

Analyzing the Effect of Covid-19 Pandemic on Tourists' Psyche and Effective Implications for the Public Transport System for Safe-Travel: A Case Study on India

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Covid-19 Pandemisinin Turistlerin Ruhu ve Güvenli Seyahat için Toplu Taşıma Sistemi Üzerinde Etkilerini Analiz Etmek: Hindistan Üzerine Bir Vaka Çalışması

ÖZ

COVID-19 salgını sonrasında Hindistan'ın kilidini açma sürecinde, Hindistan turizm ve ulaşım endüstrisi ekonomiyi canlandırmaya devam ediyor. Bu senaryoda, Covid-19 pandemisinin Hintlilerin seyahat modeli üzerindeki etkisini incelemek önemlidir. Aynı zamanda, Corona virüsünün toplu bulaşmasını önlemek için toplu taşıma araçlarını güvenli hale getirmek de güvenli seyahati sağlamak için eşit derecede önemlidir. Bu çalışma, COVID-19'un Hintlilerin seyahat davranışları üzerindeki etkisini, toplu taşıma araçlarını kullanmaya hazır olmalarını ve toplu taşımanın yeniden işletilmesi konusundaki duruşlarını araştırıyor. Bu amaçla kolayda örnekleme yöntemiyle toplam 212 yanıt toplanmıştır. Çalışma, COVID-19 pandemisinin Hintlilerin seyahat modelini derinden etkilediğini ortaya koyuyor. Ulaşım sektörü, Corona virüsünün bulaşmasının başlıca nedenlerinden biri olarak kabul edilirken; demiryolu en riskli ulaşım şekli olarak belirlenmiştir. Birçok Hintli toplu taşıma araçlarından yararlanmaya hazır olsa da çoğunluk hala özel araçları her şeyden daha çok tercih ediyor. Hintli katılımcılar, güvenli seyahat için şüphesiz çok önemli olan kural ve düzenlemelerin etkili bir şekilde uygulanması konusunda da şüpheli bulundular. Bu çalışma, Hindistanlı ulaşım yetkililerine ve Tur Operatörlerine, COVID-19 sırasında Hintli gezginlerin ulaşım sektörüne yönelik endişeleri hakkında faydalı anlayışlar sağlayacaktır.

Anahtar Kelimeler: Ulaşım, Hintli Gezgin, Seyahat Davranışı, COVID-19, Turizm, Hindistan.

Analyzing the Effect of Covid-19 Pandemic on Tourists' Psyche and Effective Implications for the Public Transport System for Safe-Travel: A Case Study on India

ABSTRACT

In the process of unlocking India after the COVID-19 outbreak, the Indian tourism and transport industry is resuming to revive the economy. In this scenario, it is substantial to examine the impact of Covid-19 pandemic on the travel pattern of the Indians. At the same time, making public transports safe to prevent mass transmission of the Corona-virus is equally important to ensure safe-travel. The present study investigates the impact of COVID-19 on the travel behaviour of the Indians, their readiness for availing public transports, as well as their stand on the reoperation of public transport. A total of 212 responses are collected through convenience sampling method for this purpose. The study reveals that COVID-19 pandemic has deeply affected the travel pattern of the Indians. The transport sector has been considered as one of the major causes of transmission of Corona-virus whereas; railway has been identified as the riskiest mode of transport. Though many Indians are ready to avail public transport, the majority still prefer private vehicles more than anything. The Indian respondents are also found doubtful regarding the effective implementation of rules and regulations, which is no doubt crucial for safe travelling. This study will provide useful understandings to the Indian transportation authorities as well as to the Tour Operators regarding the Indian travelers' concern for transport sector amid COVID-19.

Keywords: Transportation, Indian Traveler; Travel Behaviour, COVID-19, Tourism, India

Introduction

With the enforcement of lockdown in the whole nation on the 24th March 2020 (Meena, 2020) due to Covid-19 pandemic, the daily routine of the Indians came to a halt (Ponkshe, 2020). The use of transportation services was suspected as one of the measure causes for virus spread, which in turn, hampered the overall transportation system in India (Ali, Sharma, and Haque, 2020). As studies conducted in past highlighted that “human mobility” has a direct contribution to the spread of infectious diseases, especially during the pandemics (Funk et al., 2010, Rizzo et al., 2014, Yan et al., 2018); the Indian Government had shut down the transportation system very early to restrict the unnecessary travel; but now after ‘Unlocking India’; the tourism and transportation sector has been started reviving. Consequently, there is a need for ramping of the entire transportation system swiftly (Verma, Jayakrishnan, and Velmurugan, 2020).

Since the uplifting of lockdown, a big challenge before the transport-operators in India is the reopening of services amid COVID-19 crisis (Meena, 2020) while maintaining safety - security and financial endurance, especially when the majority of the Indian travellers are dependent on public transport (Olliver and Gupta, 2020). Another challenge in the safe operation of transportation is the closed environment of the vehicles (Nishiura et al., 2020; Qian et al., 2021) as there is high chances of living of infectious aerosols in its indoor air (Prather, Wang, and Schooley 2020). This upsurges the need for monitoring air filtration, natural and frequent ventilation apart from maintaining hygiene and cleaning (Centers for Disease Control and Prevention, 2020). Though rules, regulations, and protocols have already been formulated by the Govt. of India to control the spread of the Covid19 pandemic as well as to 'flatten the curve' nationwide; a large section of transport operators in India are still doubtful in establishing these guidelines due to lack of knowledge and uncertainty of transportation demand (Olliver and Gupta, 2020; Verma et al. 2020) and this is creating issues in travel planning.

It is not practical without understanding the viewpoint of the travellers regarding transportation operations amid COVID-19 spread in India. Hence, there is a need to investigate the travel behavior, perspectives, travel habits through travelers’ responses (Jenelius and Cebecauer, 2020; Huang et al., 2020). Understanding and predicting travel behaviors is also vital for transport planning, decision making, and policymaking during pandemic situations based on the travel needs of people. For example, government authorities could utilize such knowledge for rescheduling public transport operations and taxi operators and ride-sharing firms could better plan their services using such information. In addition, peoples’ understanding, perceptions, and attitudes could also affect the travel decisions and mode choice during pandemics.

As limited research studies are done on the effect of covid-19 pandemic on the public transportation (Jenelius and Cebecauer, 2020); more and more research is required in the sectors at stake in the crisis, like transportation (Tirachini and Cats, 2020). Though a good number of studies so far have been conducted to understand the impact of the Covid-19 pandemic on the travelers’ psyche in many of the European and American countries, for Asian countries especially for India, there is to our best knowledge a lack of published results from representative studies which focus explicitly on (a) the effect of the Covid-19 pandemic on the travel behavior of the Indian citizens, (b) their readiness for availing transportation services, and (c) their outlook about the provisions taken against COVID-19.

The current study, therefore, aims to investigate the effect of COVID-19 on the routine travels of the Indians as well as on their travel plans, highlighting readiness to avail transport services. Further, it sought to explore the perspective of travelers regarding the re-operation of transportation in the country. This study is an effort to provide practical implications to transportation operators and policymakers for better functioning during crises. In the following section, the study background is provided with a focus on the previous studies on the effects of the Corona virus-spread on activity and travel behavior patterns, the effect of Covid-19 on the tourism and transportation sector in India, and initiatives taken by the transportation authorities as well as by the state and central govt. of India during this period. Further, the methodological approach is defined followed by results and discussions. This paper is concluded with major implications, and scope for future research.

The present study is aimed at exploring the effects of the COVID-19 pandemic on human travel behavior. The characteristics of changes in travel behavior before and during COVID-19 and factors influencing such changes are examined. This study specifically focuses on the trips that are made due to necessity and people feel compelled to make those trips due to various reasons hereafter referred to as primary trips. Data were collected through a questionnaire survey that was distributed globally through social media platforms and emails. Further, the trip characteristics of different employment categories, e.g., essential service staff, and other regular employees are also examined.

2. STUDY BACKGROUND

COVID-19 has imparted changes in travel planning, travelers' perceptions, behavior, travel determinants, and the new trends are being explored (Ioannides and Gyimóthy, 2020; Wachyuni, and Kusumaningrum, 2020; Meena, 2020). Scholars like Askitas, Tatsiramos, and Verheyden (2020); Axhausen (2020); Circella (2020); de Haas, Faber and Hamersma (2020); De Vos (2020); Kraemer et al. (2020) have conducted studies to understand the effects of the Covid-19 pandemic on the daily day activity and also on the travel behavior around the world. According to Ioannides and Gyimóthy (2020), people are likely to opt for short-distance tours, with less mobility, and prefer leisure activities. Wachyuni and Kusumaningrum (2020) have observed that Indonesian residents have a positive attitude toward travel and tourism and they consider travel as an essential activity of their lives. On the other hand, Meena (2020) investigates the travel patterns of Indian people in three phases: before the pandemic, before lockdown, and post lockdown and found that Indians feel anxiety while using public vehicles.

Various research methods have been applied these studies. For example, Circella (2020), de Haas et al. (2020) have applied online surveys in their studies. Axhausen (2020) has applied objective data measures via GPS Logger and Travel Diary App. With the help of the data obtained from the traffic counters, traffic camera, ticket sales counter and public transport GPS; Aloï et al. (2020) conducted an empirical study on the effects of the COVID-19 lockdown on urban mobility in the city of Santander, Spain. With the help of data obtained from Google, Apple and Moovit; the effect of COVID-19 on mobility has been studied by Tirachini and Cats (2020). Based on roadside observations, Dzisi and Dei (2020) have examined people's tendency to wear masks and following social distancing.

Huang et al. (2020) have examined people's behavior and preferences regarding transportation, travel, destination during the pandemic using data from web mapping platforms in China. Further, a good number of research works also emphasize the implications of effective policies and practices at the global level. For example, Kolarova et al. (2021) analyses the impact of the COVID-19 outbreak on everyday travel behavior in Germany and suggested potential implications for future travel patterns.

Musselwhite et al. (2020) in their article titled, 'The Corona-virus Disease COVID-19 and Implications for Transport and Health' have discussed the link between 'travel behavior' and 'public health' and based on their study, they have suggested a few policy implications. Carteni et al. (2021) in their study have investigated the role of transport accessibility within the spread of the Corona-virus pandemic in Italy and based on their study findings the authors have proposed 'tailored policy strategies to manage the spread of the virus. Hang et al. (2020) have presented a charter to pursue after the pandemic, in the process of resuming and recovering of travel and tourism industry that focuses on the implementation of social distancing, travel and entry restrictions, use of personal protection equipment, monitoring medical and health situation, rules and regulations for accommodation, transport systems, and various type of tourism, and also emphasized on transforming future crisis into an opportunity for sustainability. Budd and Ison (2020) in their study have introduced a concept i.e. 'Responsible Transport', which is a transport policy approach for the 'post Covid -19' period, which focuses on: (1) environmental aspects, (2) public health, and (3) other wellbeing issues. All these above-mentioned studies have emphasized the in-depth research of the effect of the Covid-19 pandemic on the travel behavior pattern worldwide to develop more robust and sustainable transport policies, strategies, and measures.

2.1 Effect of COVID-19 on Tourism and Transportation Sector in India - A Reportage

According to United Nations World Tourism Organization [UNWTO] (2020), around the world half of the nations had closed their boundaries for Travellers, resulting in a decrease of 22% in international arrivals and approx. USD 80 billion loss in receipts in the tourism industry. As per the Ministry of Tourism (2020) with a growth rate of -22.6%, the foreign Travellers' arrivals were only 24,62,244 during the period between January 2020 and March 2020 in India and during this period Rs.44, 203crores were the Foreign Exchange Earnings with a -15.6% growth rate. According to the Director-General of Civil Aviation (2020), the domestic airlines in India have faced a great degree of decline in passengers. The domestic flights, as well as international flights, were put off on March 24 and 22, 2020 respectively by the Indian Govt. Again, 401.17 Lakh passengers were carried by the Indian domestic airlines during the period Jan-Aug 2020, with a monthly growth of -75.99%. As per the International Air Transport Association (IATA), the airlines operating for the Indian market have to bear over Rs, 85,000 cores revenue impact and over 29 Lakh of jobs in the Indian aviation sector are at risk (Inventia, 2020). Incorporation with the International Association of Public Transport, the public as well as the private bus operators are surveyed by Olliverand Gupta (2020). This study reveals that with the COVID-19 pandemic, more than 98% of the bus services in India were at a standstill and around 07 billion dollars loss every month is faced by the bus transportation sector. The bus operators faced numerous problems such as revenue loss, paying salaries to staff, paying the loan, and meeting the expenses accruing in maintenance or other operations.

2.2 Initiatives taken by the Govt. and Private Sectors amid COVID-19 Pandemic

COVID-19 has greatly affected the travel patterns and transportation industry in India. But the transportation authorities as well as the state and central govt. have taken many initiatives to monitor the services and formulate guidelines. For example: The Ministry of Health and Family Welfare, Indian govt. [MOHFW] (2020) issued consolidated travel advisory, additional travel advisory guidelines both for domestic travel (air/train/inter-state bus travel) and international arrivals concerning COVID-19.

Indian railway, aviation industry and road transport authorities are also constantly working to revive the transportation in India. On 1st May 2020, the Shramik Special Trains' were started in India. Till

18 June 2020; a total of 4,594 Shramik Special trains were operated to take 62.8 lakh migrant labourers and passengers back to their resident states amid pandemic. For these passengers 1.85 crore meals and 2.12 crore packed drinking water were made available free of cost. Essential commodities of 225 million tonnes have been transported by railways from 1st April 2020 to 25th June 2020.

For the migrants and others, 08 lakh man-days of employment chances are created by the Indian railway. It also converted 5231 coaches into COVID Care centers with 83,696 berths. Special attention is paid by the Indian Railways under Swachh Bharat, Swachh Railways initiative for a clean environment, and better travel experience (Indian Railways, 2020). For transporting people under the Vande Bharat Mission, started on 7th May 2020, flights of Air India, Air India Express, and Indigo were operated during the crisis (MoCA, 2020).

According to MoCA (2020), by October 3rd, 2020, a total of 5, 20, 949 passengers were brought back to India by 3063 inbound flights while a total of 3,063 outbound flights carried 2, 83, 361 passengers to their respective countries by Air India Group. MoCA also transported 708 tons of medical and essential cargo under the Lifeline UDAN Initiative during the COVID-19 pandemic (AAI, 2020). To deliver essential items such as medical supplies, food grains, fuel, etc. the vessels and ports were also operated amid the COVID-19 crises. Instructions were provided to all major and minor ports by the Ministry of Shipping, Govt. of India to provide services considering the health safety and environment (MOHFW, 2020).

The current study is an attempt to investigate the Indian travellers' perspective regarding the transportation services in India amid COVID-19 crisis. The following section elaborates the methodology section followed by results and discussions.

3. RESEARCH METHODOLOGY

The current study is designed to examine the perspective of Indian travelers regarding the transportation sectors amid COVID-19. Being fast and enabling comparisons of agreement and disagreement among the participants (Yauch and Steudel, 2003), the quantitative research is chosen. To attain the purposes of the study, data was collected during the COVID-19 pandemic through an online survey from 16th July 2020 to 20th December 2020. Further, other secondary sources such as government reports, research articles, official websites etc. are also studied minutely. Due to the discouragement of human contact and mobility, convenient sampling is applied (Zikmund, 2003) to accumulate the responses from the Indian travellers, who are conveniently available. As the survey tool, a self-administered fixed choice questionnaire was developed. A total of 212 responses have been analyzed using SPSS 20 in this study; as Hair, et al. (2006) has stated that a minimum sample size of 200 is required for any statistical analysis. Descriptive statistics such as Simple Percentage Analysis and Frequency are calculated to investigate the effect of COVID-19 on Indian travelers, their tour plans and readiness for availing transportation services, as well as their prospective regarding the reoperation of transportation services. Prior collecting the responses, every respondent was informed about the objective of this study and an informal agreement was obtained from them. The participation of these respondents was voluntary.

4. RESULTS AND DISCUSSION

The following segment of this study describes the results and discussion that will help in gaining a better understanding of the COVID-19 effect on the travel behavior of the Indian Travellers and their preferences as well as perspectives regarding the transportation in India.

4.1 Demographic Profile of the Respondents (Indian Travellers)

A total of 221 questioners were collected for this study, out of which 09 were found inappropriate resulting in final data of 212. Table 1 presents the demographic profile of the respondents. Majority of the respondents participated in the online survey are Male (59.4%) and Single (62.7%). 35.4% of them are married. Further, 58.5% of the respondents are young and of the age group 21 to 30. The majority of the participants are also highly educated as 62.8% of them are found having Post Graduate or above degrees. Further, 36.8% of the respondents are students and 45.7% of them are working as Govt. and private employees. The respondents having no means for earning are 29.7%, while 26.4% have an annual income of more than 4 lakh (US\$ 5,480).

Table 1: Demographic Profile of Respondents

| Demographic Variables | Number of Respondents | Percentage of Respondents |
|------------------------------|------------------------------|----------------------------------|
| Age (in years) | | |
| Below 20 and 20 | 14 | 6.6 |
| 21-30 | 124 | 58.5 |
| 31-40 | 54 | 25.5 |
| 41-50 | 12 | 5.7 |
| 51 and above | 8 | 3.8 |
| Gender | | |
| Male | 126 | 59.4 |
| Female | 86 | 40.6 |
| Marital Status | | |
| Single | 133 | 62.7 |
| Married | 75 | 35.4 |
| Others (Divorced / Widowed) | 4 | 1.9 |
| Education | | |
| Up to 12 th | 17 | 8.0 |
| Graduation | 62 | 29.2 |
| Post-Graduation | 90 | 42.5 |
| Above PG | 43 | 20.3 |
| Occupation | | |
| Student | 78 | 36.8 |
| Govt. Sector | 45 | 21.2 |
| Pvt. Sector | 52 | 24.5 |
| Self -Employed | 21 | 10 |

| | | |
|----------------------|------------|------------|
| Others | 16 | 7.5 |
| Annual Income | | |
| Nil | 63 | 29.7 |
| Less than 2,00,000 | 43 | 20.3 |
| 2,00,001-4,00,000 | 50 | 23.6 |
| 4,00,001-6,00,000 | 29 | 13.7 |
| More than 6,00,000 | 27 | 12.7 |
| Total | 212 | 100 |

4.2 Perspectives of Indian Travellers regarding Transportation amid Covid-19

Figure: 1 displays that 65% of the respondents sturdily believe that the transportation sector has been a major cause of transmission of the Corona virus, while 25% of them have moderately agreed with it. This result is almost similar to the findings of a previous study conducted by Ali et al. (2020). It is also found that majority of the respondents (49.5%) have considered railways as the riskiest mode of transport. The railway stations are considered more prone to spread the virus due to high occupancy of the public at a limited area, lack of control over identifying the infected people, and high chances of virus transmission from surfaces like vehicle doors, seats, handrails, and ticket counters.

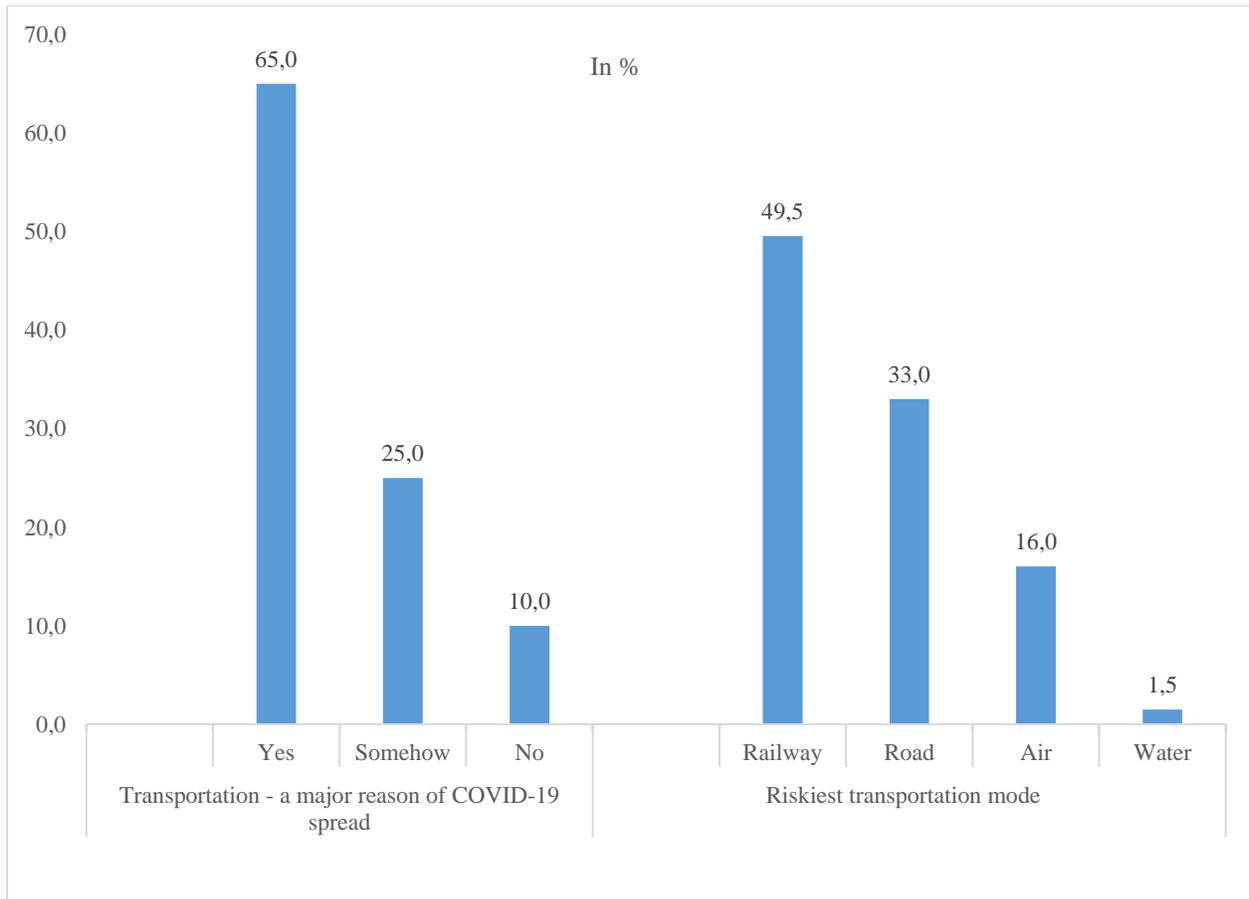


Figure 1. Transportation and COVID-19

4.3 Effect of COVID-19 on Routine Travel

As per Figure 2, 81.60% of the respondents (Indian Travellers) have acknowledged that the COVID-19 outbreak in India has affected their routine travels and other functions. The major reasons are the regulations like stay-at-home, work-from-home, the closing of educational institutions, travel restrictions; cancellation of events, and public gatherings. This finding supports the statement of a previous study conducted by Gössling, Stefan, Scott, and Hall (2020) on the global scenario.

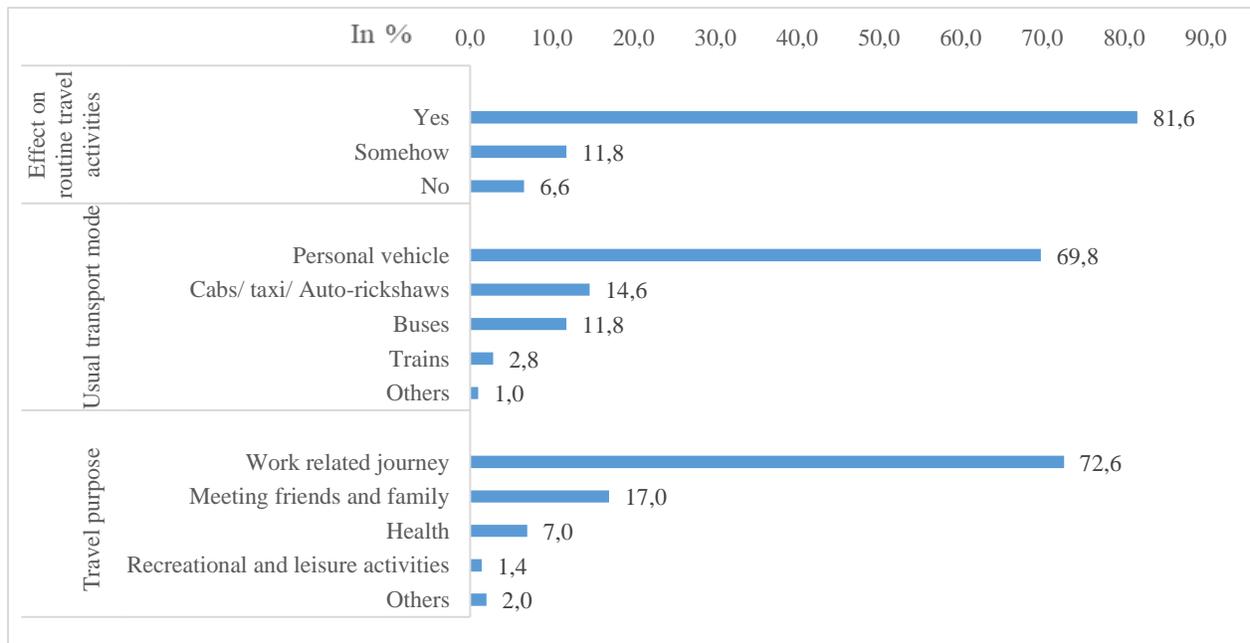


Figure 2: COVID-19 Effect on Routine Travel

Fig: 2 also reveals that during the pandemic; most of the Indian travellers have avoided non-mandatory travels (which include meeting friends and relatives, leisure, recreation, shopping plans etc.), as 72.6% of respondents have stated that work is the major reason for engaging in travel for them. Moreover, around 70% of the respondents have reported that after COVID-19 spread they are using personal vehicles for routine traveling while 26.4% of the total respondents have started using auto-rickshaws, taxi, or bus services for traveling. It is however found that, people in lower income group are preferring mass-transportation modes because of having lack of alternative options.

4.4 Travel Issues during COVID-19 Pandemic

Table 2 shows that 104 times the respondents have highlighted that the transportation amid COVID-19 has become costlier in India. Hence, they have to pay a higher amount for availing services due to

hike in fare, petroleum or diesel prices. Among other travel issues, the respondents have also specified 95 times that their routings were changed because of blockage to contentment zone. Further, 55 times the traffic issue is highlighted by the respondents, whereas 53 times the respondents have complained against the rule breakers on the roads.

Table 2.Travel Issues during COVID-19

| Travel Issues | Frequency |
|------------------------------|-----------|
| Rise in prices | 104 |
| Change in routings | 95 |
| More Traffic | 55 |
| More rules breaking on roads | 53 |

4.5 Tour Plans Post-COVID-19 Spread

As shown in Figure 3, COVID-19 has not only affected the daily travels of people but their tour plans are also hit adversely.

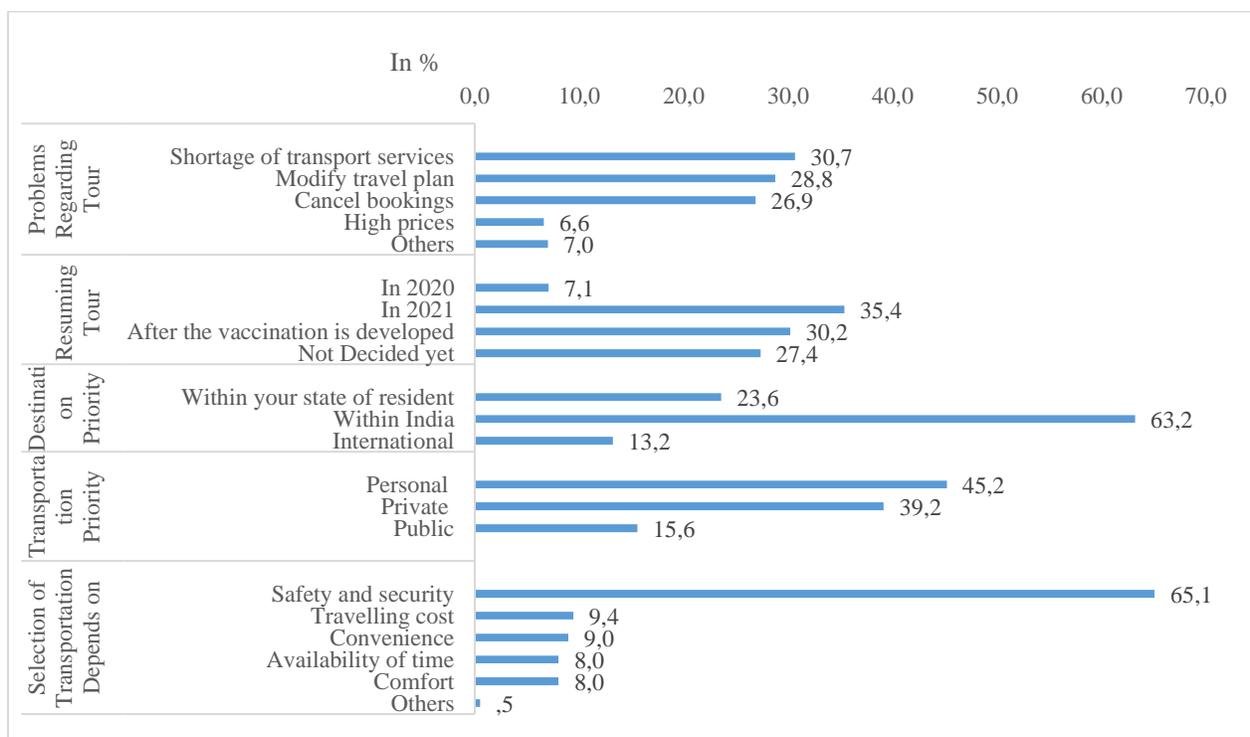


Figure 3.Tour Plans after COVID-19 Spread

Respondents reporting a shortage of transportation services for travels are 30.7%. Modifications in tour plans and bookings cancellations are done by 28.8 % and 26.9 % respectively. While investigating their future tour, 35.4% have stated that they will resume their tours in 2021, while

30.2% are found not ready to engage in tourism activities until the vaccination is developed. Respondents specifying their desire of visiting within India are 63.2%. Merely 13.2 % are ready for engaging in international tourism. UNWTO (2020) have also reported the possibility of faster retrieval of domestic tourism than international. Further, 85% of respondents have opted for only private and personal vehicles for their future tours. This implies the growing demand for private and customized travel services. Safety and security are the greatest concern to Indians while selecting transportation services followed by travel cost, convenience, time, and comfort. Earlier, 'The Times of India' (2020) also predicted that post lockdown health safety would be the first concern of people while selecting the mode of transportation.

4.6 Readiness to Avail Transportation Services after COVID-19 Spread

The adoption of transportation and travel patterns of people are influenced by the societal factors, the external catalyst affecting a person's life and psychological factors like sentiments, motivations, habits (Ali et al., 2020).

While investigating the Indians' readiness to avail services of different transportation modes, it is observed that (Fig 4) more than half of the respondents are prepared to use airways, railway as well as public road transportation. Public road services are already used by 23.6% of respondents while in case of the railways; more than one third of the respondents (34%) have reported that they would be ready to avail the railway services only after the vaccination development.

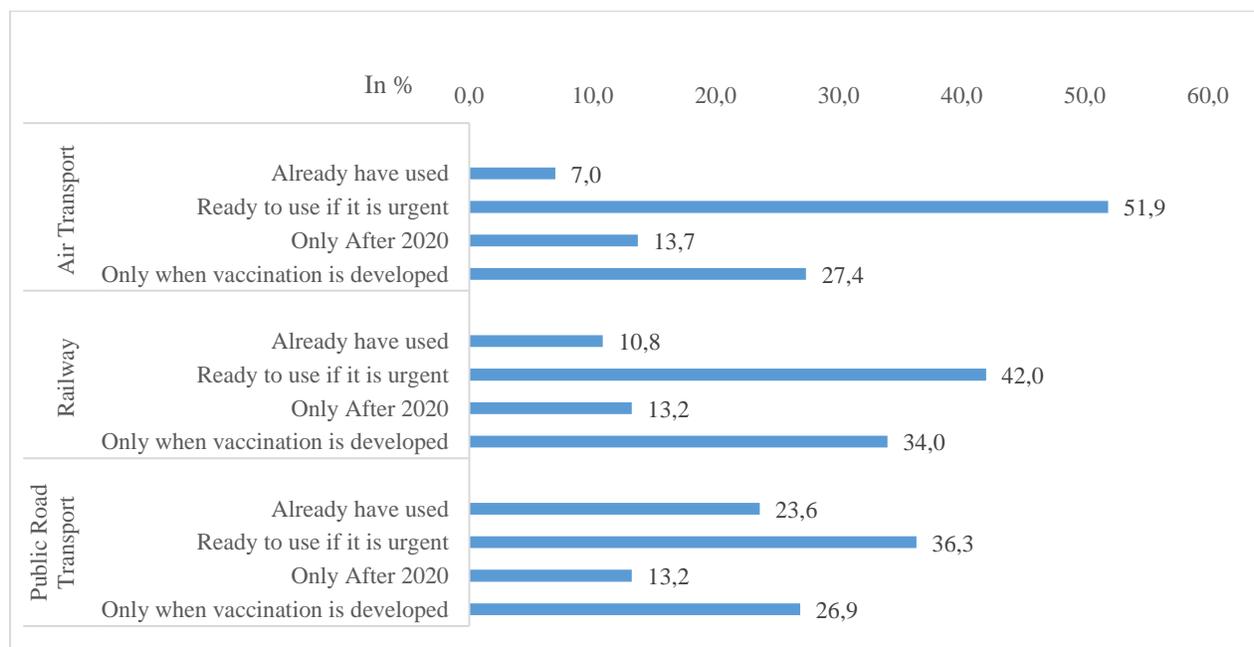


Figure 4: Readiness to Avail Transportation Services

4.7 Re-operation of Transportation amid COVID-19

Figure 5 presents the perception of respondents about the re-operation of various transportation sectors. More than half of respondents have stated that the airlines and public road services have been started on time by the Indian government; while 28.8% of them have deliberated that it is done earlier. In case of railways, more than one third of the respondents (34.4%) have conveyed that the re-operation of railway services is done earlier and according to them, more time should be given by the Indian Government for the re-operation of railways amid covid-19.

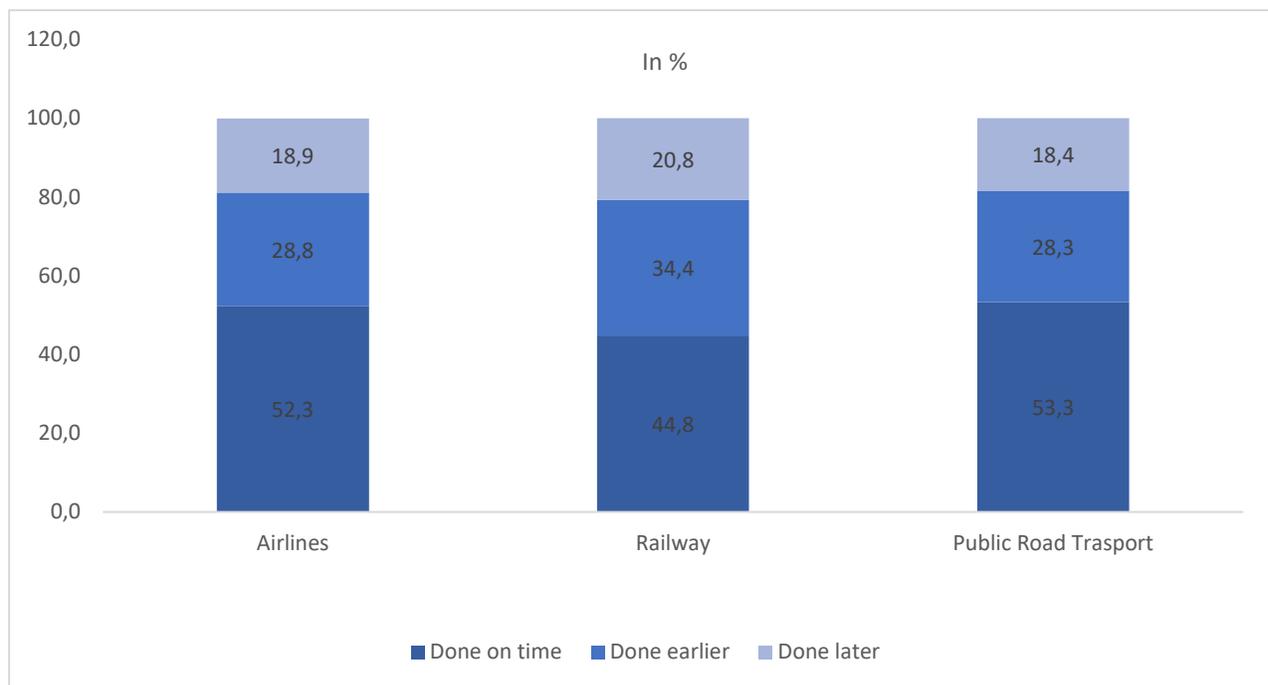


Figure 5: Perception Regarding Re-operation of Transportation

4.8 Actions Taken Against COVID-19

The countries following more strict government policies (Jinjarak et al. 2020), adopting stay-at-home policy (Yilmazkuday, 2020) have testified less Novel-Corona virus mortality growth rate. The perspective of the Indian travellers about the actions taken against COVID-19 spread regarding the transport sector in India has been displayed in the following Figure: 6.

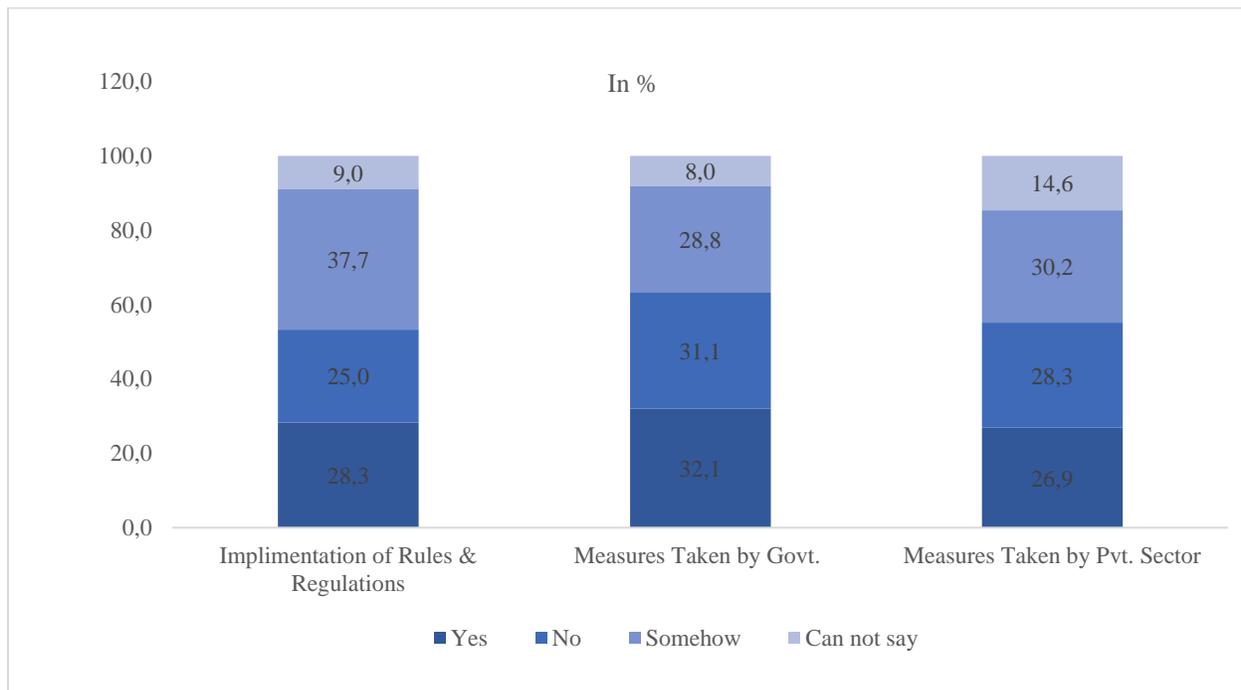


Figure 6: Actions Taken Against COVID-19

The respondents who accepted the fact that rules and regulations regarding transportation have been implemented effectively in India after COVID-19 spread is only 28.3%, while 25% have responded negatively. Further, the perspective regarding the statement about adequate measures taken by Govt. and private tour operators concerning transportation in India against the virus is also found contradictory. Lack of medical research in the area, unlocking process in various areas along with the increasing number of cases every day, asymptomatic patients, divergent views on the COVID-19 and lack of strict strategies could be the reasons that Indian travellers are not able to form a clear impression in this regard. There is an obvious need to regulate the spread of the virus through public transportation, as it is counted a major cause of transmitting the virus according to many scholars such as Müller, Balmer, Neumann, and Nagel (2020), and Musselwhite et al. (2020).

4.9 Travel Precautions against COVID-19

The following Table 3 represents the effective measures that can minimize the virus spread.

| Suitable and Useful Travel Precaution against COVID-19 | Frequency | Effective Technology in Transportation Sector against COVID-19 | Frequency |
|--|-----------|--|-----------|
| Limited passengers in Public Transportation | 168 | Cashless transactions and Online bookings | 158 |

| | | | |
|--|-----|---|-----|
| Adoption of New Technologies in transport sector | 113 | Self-reporting or location tracking mobile apps | 120 |
| Adjustment in travel plan | 59 | Sensor devices | 78 |
| Travel Insurance/ Medical certification | 53 | CCTVs | 47 |
| Others | 1 | Others | 1 |

Table 3.Travel Precautions against COVID-19

Among the suitable and useful travel precautions against COVID-19; around 168 times (the maximum times) the respondents have pointed out that there is a need for limiting the number of passengers in public vehicles as according to the major section of the respondents, 'social distancing' can be the major precaution. Adoption of modern technologies (113 times), adjustment of travel plans (59 times), and Travel Insurance / Medical certification (53 times) have been ranked after it. In case of effective technology in transportation sector against COVID-19; around 158 times (the maximum times) the respondents have pointed out that encouraging travelers for the online bookings and payments will be the most effective, whereas, inspiring people to use self-reporting or location tracking mobile apps, CCTVs cameras inside vehicles and station premises and others have been ranked after it.

5. CONCLUSION AND IMPLICATIONS

The study is designed to examine the perspectives and choices of Indian travellers regarding various transportation services amid COVID-19. The findings reveal that a large section of Indian travellers consider transportation as one of the major causes of spreading the virus. Hence, they are likely to use private vehicles for their regular travels as well as for future tours. Though a good number of respondents have reported their readiness to use public transportation, many of them are still uncertain about the effective implementation of rules and regulations in public transportation and measurements taken against COVID-19. Hence, there is an obvious need for gaining confidence and trust of public in the means of mass transportation (Verma et al., 2020).

The following are the useful suggestions for the tourism and transportation operators, policymakers and, Govt. authorities in India those can be useful for reviving the transportation business as well as for ensuring safe travel in Indian Territory.

1. **Technological Advancements:** There is need for paying more attention to technological advancements and making the travel system automated by using sensor devices, CCTVs cameras, and thermal cameras, automatic functioning of doors, and electronic cards, or token to minimize contact. Digitization at bus terminals, taxi stands, and railway stations and timely digital display of schedule, routing, services should be done.

2. **Enhancing Service Frequency:** The private and public transporters should enhance their service frequencies with longer operating hours, in non-contaminated zones, longer routes, and rural areas, while maintaining a balance between demand and supply of transportation services. The entrepreneurs and small transportation operators can transform crisis into business opportunities through considering alternative options like catering the new segments for instant; office employees of an area, the medical staff of a hospital, providing services to rural, and developing partnership, or liaison with other operators. They can also adopt flexible approaches to attract Travellers such as providing flexible travel dates, alternative transportation options, concessions and compensation, and promote the offbeat destination within India.

3. **Maintaining Carrying Capacity:** The carrying capacity of the public vehicle must be examined. Special attention should be given to senior citizens, patients, and passengers having urgent need of transport like health workers, doctors, cleaning staff, and frontier staff. Extra staff and volunteers can be hired for managing services, maintaining social distancing, and enhancing public awareness. Special training can be imparted to them to work during the crisis.

4. **Providing Enough Amenities:** Enough amenities should be provided to staff and passengers such as PPE kit, sanitizing wipes, dustbins, and contact less washbasins with soap dispenser. In all possible ways, the queue system should be strictly followed and momentary barriers can be used to separate the transport operators and passengers. Adopting a practical approach like fixing the seat of passengers, the prohibition of eating in vehicles, providing individual stacking space, keeping the doors open can be useful to prevent the virus spread. Issues like petroleum rate, higher travel cost, traffic jams, lack of appropriate roads, infrastructure, congested streets, and burden on human resources need to be considered while developing transportation strategies.

5. **Financial Support to Tourism and Transport Operators:** In countries like Hong Kong, China, the United States monetary benefits are provided to the public transport operators for their survival in these crises (Olliver and Gupta, 2020). The Chile government has offered compensation to the bus operators having a loss of 80% in demand (DF 2020). Governments of Sweden have also allocated financial assistance to the loss faced by the transportation sector (Sverigesradio, 2020). In India, also to save the tourism and transportation operators from financial crises, the Govt. of India should come up with options like providing financial assistance to meet salary, rescheduling debts, extending the validity of various documents such as permits, insurance, other required certificates.

6. **Collaborative Effort by the Government, Private Sector and Public:** It is not only the Government or the tourism and transport operators who have to consider the safety measures but the public also needs to play their part. If the public transports are not managed properly, there are

chances of travellers shifting to the private mode of transportation resulting in more pollution, accidents and more death than death due to COVID-19. Hence, the Government along with the tourism and transport operators as well as the public therefore, needs to work in collaboration amid the situation.

7. **Other Strategies:** Inspiring people to travel in diverse peaks, motivating travellers to use bicycles can be useful steps. More sustainable mobility in travel is acquisitions worldwide in form of the adoption of cost-effective and environment-friendly modes of transportation such as e-bikes, e-scooter, e-rikshaws, walking, and cycling. There is a great need for planning and adoption of such effective implications in the crowded cities of India.

6. LIMITATIONS AND FUTURE DIRECTIONS

The current study is based on the opinions of the Indian travellers collected through the convenient sampling and online survey. It somehow limits the prospects of generalizing the findings. For further research, the perspectives of Indian tourism and transportation operators can be investigated for valuable insights and in this case, longitudinal research can provide in-depth understandings. Future studies can be focused on the specific transportation mode, area as well as the segment of travelers.

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