an ongoing threat to the world has impacted all the sectors worldwide, Airline sector being one of them. It not only impacted but also due to that the sector stopped operating for a period of time. Airline industry is not still fully in operation which has affected the revenue of the airline industry. As we can see from the study that most of the people do not prefer air as a mode of transportation over other modes, due to the safety concerns. This shows that COVID has a negative impact on the Airline industry, whereas one of the positive impacts of COVID on it is that people are willing to pay more to the airline industry for their safety concerns and charging more price along with providing safety measures airline industry can be benefited.

The frequency of travel by air has been decreased as people preferred to travel only during emergencies or returning to home or workplace during COVID, this shows that behavior of consumer towards travelling have been changed. Thus, this resulted in decrease in frequency of travel. Airline industry have already started taking safety measures like health screening, sanitization, social distancing, COVID insurance, discontinuation of on-board food services and many more. The people prefer to give more importance to sanitization, social distancing and health screening as their most preferred safety measures and are satisfied with the overall safety measures provided to them.

Therefore, the study concludes that there is positive as well as negative impact of COVID-19 on the airline industry. The behavior of consumer towards the airline industry has also been changed as now customers are more towards safety concerns. Thus, Airline industry have also started operating according to the customer's concerns and they are satisfied with the overall changes and the safety measures taken by the Airline industry.

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