Impact of COVID-19 on Household income and Consumptions in Jos Metropolis, Nigeria

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Abstract

The impact of the COVID-19 virus pandemic on human health and the world economy cannot be over-emphasized. Globally, about 227,947,138 people were infected with the virus, 204,639,320 recovered and 4,686,470 death recorded. In Nigeria, there are about 199,538 Coronavirus confirm Cases, 188,427 recovered, 2,619 deaths recorded, and a strong recession expressed in a drop of -16% in its economic growth rate for 2020. This study examined the impact of COVID-19 on household income and consumption in Jos Metropolis, Nigeria. This study employed a survey research design. 258 households were randomly selected and participated in this study. A questionnaire design was administered to each household that participated in the studies as an instrument for data collection. The study used Multiple Regression analysis was used to analyze the data collected with the aids of SPSS version 23. The result indicated that COVID-19 has a negative and statistically significant impact on Household income and Consumptions in Jos Metropolis, Nigeria. The study recommended that palliative should be provided to various households to cushion the negative impact on income and consumption of households and it should be properly monitored to avert diversion. The COVID-19 preventive measures need to be seriously enforced to prevent the diseases from the further spread and to prevent another total luck down in the economy.

Keywords: COVID-19, Household income, Household Consumptions, Multiple Regression analysis

Introduction

Over the years, man has been affected by severe epidemics and pandemics of infectious diseases. These epidemics have exacted a terrible toll, and some have changed the course of history. The successive waves of the plague, the Black Death, killed 50% or more of European populations during the Middle Ages, and smallpox and other imported infectious diseases allowed the rapid European conquest of the Americas by virtually wiping out many native populations. Not all epidemics are restricted to specific geographical regions; those that spread worldwide are designated pandemics. And pandemics are not restricted to humans. Plant and animal virus pandemics have the potential to disrupt agriculture and the food supply in the world. Two notable, widespread viral pandemics of the last century, the 1918 influenza and acquired immune deficiency syndrome (AIDS), had devastating consequences. Coming at the end of World War I, with millions of displaced persons, the absence of antibiotics to cure secondary bacterial infections, and insufficient healthcare resources, the 1918 influenza pandemic killed tens of millions of people. 76 million people have been infected with HIV and about 33 million people have died of HIV/AIDS. Globally, 38.0 million people were living with HIV at the end of 2019.AIDS, caused by the human immunodeficiency virus, was similarly lethal before being brought under relative control by highly effective antiretroviral drugs (WHO, 2020).

Coronaviruses are a group of viruses belonging to the family of Coronaviridae, which infect both animals and humans. Human coronaviruses can cause mild diseases similar to a common cold, while others cause more severe diseases (such as MERS - Middle East Respiratory Syndrome and SARS – Severe Acute Respiratory Syndrome). A new coronavirus that previously has not been identified in humans emerged in Wuhan, China in December 2019. WHO on December 31, 2019. On January 30, 2020, the WHO declared the COVID-19 outbreak a global health emergency. On March 11, 2020, the WHO declared COVID-19 a global

pandemic. In this writing, there are more than 226 million confirmed cases of COVID-19 globally and nearly 5 million deaths. However, more than 202 million recovered from the disease (Gwaison, Apeh & Gwaison, 2021)

In Nigeria, we have over 199,538 confirmed cases, 2,619 deaths, and over 188,427 recovered from the disease (as of September 14, 2021) with the numbers increasing every day. As the disease spreads, isolation centers, quarantine centers, PPE, hospital equipment, and hospitalisation needs grow so rapidly that they overwhelm our nation's healthcare system. This would be catastrophic because while COVID-19 may be getting all the news coverage, Nigeria is plagued by other diseases like Cholera, hepatitis, malaria, AIDS, Lassa Fever and so on which also require sufficient resources to treat. Plateau State is the 5th worst-hit state out of 36 states and federal capital territory in Nigeria. The state had 9,274 confirmed cases, 65 cases currently on admission in health facilities, 9,146 were discharged and 63 death was recorded as of 16th September 2021(Gwaison, Apeh & Gwaison, 2021)

The impacts of the Corona Virus Disease 2019 (COVID-19) pandemic on socio-economic variables are shaping up into catastrophic unless something drastic is put in place to control the widespread of the pandemic in the world. For instance, according to a recent World Bank report, COVID-19 impact has pushed more than 70 million

additional people into extreme poverty by the end of June 2020 from the initial pre-COVID-19 figure of 595 million individuals globally (Mahler, Lakner, Aguila & Wu, 2020). The report viewed the number of people pushed into extreme poverty under two (2) different scenarios, namely the baseline projection and the downside projection. The projection under the baseline presumes that the pandemic will be stationary or remains at an expected level. In contrast, activities are expected to pick up before the end of the year. Subsequently, using the International Poverty Line (IPL) of US$1.90 daily, the projection estimated more

than 70 million individuals to be destitute (Mahler et al., 2020).

On the other hand, the downside projection assumed the pandemic to persevere for a more extended period than expected thereby forcing the maintenance or lockdown conditions to continue or to resurface again, which will subsequently result in exposed businesses to quit and a sharp decline in vulnerable household's consumption (Mahler et al., 2020). At the same time, financial stress would immediately set in among the low-income and middle-income nations of the world (Mahler et al., 2020). While an estimated 71 million people are expected to be pushed into extreme poverty under the baseline projection, that of downside projection estimated about 100 million people. This, therefore, translate into global economic growth contraction of 5 percent under baseline projection and 8 percent under the downside projection (Mahler et al., 2020).

Lakner, Mahler, Negre, and Prydz (2020) stresses that uncertainty is eminent in 2021 and beyond, even with the expected increase in global economic productivity estimated at 4 percent due to the COVID-19 pandemic.Poverty estimates show that there would be no changes between the number of people in extreme poverty in 2020 and 2021 majorly due to the growth rates in countries that warehouse more than one-third of the world's poorest like Nigeria, India and the Democratic Republic of Congo (Lakner et al., 2020). The predicted per capita Gross Domestic Product (GDP) in the three countries are estimated at -0.8 percent, 2.1 percent, and 0.3 percent, while the rate of population growth is 2.6 percent, 1 percent, and 3.1 percent respectively (Mahler et al., 2020; Lakner et al., 2020). Subsequently, COVID-19 pandemic has cast doubt, whether the world would achieve one of the Sustainable Development Goals (SDGs) which is eradicating or reducing the level of extreme poverty by 3 percent in the world by the year 2030 (Lakner et al., 2020; Sumner, Hoy & Ortiz-Juarez,2020)

According to the International Monetary Fund (IMF) oil, which is the main export commodity

of the country has fallen sharply due to low demand globally due to COVID-19 pandemic. While conflict among the member of the Organization of the Petroleum Exporting Countries (OPEC) especially, Russia and Saudi Arabia are further compounding the problem (IMF, 2020). Conflict alone resulted in one of the recent falls in the price of Brent crude oil witnessed in over 30 years by about 24 percent from US$34/barrel to US$25.7/barrel. Nigerian oil export is expected to decline by more than US$26 billion, which will subsequently affect the fiscal and external position of the country (IMF, 2020). The country's economy is estimated to contract by 3.4 percent in 2020, an indication of about a six percentage points drop amid pre-COVID-19 projection, thereby creating a wide margin in the fiscal and external financing in the country (IMF,2020).

Nigeria's economy is expected to plunge into a severe recession never seen in the last four decades in 2020 (World Bank, 2020). In the best-case scenario using baseline, the country's economy is predicted to contract by 3.2 percent in 2020 under the assumption of an average oil revenue price of US$30 per barrel annually. In the same vein, the spread of COVID-19 will reduce drastically by the end of the second quarter of 2020 and subsequently continue in the 3rd quarter as well. This will result in a 5-percentage points reduction in the pre-COVID-19 growth projection prediction by 2.1 percent. By implication, the predicted recession will be costlier than the 2015-2016 recession by almost twice and the deepest since the 1980s (World Bank, 2020). In the same vein, NBS (2020) estimated the country's recession to be -4.4 percent averagely in 2020. However, it should be noted that the growth of the economy is highly uncertain and depend on the economy and the oil price recover which is currently caused by a conflict between Russia and Saudi Arabia and the impact of COVID-19 lockdown. Country's failure to control the spread of the pandemic domestically will inflict a significant problem on the already drained healthcare system in the country, which will subsequently result in a spike in disease and death rate, specifically among the low-income households and vulnerable in the community (World Bank, 2020; Singh & Chauhan, 2020).

The impact of COVID-19 in terms of the human cost in Nigeria will elevate much higher than loss of life, especially, as the economy contract, while the per capita income as well drop. The pandemic is expected to push extra five (5) million people to leave under poverty as against the pre-COVID-19 projection. For instance, about 83 million people were living below the poverty line nationally, which translate into four (4) people out of every ten people in the country, with millions living just above the poverty line, leaving them vulnerable to falling into the poverty trap, once a shock happens like COVID-19 pandemic. Over 75 percent of the country's poor are residing in the Northern part of the country. At the same time, a large chunk depends solely on agriculture for their daily bread as compared to the population living in the Central and Southern parts of the country where there is a high concentration of jobs (World Bank, 2020). According to Andam et al. (2020) Nigeria suffered a loss of US$ 16 billion due to COVID-19 lockdown, with chunk amount coming from services sector.

Agriculture is the predominant activity and a source of employment among the populace in the country especially people residents in a rural location (Andam et al., 2020). The agricultural activities have been seriously affected by the impact of COVID-19 as a result of various measures to mitigate the spread of the pandemic. Globally agricultural resilient was tested by COVID-19, which saw a drop of about 20 percent in the prices of agricultural commodities. According to Andam et al. (2020) Nigeria has suffered a loss in output production during lockdown estimated to be around 13.1 percent, which translate into US$1.2 billion loss. Other sectors of the economy severely affected by the impacts of COVID-19 include manufacturing industry, education, financial, healthcare and pharmaceutical, hospitality, tourism and aviation, information technology, media, research and development,

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real estate and housing (Nicola et al., 2020). COVID-19 impact can also be traced socially; for instance, there was an increase in domestic violence during the lockdown period and an increase in the poverty rate among the households in Nigeria.

The impacts of COVID-19 on households' consumption in Nigeria will be dire, together with an immediate health crisis, the tendency of reducing the household's income generation is exceptionally high. Leaving households unable to meet up with essential consumption requirements, thereby affecting the household's food security status (Mukhtar, 2020a; Mukhtar, Mukhtar, Kamaruddin, and Applanaidu, 2018a; Mukhtar et al., 2018b). Subsequently, this means one in every two households are expected to reduce food consumption, to cope up with the COVID-19 pandemic. COVID-19 pandemic will bite

harder on the household located in urban, than those in rural due to high dependency of income from services. This call for government programs and assistance to help the poor households in the country (World Bank 2020).

The world is presently facing enormous challenges due to COVID-19 and getting to know about the COVID-19 and its devastating impacts, especially on socio-economic activities of various households in the world. The pandemic has been linked to the imminent recession never seen before in the last 20 years in Nigeria in general and specifically Kano, which has witnessed poverty on a proportionate scale, a high rate of unemployment, specifically among the youth, and high prices in stable food. Consequently, the pandemic trends of affecting every variable associated with socio-economic activities of households in the study area. The scale of the devastation when combining with the COVID-19 pandemic is better imaged.

Empirical Review of Literatures

Several studies were conducted on the impact of COVID-19 on household income and consumption, which were presented below.

COVID-19 pandemic is expected to have an overwhelmingly negative impact on socio-economics variables directly relating to households. According to Collivignarelli et al. (2020), the impacts of the COVID-19 pandemic on households are dynamic and vary from one household to another. Messner (2020) on the other hand, noted that the pandemic's impact is more significant among the low-income households and has a profound negative impact among the poor communities, especially where the population is highly dense, which can affect the social distance measure. Since the COVID-19 is now a pandemic affecting the world, scholars are investing time and resources to discover the impacts the pandemic has in their society and a measure of reducing impacts to the minimum level.

Mukhtar (2020) assesses the impacts of the COVID-19 pandemic on households' socio-economic activities in Kano, Nigeria. A location that is already facing severe challenges in terms of high poverty rate, unemployment, and other social and economic difficulties. The study used a primary source of data, collected among a sample of 426 respondents that constitute household heads drawn from the three (3) regions in Kano using the stratification method involving four stages. Descriptive analysis was used to analyze the data collected from the respondents. Findings reveal that the COVID-19 pandemic has significant negative impacts on the socio-economic activities of the households in Kano. Furthermore, the finding indicates that a large number of household respondents have divergent views of whether COVID-19 is real or otherwise, despite a broader awareness concerning the virus and preventive measures about the virus. The findings furthermore reveal serious negligence among the households on social distancing, facemask application and physical and social isolation. COVID-19 pandemic has exposed government effort in the healthcare system in the study area. Besides government measures related to socio-economic to assist the poorest in society that suffered from the loss of income during the imposed lockdown through

palliative has been marred with a lot of irregularities.

Martin, Markhvida, Hallegatte, and Walsh (2020), investigated the socio-economic impacts of COVID-19 on household consumption patterns and poverty. Using San Francisco Bay Area, and microeconomic model to evaluate the impact of social distancing on household socio-economic variables like income, savings, consumption, and poverty. Finding reveals that the moment an individual witnessed a drop in income, then savings are then used to sustain consumption. At the same time, recover

necessitates households to save to replace the already depleted savings to the initial level pre-COVID-19.

Buheji et al. (2020) examine the degree to which the COVID-19 pandemic influences socio-economic impact on world poverty, using integrative Literature Review (LR). The study identified how difficult and challenging it is to observe social isolation or lockdown measures put in place to control the spread of the COVID-19 pandemic. The study, therefore, suggested an immediate plan to reduce the COVID-19 pandemic impact on the livelihood and socio-economic activities among low-income families.

Awofeso and Irabor (2020) examine the assessment of the Nigerian government response toward the COVID-19 pandemic impact on socio-economic conditions of the citizen, using secondary data. Findings from the study reveal a correlation between the pandemic and low socio-economic livelihood in the country. Government palliatives to reduce the negative impact of the COVID-19 pandemic are grossly considered highly futile due to poor coordination, high human rights infringements as well as insufficient fiscal policy.

Methodology

This study employed a survey research design. This research technique was used due to its suitability in the study since the study is in nature. 258 households were randomly selected and participated in this study. The questionnaire was designed and administered to 258 participants which were randomly selected using simple random sampling techniques in the study area. The questionnaire was validated by experts in economic research. The Conbarch Alpha method was used to determine the reliability of the questionnaire. 0.912 Reliability coefficient realized indicates that the questionnaire design was reliable. The study used descriptive statistics such as percentages were used to describe the socio-demographic information of respondents while the multiple regression analysis was used to test the three hypotheses with the aids of SPSS version 23 software.

The Study Area

The study area is Jos metropolis, Nigeria. It is in the northern zone of Plateau State. It lies within latitudes 9°45'00"N to 09°57'00"N and longitudes 8°48'00"E to 8°58'00"E. Jos is the administrative capital of Plateau State. The study covered parts of Jos North and Jos South Local Government Areas (LGAs). Jos North and South have a population of 429,300 and 306,716 respectively based on the 2006 National Census. Jos metropolis covers an area of 249.7km². At an altitude of 1,217m (3,993ft) above sea level, Jos enjoys a more temperate climate than much of the rest of Nigeria. The climate is the wet and dry type classified as tropical rainy climate and characterized by a mean annual rainfall of 1,250mm, peaking between July and August. The mean annual temperature is about 22°C but mean monthly values vary between 19°C in the coolest month of December and 25°C in the hottest month, April. The city of Jos is the largest settlement in Plateau State. It owes its origin to the introduction of tin mining on the Jos Plateau and railway lines linking it with Port Harcourt and Lagos, thus bringing the area into the orbit of the world economy. The tin mining led to the influx of migrants, mostly Hausas, lgbos, Yoruba's and Europeans who constitute over half of the population of the town, making it a highly cosmopolitan It shares boundaries to the West with Kaduna State, to the North with Bauchi State, to the

Southern part with Barkin- Ladi Local government Plateau State, and to the East with Riyom Local government Plateau State. Jos metropolis is a multi-cultural and multi-ethnic area and the main ethnic groups include Berom, Anaguta, and Afizere. The area has a rich cultural heritage in its diverse religious practices i.e. Christianity, Islam, African traditional religion, cultural festivals, and culinary among others. Hausa is a major language spoken by the majority of the people due to the influence of the Hausa people. Farming is the major occupation in the area and agricultural production is mostly at the subsistence level. Non-farming activities of the people in the State include mining and civil service with the majority of the government worker engaging in part-time farming.

Result Presentation

Analysis of Responses

258 (Two Hundred fifty-eight) respondents were used for the study. This involved selected respondents from Jos metropolis, Plateau State Nigeria who could read and write. The questionnaires distributed are summarized in Table 1 below

TABLE 1: Analysis of Responses from the Questionnaire

Items	No. of Respondents	Percentage (%)
Questionnaire distributed	258	100
Questionnaire retrieved	254	98.45
Un-retrieved Questionnaire	4	1.55
The questionnaire used in the analysis	250	96.90
Unable questionnaires	4	1.55

Source: Field Work, 2021

In all, 258 questionnaires were administered to the respondents of Jos metropolis, Plateau State Nigeria. From the total questionnaires distributed, 254 (98.45%) were retrieved while 4 (1.55%) were not retrieved because every effort to collect them from the respondents failed.4 (1.55%) of the retrieved questionnaires were unable because they were not scored properly by the respondents. Therefore, 250 (96.90%) of the total questionnaire were used in the analysis of this study.

Descriptive Analysis

Table 2: Socio-Demographic Variables of the Respondents.

Statement of Items	Frequency	Percentage (%)
Gender:		
Male	168	67.2
Female	82	32.8
Total	**250**	**100.0**
Educational Qualification		
SSCE	45	18.0
ND/NCE	72	28.8
HND/B.Sc	81	32.4
Postgraduate	34	13.6
Others	18	7.2
Total	**250**	**100.0**
Marital Status		
Single	69	27.6
Married	149	59.6
Divorce	32	12.8
Total	**250**	**100.0**
Age Range of Respondents		
20-30 Years	25	10.0
31-40 years	28	11.2
41-50 Years	87	34.8
51-60 Years	74	29.6
61 Years and above	36	14.4
Total	**250**	**100.0**
Occupation		
Farmers	91	36.4
Businessmen/women	66	26.4
Artisans	32	12.8
Civil Servants	59	23.6
Applicants	2	.8
Total	**250**	**100.0**

Source: Field Work, 2021

Table 2 revealed that 67.2% of the respondents were male, while 32.8% were female. This implies that the majority of the respondents were male who is the breadwinners of the family. The findings revealed that 10.0% were aged 20-30 years,11.2% were 31-40years,34.8% were 41-50years, 29.6% were 51-60 years and 14.4% were 61 years and above. This means the majority of the respondents were between 41-50 years, they are at the peak of their productive age. More so, 27.6% of the respondents are single,59.6% are married and 12.8% are divorce. This means the majority of the respondents were married and are exposed to the reality of the economy. The findings further revealed that 18.0% of the respondents had SSCE, 28.8% had ND/NCE, 32.4% had HND/B.Sc,13.6% had post-graduate degrees and 7.2% had others qualifications like adult education, trade test results, and Islamic education. The majority of the respondent had ND/ NCE and HND/B.Sc. This

implies that most of the respondents have a tertiary level of education which will help them to respond appropriately to the questionnaire. Lastly, the results revealed that 23.6% were employed as civil servants, 26.4% were businessmen/women, 12.8% were Artisans, 36.4% were farmers and 0.8 % were unemployed applicants. The implication of this is that most of the respondents were self-employed (farmers and businessmen), while very few were employed with the government (civil servants).

Test of Hypothesis

Regression was used to determine the impact of COVID-19 on household income and consumption in Jos Metropolis, Nigeria.

Hypothesis 1: COVID-19 pandemic has no significant impact on household income in Jos Metropolis, Nigeria.

Table 2: Multiple Regression analysis between COVID-19, household income, consumption, and poverty.

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.347	.028		47.979	.000
	Household income	-.170	.057	-.464	-2.986	.003
	Household consumption	-.262	.050	-.699	-5.203	.000
	Poverty	.118	.026	.293	4.460	.000

Source: Authors computation 2021(SPSS version 23)

The regression model explains that the COVID-19 pandemic has a negative relationship with household income An increase in the COVID-19 pandemic by a unit would lead to a proportionate decrease of -0.170 units in household income and vice versa.

The correlation coefficient of -46.4% indicates an average negative relationship between the COVID-

19 pandemic and household income. The P-value was 0.003 which was less than 0.05 means that the P-value is statistically significant at the 5% level. Since t-cal (-2.986) is outside our acceptance region (+/- 1.96), we, therefore, reject the null hypothesis and uphold the alternative hypothesis. That is, there is a significant impact of the COVID-19 pandemic on household income

Hypothesis 2: COVID-19 pandemic has no significant impact on household consumption in Jos Metropolis, Nigeria.

The regression result in table 3 indicated that the COVID-19 pandemic has a negative relationship with household consumption An increase in one unit of the COVID-19 pandemic would lead to a proportionate decrease of -0.262 units in household consumption and vice versa. The correlation coefficient of -69.9% indicates a strong negative relationship between the COVID-19 pandemic and household. The P-value was 0.000 which was less than 0.05 means that the P-value is statistically significant at the 5% level. Since t_{cal} (-5.203) is outside our acceptance region (+/- 1.96), therefore we reject the null hypothesis and uphold the alternative hypothesis. That is, there is a significant impact of the COVID-19 pandemic on household consumption

Hypothesis 3: COVID-19 pandemic has no significant impact on poverty in Jos Metropolis, Nigeria.

The regression result in table 3 shows that the COVID-19 pandemic has a positive relationship with poverty. An increase in one unit of COVID-19 pandemic would lead to a proportionate increase of 0. 118 units of poverty and vice versa. The correlation coefficient of 29.3% indicates a weak positive relationship between the COVID-19 pandemic and poverty. The P-value of 0.000, means that the P-value is statistically significant at a 5% level. Since t_{cal} (4.460) is outside our acceptance region (+/- 1.96), Therefore we reject the null hypothesis and uphold the alternative hypothesis. That is, there is a significant impact of the COVID-19 pandemic on poverty.

Discussion of findings

The parameter estimate showed that the COVID-19 pandemic relates negatively with household income and was found statistically significant. This is true since the lockdown in 2020 many businesses were seriously affected, individuals lost their jobs and some firms were permanently closed. This will affect the income of the household negatively.

Another serious issue is the high rate of inflation that reduces the purchasing power of the consumer. The obtained result is similar to the works of Messner (2020) which all concluded that the pandemic's impact is more significant among the low-income households and has a profound negative impact among the poor communities, especially where the population is highly dense, which can affect the social distance measure.

The parameter estimate of the COVID-19 pandemic showed that it relates negatively to household consumption and was found statistically significant. This is true because a reduction in household income entails fall household consumption. The obtained result is similar to the works of Martin, Markhvida, Hallegatte, and Walsh (2020), which all concluded that the moment an individual witnessed a drop in income, then savings are then used to sustain consumption. At the same time, recover

necessitates households to save to replace the already depleted savings to the initial level pre-COVID-19.

However, a positive and significant relationship was found to exist between the COVID-19 pandemic and poverty in Nigeria. The higher the COVID-19 pandemic, the higher the poverty level in the household. This is true since a fall in household income leads to an increase in poverty. The finding is in agreement with Buheji et al. (2020) which all concluded that it is difficult and challenging it is to observe social isolation or lockdown measures put in place to control the spread of the COVID-19 pandemic. Since COVID-19 pandemic impact on the livelihood and socio-economic activities among the low-income families.

Conclusion and Recommendations

Plateau state seem to have flattened it COVID-19 curve going by the recent case recorded by the State, with an average of one (4) of COVID-19 case for August 2021, which the State recording less 10 cases in the whole month (NCDC, 2021). However, the State government's efforts in terms of fighting

the pandemic have left much to be desire in the first wave. The State government should therefore make adequate provisions for the third wave of the pandemic, more especially as there is some approved vaccine going on for the virus presently. The study concludes that the COVID-19 pandemic had a negative and significant impact on household income and consumption in Jos metropolis, Nigeria.

Based on the findings of this study, the following recommendations were made

The COVID-19 preventive measures need to be seriously enforced to prevent the diseases from the further spread and to prevent another total luck down in the economy.

The palliative that government promise should be provided to various households to cushion the negative impact on income and consumption of households and it should be properly monitored to avert diversion.

Fighting COVID-19 pandemic is all about sacrifice in its totality and there is the need for the public to embrace the new normal of "COVID Safety First". Therefore, both government and the citizen in the State must sacrifice and follow the preventive measures religiously

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