

COVID-19 Pandemic Lockdown and the Transportation Industry (A Case of Lagos, Nigeria)

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Abstract: The world economy has been ravaged by the Pandemic Lockdown, whose origin could be traced to China, and the world has since been stagnant from all formal activities for a longer period than initially projected, coupled with the Ukraine-Russian war. In a bid to curtail the spread of the virus, movement restriction was recommended by the world health organization (WHO), which has affected tremendously the transportation industry globally, as the industry depends heavily on mobility. This research, therefore, aimed to examine the impact of the COVID-19 pandemic on the transportation industry, to evaluate the various post-COVID-19 pandemic recovery and resilience strategies adopted by the transportation. The researcher adopted the review of various scholarly publications on the subject matter, which was used to draw inferences; primary data was also collected using a questionnaire, which was subjected to analysis for hypothesis testing. The research recommends Post crises management strategies, secured employment contracts, fair working conditions, and fair salaries for transportation employees, to aid their quick recovery; proper orientation on sustainable development strategies to help reduce the severity of the Pandemic, introduction of supportable development programs at various terminals to help reduce the severity of the pandemic lockdown on the transportation industry. Finally, the government and its stakeholders should adopt post COVID-19 recovery strategies which include postponement of all dues, and direct financial assistance, to help reduce the significant impact of the pandemic lockdown on the transportation industry and its employees.

Keywords: COVID-19 pandemic; COVID-19 protocol; Transportation, Lockdown

I. INTRODUCTION

There is a global awareness of the COVID-19 pandemic, which is an infectious disease caused by a novel CORONAVIRUS. The virus was first discovered in Wuhan city, Hubei province of China in December 2019, with only 44 recorded cases. According to the worldometer report, as of November 30, 2021, the world has recorded a total number of (262, 543,736) reported cases, (5,227,831) death and (237,115,199) recovered cases in 224 countries of the world (Worldometer, 2020). The disease was declared a pandemic which calls for a global emergency by the World Health Organization (WHO) on March 11, 2021, by declaring the risk of spread to be very high at the global level (WHO, 2020).

A new variant was discovered by South African scientists, which has thus spread to some of southern Africa and some countries of the world. On November 26, 2021, WHO designate it as a variant of concern, named Omicron (B.1.1.529), on the advice of the WHO Technical Advisory Group on Virus Evolution (TAG-VE) the decision was based on the evidence presented which reveals the variant has several mutations that may have an impact on how it behaves, for example, the mode of its spread or the severity of illness it causes. From the inception of the COVID-19 pandemic, countries, and cities around the world adopted many movement restrictive measures, aimed at curtailing the spread of the deadly virus, which include travel restrictions or outright bans, depending on the country or area and its level of spread, limiting social gathering or outright ban in public or private places, which has significantly impacted the transportation industry, and the global economy (De Vos, 2020).

Transportation is the activity that involves the movement of goods and services or people from one place (origin) to another (destination), this movement could be by road, water, railway or air. Transportation has continued to enhance people's socio-politically and socio-economic existence, the increasing and rapid spread of the disease because its spread is associated with mobility. Consequently, many of the operators have no option but to scale back completely or short down their operation in less viable routes, and in most cases, some result in shifting the operational cost to customers.

Transportation is an integral component of an economy and a common tool for socio-economic advancement. This is conspicuous in a global economy where economic opportunities are related to the mobility of people and freight, including information and communication technologies.

The virus is having a devastating impact on people's lives, which is also a threat to the entire transportation sector globally, as governments at various levels and countries adopted mitigating measures, which include ban and border closures, which thus affects all forms of transport. For instance, the Association of European Freight Forwarders and the Polish Chamber of Forwarding and Logistics raised an

alarm about limited export loads and extra delays of port operators due to the lack of trans-shipment operators and warehousemen.

According to Harikumar (2020), he reveals transportation sector has been one of the primary victims of the COVID-19 pandemic. From the motorcycle operators to the airliner, all have been significantly hit economically by the pandemic. For instance, in India, overall energy demand dropped by 11% in March 2021 due to the reduction in energy demand and consumption by various operators of the system, occasioned by the lockdown measures adopted. Similarly, the lockdown in many countries has adversely affected the demand for passenger transportation. Mogaji (2020) revealed in his research that transport operators in Lagos Nigeria were affected by the COVID-19 pandemic which thus resulted in job losses. However, there was an increase in demand for heavy-duty drivers, which was occasioned by the need to transport essential goods. Sadly, the devastating impacts and disruption caused by the pandemic outbreak have posed several challenges to the transportation sector. This research aims to evaluate the effect of the COVID-19 pandemic lockdown on the transportation industry, to achieve the set aim; the research shall adopt the under listed objectives:

1. To examine the impact of the COVID-19 pandemic lockdown on the transportation industry/ employees;
2. To evaluate post-COVID-19 pandemic recovery and resilience strategies put in place by the transportation industry;
3. To recommend mitigating measures to the government and various stakeholders on sustainable strategies for the transportation industry.

1.1 Research Hypothesis

Hypothesis One

H0: COVID-19 pandemic lockdown has a significant impact on the transportation industry/ employees

Hypothesis Two

H0: There is no strategy put in place by the transportation industry to aid its employee survival

1.2 The Study Area

Lagos state lies approximately from latitude 60 2' North to 60 4' North, and from longitude 20 45' East to 40 20' East. The state has one of the largest urban agglomerations, with an explosive growth rate of 5.7 per cent annually; growing 2,000 inhabitants on averagely daily, which translates into population growth of about 275,000 persons annually; and a population density of 2,594 persons per sq. Kilometre. The state's population is currently estimated at around 21 million inhabitants (Lagos State Government).

Lagos is the economic and social nucleus of Nigeria and the West African sub-region, accounting for 32 per cent of the national GDP. It is also one of the fastest-growing cities in the world, by 2015, it is expected to be the globe's third-largest

city, according to UN estimates, over the past decades, the city has had to contend with the challenges that accompanied staggering population growth rates, of which transportation remains at the top of the list.



Figure 1 Map of Nigeria showing Lagos state

Source: Lagos State University GIS laboratory



Figure 2 Administrative map of Nigeria showing lagos state

Source: Lagos State University GIS laboratory

II. CONCEPTUAL FRAMEWORK & LITERATURE REVIEW

2.1.1 Conceptual Framework

COVID-19

In less than a month before the 2020 Spring Festival holiday and the Chinese Lunar New Year- a collection of pneumonia cases was reported in the City of Wuhan, the city with the largest transportation hub in central China with a population of 11million inhabitants. A novel virus which is now popularly called COVID-19 (Corona Virus Disease 2019) was identified etiological agent and human-to-human transmission of the virus was established. The virus situation affected to a large extent the transportation system globally as most of the destinations in the world adopted coronavirus related

restrictions, which has therefore significantly affected the inter-border movement of commuters, goods and services (Metilelu and Olasokan, 2021).

Transportation

Transportation is an integral component of an economy and a common tool for economic advancement. This is conspicuous in a global economy where economic opportunities are related to the mobility of people and freight, including information and communication technologies (Osoja et al., 2022). There is a deliberate effort by the government in many countries of the world and the private sector to develop the industry, ranging from renewed interest in the rail system to the surge in the introduction of e-hailing transportation and haulage services (Metilelu and Olasokan, 2021).

2.1.1 Literature review

In a study conducted by Yazli and Khan (2020), the study estimated the influence of the COVID-19 pandemic, on economic, social and religious activities; the study relied on convenience sampling techniques to choose the participatory respondents and the data obtained were used to draw inferences. The study relied on surveys conducted online, where research instruments were distributed via email, social media and professional networks between May 18th and 24th 2020 and administered to the residents of Lagos State. Convenience sampling is necessitated by the reason of the global pandemic and government lockdown restrictions, which inhibited social contact. The study adopted a one-way analysis of variance, to analyze the impact of COVID-19 on transportation in Lagos. The researcher employed the Statistical Package for Social Sciences (SPSS) version 22, for the statistical data analysis. The p -value, which was adopted in the analysis of the level of significance, assessed the null hypothesis, which states that the impact of COVID-19 on transportation does not significantly differ from COVID-19 impact on economic, social and religious activities.

The researcher obtained 334 samples, of which 329 were completed, which showed a 98.5% response rate. To ensure that the respondents were residents of Lagos and were in Lagos at the time of response, a section of the questionnaire inquired about their residence and location at the time of response. The questionnaire also identified the demographic characteristics of the sampled respondents and the core objective of the study, which is the impact of COVID-19 on transportation in Lagos. The researcher obtained quantitative responses using the Likert Scale, which was calculated on a scale of one to five.

The result was reported using the descriptive statistical result, the correlation results and One-Way ANOVA, to give a non-spurious result. To ensure that the non-bogus estimates agreed with the assumption of the classical linear regression model (CRM), (covariance between μ and X must sum to zero), $Cov \mu/X = 0$, the correlation coefficient was estimated to determine the level of collinearity among the regressors, and subsequently, ensure that the independent ability of each of

the regressors was not diffused. The research objectives were evaluated using the One-Way ANOVA, which was used to determine whether the differences between the groups were statistically significant. The p -value was compared to the significance level to assess the null hypothesis that the 'impact of COVID-19 on transportation does not significantly differ from the impact of COVID-19 on economic, social and religious activities. The research reveals that most of the respondents were females (53.8%) who were aged between 18 and 35 (47.7%) and mainly involved with sales and the rendering of essential commodities or services (27.7%).

The correlation analysis reveals there was a positive correlation between transportation affected by the pandemic and its impact on the economic, social and religious activities of the people. $r = 0.442, n = 329, p = .000$. Economic activities (0.442) were highly correlated compared to social activities (0.313) and religious activities (0.274). The results of the analysis of variance were aimed at determining if the impact on economic, social and religious activities was statistically significant or not. The analysis compares the p -value to the significance level to assess the null hypothesis. The null hypothesis was rejected because the F test of the variables was significant at 0.000. The three activities resulted in different mean weights for the impact of transportation, $F(4,324) = 26.478, 12.666, 8.547, p = .000$. Economic activities and social and religious activities were impacted differently during COVID-19 which is connected to the disruption of transport services.

During the pandemic, residents could not travel, as usual, and it was acknowledged the pandemic caused a significant impact on their economic activities ($M = 4.66, SD = 0.818$). Identify the enormous informal economy of the state, which accounts for approximately 65% of the economy (Medina et al., 2017). Business owners involved in informal businesses like trading, transportation, construction, food preparation, mechanical and electrical work, fashion design and hairdressing were not able to travel and carry out these activities which require a human presence. Those who depend on hawking and selling goods in traffic, Uber operators and other forms of transportation, who depend on travelling to provide services, can no longer engage in these activities, thereby impacting the state's economy.

The increased cost of transportation, shortage of transportation mode and traffic congestion was identified as the major impact of COVID-19 on Transportation in Lagos State. People who commute at different times to different locations around the megacity have experienced an increase in the cost of transportation. 94.5% of participants ($n = 311, SD: 0.228$) have experienced an increase in transportation. There were few fleets of public transport in operation, but many people who want to travel. Due to the high rate of transportation demand, but with minimal supply resulting in fare hikes, attributed to locking down and restriction; the transporters have increased their fares. The resultant high cost of transportation added to the overall cost of living in the city during this time. Similarly, the cost of food items increased, as

Lagos is not a food-producing state. Food is brought from other states, thereby making consumables expensive, because of the incurred cost of bringing the items to the city, as vendors must find ways to bypass other states and lockdowns.

A study carried out by Abu-Rayash and Dincer (2020), examined the impact of the COVID-19 lockdown on the transport industry and the associated reduction in Green House Gas (GHG) emissions and energy savings caused by the current pandemic (COVID-19). In the context of the pandemic, there is a significant reduction in energy consumption and an associated reduction in GHG emissions. Results show that the majority of the world is in a state of mental distress and will face nervousness and anxiety issues post-COVID-19. Therefore, most of the measures taken about the disease have caused changes in citizens' behaviour to keep their contact to a minimum and limit their travel habits.

Restrictions in individual countries, whether at the regional or national level, have had a positive effect, on the one hand, as they have reduced the spread of the disease; on the other hand, we can observe negative effects on urban economies, mental health, and transport systems (Wang, 2020). Transportation is a derived demand and limited by activities, there is also a decrease in the demand for public passenger transport. Budd et al., (2020) emphasize in their contribution that the post-pandemic period is a great opportunity to transform PPT. The researcher's proposal does not only focus on environmentalism (sustainability) but also on the safety and health of passengers and communities.

The experience of China was described by Dong et al., (2021) in their contribution, which focused on the perception of safety and passenger satisfaction in public passenger transport during the COVID-19 crisis. This research aims to understand the psychological reactions of passengers to a pandemic. The cross-sectional study was conducted by authors in eight cities in China where public transport systems were temporarily closed due to the pandemic. The results indicated that people's feeling of safety is related to overall satisfaction with public transport, but also that people's feeling of anxiety hurts perceived safety, to analyse the severity of disease in a given area.

According to Dong et al., (2021), the information associated with the pandemic and transport has a demonstrably greater influence on passengers' decisions. Shen et al., (2020) focused their research on preventive and control anti-pandemic measures in China, which seek to present one way to prevent the spread of COVID-19 in PPT in other countries. The data obtained can help ameliorate and better manage future emergencies.

According to research conducted in Ghana by Dzisi et al., (2020), which focuses on wearing masks in PPT, scientists are trying to find out how many people are in a vehicle in PPT and how many of them are violating the measures concerning the wearing of protective masks. The research was carried out at a PPT station, to carry out a correlation analysis between the number of infected people and the mobility of the

population. Regarding the use of face masks within public transport vehicles, with a high level of compliance (fewer than 3 people without face masks) about 12.6% of the time, with mostly partial compliance observed the majority of the time. Complete disregard for the policy on facemasks (fewer than 3 people wearing a mask in a vehicle) also occurred about 21.3% of the time. On average, 4 people per vehicle were not wearing face masks.

These results suggest the existence of a significant gap in the implementation of the policy on face masks and the need for a much more effective implementation of the policy. Arellana et al., (2020) examine the short-term effects on transport systems caused by various measures taken by the government in Colombia. Using secondary data on Colombia's seven largest cities, the authors analyzed the impact of COVID-19 on three components of the transport sector-freight transport, air transport, and urban public transport.

The research shows that the measures have greatly reduced the demand for travel and congestion in the transport system, reduced the number of passengers, and, also, reducing the negative impact on the environment. During the first three months of measures in the country, freight transport was reduced by 38%, which affected the supply chain of products that are not essential to citizens' lives. According to many other experts, public passenger transport is one of the industries most affected by the COVID-19 pandemic.

Hansher et al., (2021) identified the short-term reduction of financial and time costs associated with the reduction of mobility in both individual and public passenger transport in the Sydney area. The authors investigated how mobility changed during the restrictions, even at the beginning of the introduction of the measures. Financial constraint was encountered by several carriers, so it is appropriate for state or public administration body should help in co-financing for the sustainability of the industry. However, the pandemic significantly affected aviation and the aviation industry as a whole. In aviation, a series of restrictions were introduced, leading to serious long-term economic impacts on the global aviation industry. The researcher analyzed air mobility in Europe based on available data from relevant sources related to the aviation industry.

Jenelius and Cebecauer (2020) in regions of Sweden, the researchers examined how COVID-19 affected passenger mobility, using data from carrier handling systems. Of these regions, Stockholm was severely affected by COVID-19 cases between March and May 2020. At the same time, the decrease in passengers was the largest in this region (about 60%), while, in Västra Götaland, the decrease was the smallest (about 40%). There was a gradual increase in mobility as the situation improved, but was still lower than in the previous year. Ultimately, public passenger transport was the most affected mode of transport. The decrease in commuters stems mainly from the reduction in the number of active passengers by public transport, while the average daily number of journeys per active passenger has remained relatively stable.

The change was also observable in the types of tickets purchased.

The data suspected an increase in demand for one-off and electronic travel tickets, while monthly travel tickets saw a decline in sales. The sale of short-term tickets has fallen sharply, as these types of tickets are mainly used by tourists. The results of the research are not clear as to whether the use of different types of public passenger transport (PPT) is influenced by demography. However, these differences have been shown to have an impact on PPT funding. In short, passengers have changed their decision-making and mobility significantly by leaving the PPT system. However, of those who remained, many adopted more flexible ticket types. The transportation industry recovered slightly in the second half of the pandemic period, due to the return of public transport passengers.

In their contribution, Wielechowski et al., (2020) set the objective of evaluating changes in public transport mobility in Poland as a result of the COVID-19 pandemic. The authors analyzed the traffic situation at the national and regional level in the period from 2 March to 19 July 2020, during the first wave of the pandemic. According to research into the relationship between human mobility in PPT and the number of new cases in Poland, there is an indirect, insignificant relationship. The strength and statistical significance of the correlation vary considerably from one voivodeship to another. The opposite case can be seen between the change in mobility in PPT and the measures taken by the Polish government, where there was a statistically significant but strong indirect relationship between the examined variables at the national and regional levels. The strength and statistical significance of the correlation vary considerably from one voivodeship to another. The results suggest that the anti-pandemic measures taken by the Polish government have reduced mobility in PPT more than would be limited by the development of the epidemic itself.

Research by Tarkowskii et al., (2020) sought to explain social responses to mobility restrictions. The difference in mobility regarding visits to parks, shops and pharmacies varies considerably between voivodeships. One way to explain these differences is through long-term habits of social life. Historical and cultural factors are most likely behind the similarity. Reductions in mobility and changes in mobility patterns are obvious effects of social distance. As regards the regional dimension, mobility has been steadily declining in most of the areas analyzed. In the local context, illustrated by an analysis of travel time changes from residential areas in Gdańsk, Gdynia and Sopot to the Gdańsk-Oliwa business and science centre, there has been a noticeable but spatially diversified reduction in driving time (by private car). The most significant reduction in travel time has been recorded in the peripheral areas accessible by high-speed roads, which are usually congested during peak periods. Restrictions on mobility have led to a high reduction in congestion, which, in turn, has led to shorter travel times.

Borkowski et al., (2021) have focused their research on the effects of the pandemic on the transport system regarding daily commuting, especially over short distances. The authors examined the factors influencing the change in travel times and the change in the share of transport systems within the pandemic. A CATI survey with a representative sample of 1069 inhabitants within Poland between March and April 2020 was used. A GLM (General Linear Model) was used to analyze the data, which allowed the authors to include all qualitative and quantitative variables. The research found significant reductions in travel times, regardless of age and gender, related to the purpose of the trips, means of transport, system size, fear of the virus, employment, and changes caused by the pandemic.

Research results from De Vos (2020) point to the fact that suburban passenger transport, which relies most on student travel for funding, has been decimated after March and April 2020. Particularly affected are private carriers from sparsely populated regions, which, in some cases, are partially but largely deprived of revenue. The author is concerned that some parts of Poland, which are served by private carriers, may not open schools after the end of the pandemic, as there will be no one to transport pupils. As a result, he recommends that the state acts swiftly to ensure that these regions are served. De Vos (2020), but also Arellana et al., (2020), also pointed out that a declining number of passengers during a pandemic has an impact on the financing of public passenger transport.

Research by Coppola and Fabiis (2021) focused on the impact of anti-pandemic measures (social distancing) on passenger rail transport in Italy. A specific case is two case studies, which differ in the principles of demand (urban and suburban) and the transport system (free capacity vs. the need to reserve a seat on the train). The results point to the unsustainability of these measures in the medium term, as it has been shown that, urban trains (similar to the metro system) with free capacity, are overcrowded at peak hours.

In his contribution, Bucsky (2020) shares a case study in which he argues that the reduction in mobility is not the same for all modes of transport, with the largest decrease being in the case of public passenger transport. The author states that understanding the development of the share of individual transport systems during a pandemic situation can help cities to better prepare for traffic management in the future, even in the event of emergencies and events. The analysis showed that urban public transport in Budapest saw a reduction in demand of 80%, while bicycle transport dropped by 23% and shared bicycles by 2%. Logically, the largest increase in intensity was recorded by individual car transport. The fact that most people started working at a “home office” during the pandemic also contributed significantly to this decrease in passengers, which is currently the case in the whole of the Slovak Republic.

The authors' recommendation is to increase the capacity of trains by 70–80%, which would be possible by compressing

the connections or by using a higher number of wagons. At the same time, however, they add that this would hurt the financing of these trains, as a case study of suburban trains estimated a decrease in ticket sales by 20–60%. As abroad, the effects of the COVID-19 pandemic were significant in the conditions of the Slovak Republic and the Žilina Region. A pandemic influences the behaviour and decisions of passengers to use public passenger transport. The pandemic situation has caused changes in passenger behaviour. Among the recommendations of the Pandemic Commission and the Public Health Office of the Slovak Republic, if necessary, is the use of a car instead of public passenger transport to reduce the risk of infection.

The paper examined the impact of the pandemic caused by COVID-19 on the change in population mobility regarding public passenger transport. The research was achieved through subgoals. The first partial goal of the research analyzes the changes in the overall mobility of the population, based on global data on changes in mobility in 2020 by regions of the Slovak Republic. The intention was to identify interregional differences in the change in population mobility about anti-pandemic measures taken at the national level. The researcher identifies the transport system as a unique sector, and the impact of the COVID-19 pandemic needs to be examined on a specific transport system and its evolving demand. The research, therefore, focused on a specific transport system of suburban bus transport in the Žilina self-governing region. The research is related to the second sub-objective, which is to identify the net impact of the pandemic on the change in demand of groups of passengers and passengers as a whole in the SBT, based on an assessment of the pre-outbreak of the COVID-19 epidemic and the subsequent 2020 pandemic.

The impact of the pandemic must also be seen in the broader contexts of ensuring transport services in the area, drawing up transport service plans, including future transport demands for passengers, sustaining demand, and ensuring an adequate supply of transport services. Therefore, another partial goal of the paper is to assess the impact of the pandemic on estimating the future level of demand using a single-criteria time series of passenger demand. The intention is to identify the impact of the COVID-19 pandemic on the accuracy and reliability of short-term forecasting of a single-criteria time series of passenger demand.

III. RESEARCH METHODOLOGY

The research was based on the two main traditional sources of data collection which includes the primary and secondary source of data collection. The secondary source involves the download and harmonization of a series of research publications considered relevant to the research work. The Primary data involves the design of a structured questionnaire in connection with the objectives of the research which was used to elicit information from the various commuters at the various sampled locations. The received questionnaires were sorted, to ensure that the research makes use of the accurate

data set and those that can cause inconsistencies on the part of the research were discarded. The received questionnaires were subjected to proper scrutiny to identify those that were not properly filled, two hundred and ten (210) research instrument was distributed to the sample population, while two hundred (200) was considered valid for the research, and to avoid spurious result the poorly filled questionnaires were forgone. The data was thereafter coded and analyzed with appropriate data analysis tools for inference. To analyze the earlier stated hypothesis, a regression analysis tool was adopted; regression was used to determine the strength and character of the relationship between one dependent variable (usually denoted by Y) and a series of other variables (known as independent variables). This was used to test the significance of the COVID-19 pandemic restriction on the transportation industry.

VI. RESULTS

4.1 Demographic Characteristics of Respondents

Variables	Frequency	Percentage
Age of Respondents		
11-20 years	11	5.5
21-30 years	30	15.0
31-40 years	73	36.5
41-50 years	65	32.5
51-60 years	17	8.5
Above 60 years	4	2.0
Total	200	100.0
Marital Status		
Single	75	37.5
Married	116	58.0
Divorced	9	4.5
Total	200	100.0
Gender of Respondents		
Male	84	42.0
Female	116	58.0
Highest Educational Qualification		
Informal education	77	38.5
Primary	62	31.0
Secondary	21	10.5
Diploma	21	10.5
Degree	14	7.0
Postgraduate degree	5	2.5
Total	200	100.0
Staff Category		
Top Management	46	23.0
Medium Management	72	36.0
Lower Management	82	41.0
Total	200	100.0
Popular Means of transportation during pandemic lockdown		
Motorcycle/Tricycle	27	13.5
Cab	24	12.0
Public transport	24	12.0
BRT	69	34.5
Personal car	56	28.0
Total	200	100.0

Source: Researcher fieldwork, 2022

The data reveals that 5.5% of the respondents are between 11-20 years, 15% are between 21-30 years, 36.5% are between 31-40 years, 32.5% are between 41-50 years, 8.5% of the respondents are between 51-60 years, while 2% are above 60 years respectively as represented with figure 4.1 below.

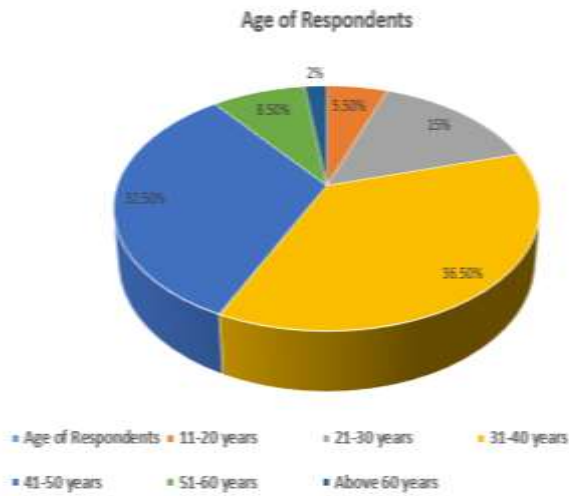


Figure 1 Age range of respondents

The research also reveals the marital status of the respondents as follows, 37.5% of the respondents are single, 58% are married and 4.5% are divorced as represented in figure 4.2 below.

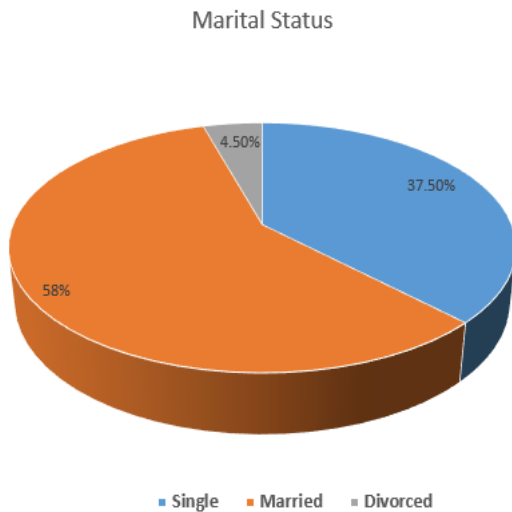


Figure 2: Marital status of respondents

The research also reveals the highest educational qualification of the respondents as follows, 38.5% obtained informal education, 31% primary education, 10.5% secondary education, 10.5% Diploma, 7% degree, while 2.5% obtained postgraduate degrees respectively as represented in figure 4.3 below.

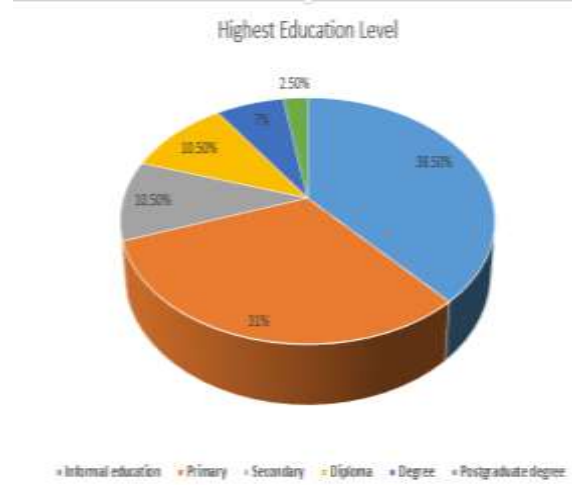


Figure 3: Highest Educational qualifications of respondents

The staff category of the sampled respondents is revealed as follows, 23% are top management staff, 36% are medium management staff, and 41% are lower management staff, the research reveals the larger percentage of lower management staff as represented in figure 4.4 below.

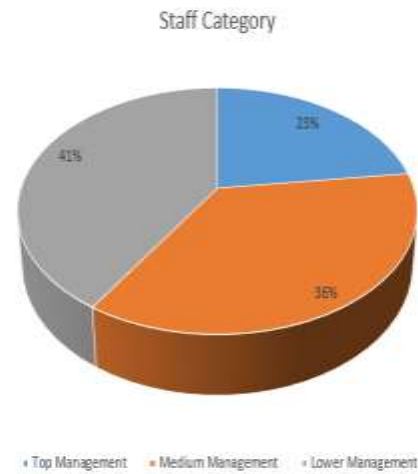


Figure 4: Staff category of respondents

The popular means of transportation to their various locations were also identified as follows, 13.5% use motorcycle/tricycle, 12% use taxi/ private cab and 12% Public transport also, 34.5% use BRT, 28% use personal car respectively as represented with table 4.1 above. The research also reveals the transportation operation level of the transportation industry during the pandemic lockdown, 64% no operation, 21.5% partial operation while 14.5% were fully operational, the research, therefore, reveals majority of the operations do not operate while those with essential services had a skeletal operation during the pandemic lockdown as represented with figure 4.5 below.

Popular Means of transportation during pandemic lockdown

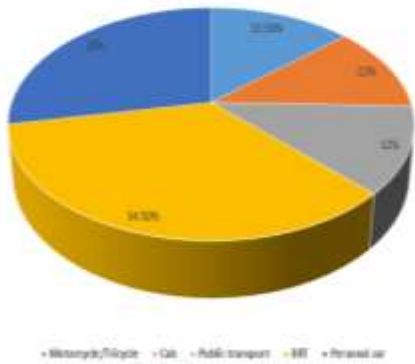


Figure 5 Popular means of Transportation by respondents

4.2: Strategies Put in Place by the Transportation Industry during the Pandemic Lockdown

	Research Variables	SA (%)	A (%)	U (%)	D (%)	SD (%)
1	The Transportation firm does not possess a sustainable crisis Management Plan prepared prior to the pandemic lockdown	42	38.5	6.5	7.0	6.0
2	Post crises management plan adopted by the industry was not helpful during COVID-19 Pandemic, as transportation employee was severely affected by the lockdown	25.5	44.5	18.5	9.0	2.5
3	The supportable crises management put in place by the transportation industry was not related to pandemics crises management	36	29	7.0	16	12
4	The transportation industry does not display high resilience and the ability to adapt and overcome during and after the crises	44.5	15.5	17.5	15	7.5
5	Secured employment contracts, fair working conditions, and fair salaries for the transportation employees will aid quick recovery of the transportation industry	51.5	32.5	5.0	11	0

Source: Researcher fieldwork, 2022

The research reveals if the transportation industry possesses a sustainable crises management plan before the pandemic lockdown, to help withstand the impact of activities disruption due to the lockdown, 42% strongly agree, 38.6% agree, 6.8% are undecided, 7% disagree while 6% strongly disagree respectively, which therefore reveals there has been sustainable crises management strategy put in place by the transportation industry, which was significant to their sustainability during the pandemic lockdown. The research also reveal if post crises management strategy adopted by the industry was not helpful during the pandemic lockdown, 25.5% strongly agree, 44.5% agree, 18.5% undecided, 9.0% disagree and 2.5% strongly disagree, it is therefore evident

that the strategies earlier put in place by the industry was not helpful during the pandemic lockdown. The research also reveals if the transportation industry does not display high resilience and the ability to adapt and overcome during and after the pandemic crises, 44.5% strongly agree, 15.5% agree, 17.5% undecided, 15% disagree while 7.5% strongly disagree respectively, it, therefore, reveals the industry does not display high resilience and the ability to adapt and overcome during and after the crises. The research is also aimed at revealing if secured employment contracts, fair working conditions, and fair salaries for the transportation employees will aid quick recovery of the transportation industry, 51.5% strongly agree, 32.5% agree, 5% undecided, 11% disagreed, the research, therefore, reveal a larger percentage of respondents agree, which means secured employment contract, fair working conditions and fair salaries will help ameliorate the impact of the lockdown on the transportation industry employees.

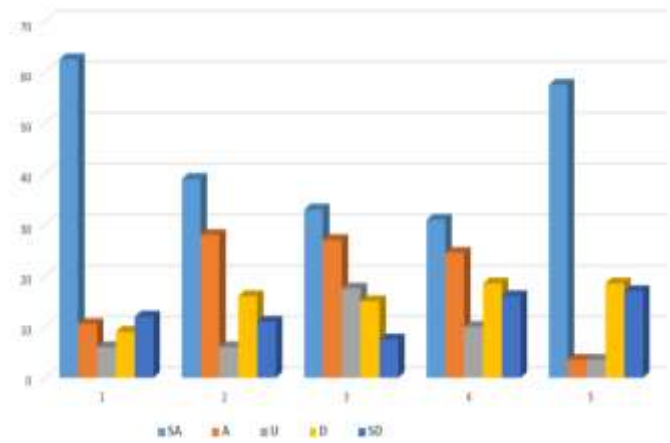


Figure 6: Strategies Put in Place by the Transportation Industry during the Pandemic Lockdown



Figure 7: Law Enforcement Agents Enforcing Movement Restrictions on the streets of Lagos

4.3 Significance of the pandemic lockdown on the transportation industry

Research Variables	SA (%)	A (%)	U (%)	D (%)	SD (%)
The Pandemic does not have significant impact on transportation workers' working conditions and occupancy level during the crises	62.5	10.5	6.0	9.0	12
Proper government orientation on sustainable development strategies helps reduce the severity of the Pandemic lockdown on the transportation industry	39	28	6.0	16	11
Reactiveness of the transportation terminals management helps curtail its spread and its severity on the transportation industry	33	27	17.5	15	7.5
Supportable development strategies introduced at the parks helps reduce the severity of the pandemic lockdown on the transportation industry	31	24.5	10	18.5	16
Post COVID-19 recovery strategies such as postponement of all dues, direct financial assistance, helped reduced the significant impact of the pandemic lockdown on the transportation industry	57.5	3.5	3.5	18.5	17

Source: Researcher field work, 2022

The research was also aimed at analyzing the significant impact of the covid-19 lockdown on the transportation industry. The pandemic does not have a significant impact on transportation workers, 62.5% strongly agree, 10.5% agree, 6% are undecided, 9% disagree, and 12% strongly disagree. The research reveals majority of the respondents disagree that the pandemic lockdown does not have an impact on the transportation industry. The research is also aimed at revealing if proper government orientation on sustainable development strategies helps reduce the severity of the pandemic lockdown on the industry. 39% strongly agree, 28% agree, 6% are undecided, 16% disagree, and 11% strongly disagree. The research, therefore, reveals proper government orientation has helped reduce the severity of the pandemic lockdown on the transportation industry.

The research also reveals the significance of Reactiveness of the transportation terminals management helps curtail its spread and its severity on the transportation industry, 33% strongly agree, 27% agree, 17.5% undecided, 15% disagree, while 7.5%, the research, therefore, shows the reactivity of the transportation terminals management has helped in curtailing the spread and severity on the pandemic on the transportation industry. The supportable development introduced at the parks also helps reduce the severity of the pandemic lockdown on the transportation industry, as 31% strongly agree, 24.5% agree, 10% undecided, 18.5% disagree, and 16% strongly disagree. The research also reveals if post-COVID-19 recovery strategies such as postponement of all dues, and direct financial assistance, helped reduce the significant impact of the pandemic lockdown on the

transportation industry, 57.5% strongly agree, 3.5% agree, 3.5% undecided, 18.5% disagree, and 17% strongly disagree respectively. It is evident that the postponement of all dues, and direct financial assistance, helped reduce the significant impact of the pandemic lockdown on the transportation industry and its quick recovery.

Figure 8: Significance of the pandemic lockdown on the transportation industry

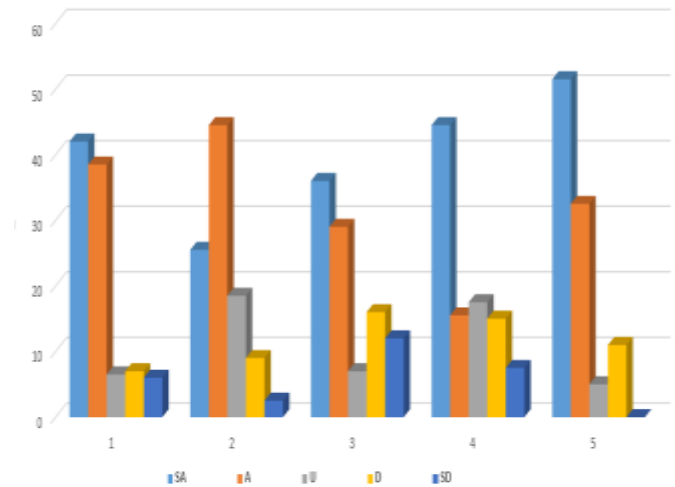


Figure 8: Strategies Put in Place by the Transportation Industry during the Pandemic Lockdown



Figure 9: Deserted busy street of Lagos due to the Pandemic Lockdown

4.4 Test Of Hypothesis

Hypothesis One

H0: There is no strategy put in place by the transportation industry to aid its recovery after the pandemic lockdown

Model Summary^b

R	R Square	Durbin-Watson	F	Sig.
0.698	0.487	0.230	46.326	0.000 ^b

Coefficients ^a					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.077	.203		-.382	.703
1 Post crises management plan adopted by the industry was not helpful during COVID-19 Pandemic, as transportation employees were severely affected by the lockdown	.181	.071	.157	2.546	.012
The supportable crises management put in place by the transportation industry was not related to pandemics crises management	.332	.048	.411	6.855	.000
The transportation sector does not display high resilience and the ability to adapt and overcome during and after the crises	.309	.045	.366	6.837	.000
Secured employment contracts, fair working conditions, and fair salaries for the transportation employees will aid quick recovery of the transportation industry	.090	.062	.077	1.444	.150

a. Dependent Variable: The Transportation firm does not possess a sustainable crisis Management Plan prepared prior to the pandemic lockdown

Source: Researcher field work, 2022

V. DISCUSSION OF FINDINGS

R-value has been used to measure the success of the regression in predicting the values of the dependent variable within the sample. It is therefore used to test the impact of the lockdown on the transportation industry. The result reveals R-value of 0.698 for the first hypothesis. The research, therefore, shows the identified variables, which are the strategies put in place by the transportation industry. It is interpreted as the fraction of the variance of the dependent variable explained by the independent variables.

The R-square is used to provide some information on the "goodness of fit of a model, the closing value of R-square to "1", is an indication of the perfect fit of the data" in the regression Predictions. The estimated R-square result for the first hypothesis is 0.487, which reveals that holding other variables constant, the strategies put in place by the transportation industry to aid its recovery after the pandemic had a 48% significance on the industry recovery, which means a percentage increase in the transportation industry strategies and will cause 48% changes in its recovery rate, while 52% are explained by other variables outside the model, that is not connected to the above-identified variables (Constant). It can therefore be concluded that the independent variables are not considered fit to determine a significant change in the dependent variable, as it is determined by other variables outside the model.

The result presented in the coefficient table above reveals the level of various independent variables significant to the dependent variable as follows: 0.012, 0.000, 0.000 and 0.150. The research reveals all variables included in this model are significant, as they are less than 0.05, except for the last variable on the table is more than 0.05.

Durbin-Watson statistic is used to detect if there is autocorrelation in the residual from a statistical regression analysis, the value of DW always lies between 0 and 4, if the Durbin-Watson statistic is 2, it means there is no autocorrelation, a value between 0-2 indicate positive autocorrelation, while a value between 2-4 indicates a negative autocorrelation. The analysis reveals a DW value of 2 for hypothesis one. Hypothesis one reveals there is no autocorrelation, in other words, the research reveals if proper strategies are put in place will positively influence the transportation industry in circumstances like that of pandemic lockdown.

Statistical significance is often referred to as the **p-value**. Considering the coefficient statistics results (significance) in the validation of the earlier stated hypothesis at a 95% confidence interval, the initial stated null hypothesis will be rejected if the p-value is less than 0.05, the result thus reveals a p-value of 0.00, which is below 0.05, it is, however, pertinent to reject the earlier stated null hypothesis which states there is no strategy put in place by the transportation industry to aid its recovery after the pandemic lockdown, its rejection is due to the lack of statistical support.

Hypothesis Two

H0: COVID-19 pandemic lockdown has a significant impact on the transportation industry/ employees

Model Summary^b

R	R Square	Durbin-Watson	F	Sig.
0.572 ^a	0.327	0.177	23.722	0.000 ^b

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2.542	.334		7.613	.000
Proper government orientation on sustainable development strategies helps reduce the severity of the Pandemic lockdown on the transportation industry	.256	.100	.247	2.551	.012
Proactiveness of the transportation terminals management helps curtail its spread and its severity on the transportation industry	.415	.069	.365	6.005	.000
Supportable development strategies introduced at the parks helps reduce the severity of the pandemic lockdown on the transportation industry	-.281	.069	-.285	-4.062	.000
Post COVID-19 recovery strategies such as postponement of all dues, direct financial assistance, helped reduced the significant impact of the pandemic lockdown on the transportation industry	-.598	.084	-.682	-7.137	.000

a. Dependent Variable: The Pandemic does not have significant impact on transportation workers' working conditions and occupancy level during the crises

Source: Researcher fieldwork, 2022

The result reveals R-value of 0.572 for the second hypothesis. The research, therefore, shows the identified variables, which are the significant impact of the pandemic lockdown on the transportation industry. It is interpreted as the fraction of the variance of the dependent variable explained by the independent variables.

The estimated R-square result for the second hypothesis is 0.327, which reveals that holding other variables constant, the COVID-19 pandemic lockdown has 32% significance on the transportation industry/employee, which means a percentage increase in the COVID-19 pandemic lockdown will cause a 32% impact on the transportation industry, while 68% are explained by other variables outside the model, that is not connected to the above-identified variables (Constant). It can therefore be concluded that the independent variable is not considered fit to determine significant changes in the

dependent variable, as it is determined by other variables outside the model.

The result presented in the coefficient table above reveals the level of various independent variables significant to the dependent variable as follows: 0.012, 0.000, 0.000 and 0.000. The research reveals all variables included in this model are significant, as they are less than 0.05. The analysis reveals a DW value of 1 for hypothesis two. The hypothesis reveals a positive autocorrelation, in other words, the research reveals COVID-19 pandemic lockdown will have a positive impact on the transportation industry.

Considering the coefficient statistics results (significance) in the validation of the earlier stated hypothesis at a 95% confidence interval, the initial stated null hypothesis will be rejected if the p-value is less than 0.05, the result thus reveals a p-value of 0.00, which is below 0.05, it is, however, pertinent to reject the earlier stated null hypothesis which states that COVID-19 pandemic lockdown does not have a significant impact on the transportation industry, its rejection is due to the lack of statistical support.

VI. RECOMMENDATIONS

- Therefore, the research recommends the following:
- Post crises management strategies should be put in place by the transportation industry to aid the industry's quick recovery in crises such as the pandemic lockdown;
- The government should consider secured employment contracts, fair working conditions, and fair salaries for their employee, to aid their quick recovery;
- Government and its agencies should carry out proper orientation on sustainable development strategies to help reduce the severity of the Pandemic lockdown on the transportation industry;
- The transportation industry should introduce supportable development programs at the parks to help reduce the severity of the pandemic lockdown on the transportation industry;
- The government and its stakeholders should adopt post COVID-19 recovery strategies which include postponement of all dues, and direct financial assistance, to help reduce the significant impact of the pandemic lockdown on the transportation industry.

There is strong conviction humans will come out of this pandemic strong, however, it is essential to support each other throughout this period and post covid era. This study contributes to the academic literature on the impact of COVID-19 on the transportation industry. This paper gives an overview of the impact of the lockdown on the transportation industry while recommending a considerable effort to government and various stakeholders policymakers' to aid the transportation industry's swift recovery after the COVID-19 lockdown.

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