

The Outbreak of Covid-19 Pandemic: A Discourse Analysis of Economic Impact in Africa

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Abstract

Background: The outbreak of Covid-19 pandemic has brought serious consequences on the socioeconomic conditions of many countries across the globe due to the stringent measures taken to curb its spread by governments at various levels. However, these consequences varied across regions and sectors.

Objective: This study therefore attempts to analyse the trend of Covid-19 and the economic burden caused by the pandemic on 54 African countries using the cross-sectional data of covid-19 update report of 1st and 11th November, 2020.

Method: The study employed descriptive statistical techniques as well as discourse analysis approach to analyze the impact of the pandemic on African countries.

Results: Although Africa has not been enormously affected in terms of the incidence and prevalence rates of the covid-19, the findings indicated that the pandemic has significant negative impact on various sectors of African economy notably aviation, education and health which consequently brought a serious setback in the overall growth and development in the region. Also, a strong correlation was found to exist between the number of covid-19 cases and deaths associated with the pandemic.

Conclusion: The fact that the pandemic still exists and some countries have already entered into second wave, the study recommends for additional investment in the health sector in order to sufficiently equip the isolation centers with all necessary facilities to fast-track the treatment process. Also, the study calls for rigorous commitments on the part of governments to invest massively particularly in the highly affected sectors and come up with policies for ease of doing business in the region. This will provide more job

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opportunities thereby reducing the level of poverty especially in the post covid-19 period.

Keywords: Covid-19; Pandemic; Economic Impact; Discourse Analysis; Africa

Introduction

Certainly, poor health and growing burden of diseases are among the major issues that sum up Africa's development challenges. With over 16% of World' population, Africa bears 25% of the world's disease burden with less than 1% share of global health expenditures (WHO, 2017). This has been detrimental not only on social and economic life of individuals and firms but also to rapid economic growth and development. Ill-health due to epidemiological and other causes reduces labor force participation, productivity, firms' profitability and consequently economic growth. In specific term, diseases such as HIV/AIDS, Ebola, Malaria and tuberculosis have not only swept away improvements in life expectancy and firms' performance over the years but also contributed significantly to the slow growth of African countries. This corroborated the report of the Economic Commission for Africa (ECA, 2016) which posited that countries affected by the Ebola epidemic like Guinea and Liberia have found it difficult to adjust the serious health crisis, which affected the social and production systems of the two countries. In 2014 for instance, the economic growth rates in the two countries were 1.1% and 1.7% respectively but dropped to 0.9% for each, in 2015. This was more intense in Sierra Leone where GDP growth rate was -21.5% in 2015, compared to 4.6% in 2014. This decline according to the report, stemmed from the closing down of two iron ore manufacturing plants, following the Ebola epidemic just to avoid fatality.

Recently, the outbreak of Covid-19 pandemic has also brought serious consequences on the socioeconomic conditions of many countries across the globe due to the stringent measures taken to curb its spread by governments at various levels. However, these consequences are not the same across regions and sectors. While few sectors benefited from the pandemic like pharmaceutical companies that manufacture vaccines, antibiotics, hand sanitizers, face masks, and other products required to curb the spread of the disease, many others sectors suffer disproportionately including aviation, education, health, tourism, and manufacturing companies that produce consumable goods and services. Measures such as

lockdown and travel ban have led to drastic reduction in income and productivity of these sectors at both micro and macro levels as a result of business discontinuity and supply disruptions which in turn creates serious imbalances in the governments' income-expenditure framework. This has buttressed the report on Africa by World Bank (2020) which revealed that the cost of economic downturn in the region, brought by the containment measures, will amount to over \$115 billion losses in output due to sharp fall in domestic consumption and investment.

Although African countries have made efforts to curb the spread of the virus to a relatively low number of cases compared to other parts of the world, the region is the worst-hit both on social and economic dimensions. This has pushed the continent into the worst recession, first of its kind in the last 25 years following a projected fall in economic growth by about 3.3% which may put over 40 million Africans into extreme poverty (World Bank, 2020).

Different studies have been conducted and some are still in the pipeline to explore the socioeconomic impacts of the novel corona virus on individuals, firms, countries and regions (see UNESCO, 2020; United Nations, 2020; UKAID, 2020; Nicola, et al. 2020; Ozili, 2020; and Gondwe, 2020). The fact that the pandemic still exists and some countries have already entered into second wave, any attempt to expand the horizon of knowledge on the impact of covid-19 pandemic on socioeconomic activities is worthwhile. The main objective of this study therefore is to analyse the social and economic burden caused by Covid-19 pandemic on African countries. However, the rest of the paper covers the following: method, situation report analysis, socioeconomic impact analysis on key sectors, conclusion and recommendations.

Materials and Method

The data of the study were sourced from secondary sources such as the publications of World Health Organization (WHO, 2020) update report on covid-19, International Air Transport Association (IATA, 2020), African Union and Africa Center for Disease Control (AU & Africa CDC, 2020), Human Right Watch (HRW, 2020), etc. The study employed descriptive statistical techniques as well as discourse analysis on a cross-sectional data of African covid-19 update report of 11th November, 2020 to examine the trend of the pandemic across the countries and its socioeconomic effects on

key sectors of African economies notably aviation, education, and health sectors. The study covered 54 African countries as presented in appendix 1.

Situation Analysis

The update report presented in appendix 1 showed that as at 11th November, 2020, 54 African countries recorded 1,894,701 cases of covid-19 with total deaths cases of 45,833. The table below elaborates more on the data.

Table 1

Descriptive Statistics and Correlation Analysis of Covid-19 Cases and Deaths

Descriptive Statistics					
Variables	Obs.	Mean	Std. Dev.	Minimum	Maximum
Cumulative Cases	54	35087.06	106619.9	0.0000	740254
Cumulative Deaths	54	848.7593	2868.972	0.0000	19951
Correlation Matrix					
		Cumulative Cases		Cumulative Deaths	
Cumulative Cases		1.0000		0.9726	
Cumulative Deaths		0.9726		1.0000	

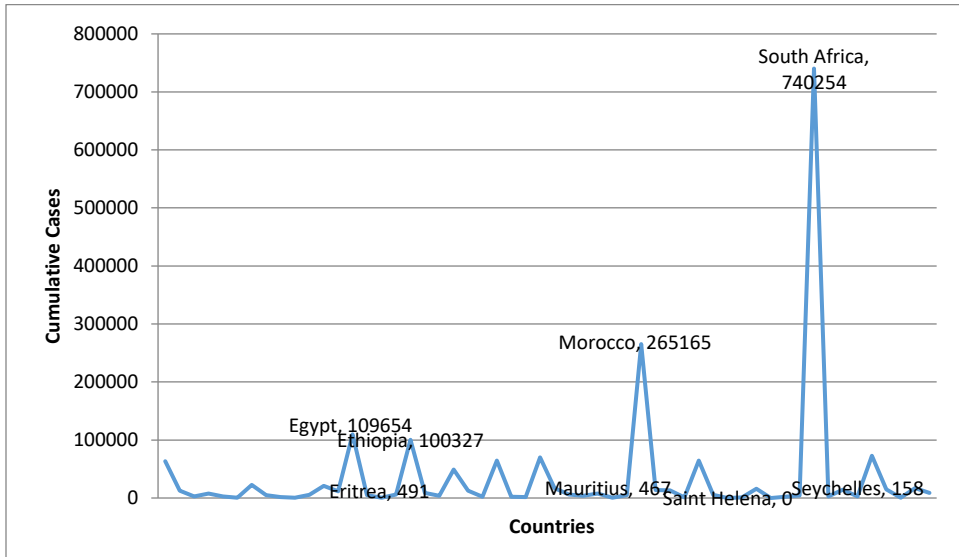
Source: Author’s computation using EViews version 9, based on the WHO update report of 11th November, 2020.

On average, table 1 above showed that each African country recorded about 35,087 of covid-19 with a standard deviation of about 106,620 cases. In addition, the cases were reported to range between 0 and 740,254. The larger value of standard deviation implies that the cases of the pandemic have skewed to only few countries as evidenced in appendix I in which only 4 out of 54 countries were reported to record more than 100,000 cases. These countries were South Africa (740,254 representing the maximum value shown in the appendix I), followed by Morocco (265165), Egypt (109654), and Ethiopia (100327). However, no case was recorded in Saint Helena since the outbreak of the pandemic as at 11th November, 2020 thereby representing the minimum value of 0 as shown in the appendix I. Seychelles recorded a total of 158 cases followed by Mauritius (467), and

Eritrea (491). These countries were further illustrated graphically as shown in figure 1 below.

Figure 1

Illustration of Countries with Higher and Lower Cases of Covid-19 in Africa

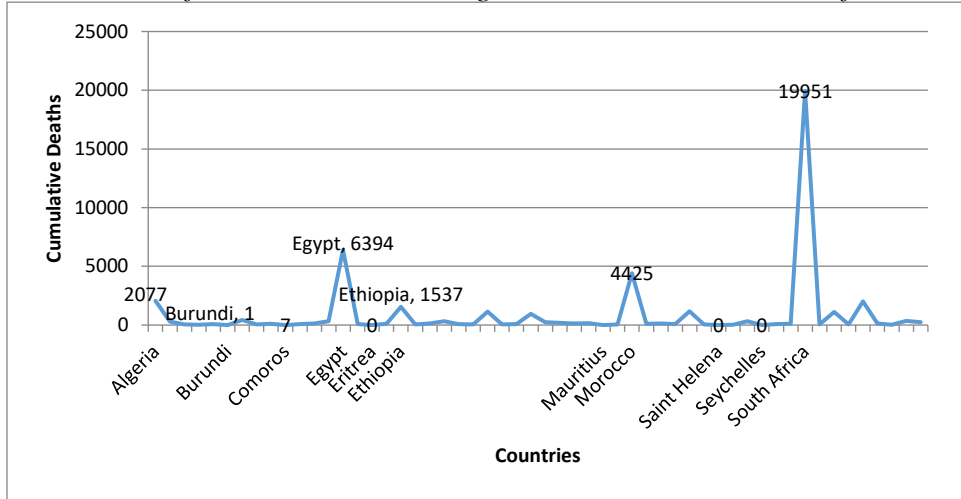


Source: Author's computation using Excel window 7, based on the WHO update report of 11th November, 2020.

From table 1 again, it was revealed that the average number of deaths from covid-19 pandemic in Africa was about 849 across the 54 countries with a standard deviation of about 2869 cases. The wide dispersion from the mean may not be unconnected with the reason mentioned earlier, which is having few countries with large cases of the pandemic. Interestingly, the maximum cases of deaths (19,951) were recorded in the country with maximum number of cases (South Africa) followed by Egypt (6394), Morocco (4425), and Algeria (2077). On the other hand, Eritrea, Saint Helena and Seychelles recorded zero death case since the outbreak of the pandemic whereas Burundi and Comoros recorded 1 and 7 cases respectively. Also, these countries were illustrated graphically as shown in figure 2 below.

Figure 2

Illustration of Countries with Higher and Lower Cases of Deaths



Source: Author’s computation using Excel window 7, based on the WHO update

Report of 11th November, 2020.

Obviously, countries with higher cases of covid-19 tend to record higher cases of deaths. This indicates the possibility of strong correlation between incidence/prevalence of the pandemic and death cases. To affirm this possibility, a correlation test was carried out and the result, as presented in the lower portion of table 1 revealed a strong correlation of about 0.97 indicating that higher number of deaths follows higher number of cases of covid-19 in any country.

Furthermore, on comparative basis, Table 2 below throws light on the reported cases and deaths associated with the novel coronavirus as at 1st November, 2020 across the African sub-regions and the countries with highest cases in each region. As can be seen, Southern Africa region recorded the highest number of covid-19 cases and deaths (809,140 and 20,884 respectively) followed by Northern Africa region (517,811 and 14,345), and Eastern Africa region with 215,923 reported cases and 3,981 number of deaths. While Western Africa region recorded a total of 190,766 cases and 2,771 deaths, the least number of cases and deaths from covid-19

in Africa was recorded in Central Africa given by 60,806 and 1,143 respectively.

Table 2

Confirmed Covid-19 Cases and Deaths across African Sub-regions

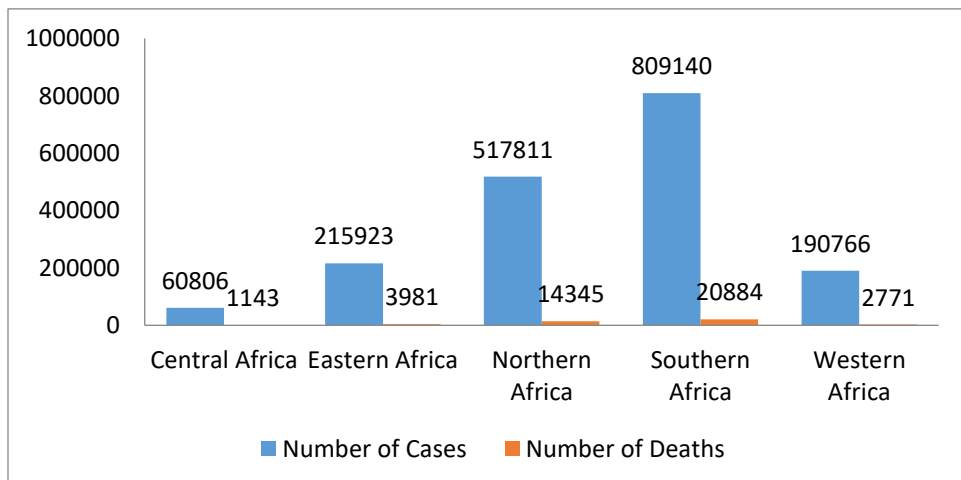
Sub-regions	Number Cases	of Number Deaths	of Countries with Higher Cases and Deaths
Central Africa	60,806	1,143	Cameroon, DR Congo & Gabon
Eastern Africa	215,923	3,981	Ethiopia, Kenya & Madagascar
Northern Africa	517,811	14,345	Morocco, Egypt & Algeria
Southern Africa	809,140	20,884	South Africa, Zambia & Namibia
Western Africa	190,766	2,771	Nigeria, Ghana & Côte d'Ivoire
Total	1,794,446	43,124	–

Source: African Union (AU) & Africa Center for Disease Control (Africa CDC), 1st November, 2020.

The above table is further analyzed graphically as shown in Figure 3 below.

Figure 3

Confirmed Covid-19 Cases and Deaths across African Sub-regions



Source: Author's computation using Excel window 7, based on the AU and Africa CDC update

Report of 1st November, 2020.

Economic Impact of the Pandemic

In addition to the loss of lives and the direct effect on individuals' health and welfare, infectious diseases also have impact on societies, economies and businesses. This has been the case with the emergence of the novel corona virus in the late 2019. Essentially, the consequences of Covid-19 pandemic are similar to the analysis of the relationship between health and welfare posited by Luft (1978) in Aguayo-Rico and Guerra-Turrubiates (2005) "A lot of people who otherwise would not be poor are, simply because they are sick; however, few people who otherwise would be healthy are sick because they are poor". This analysis is analogous to the impact of Covid-19 on socioeconomic welfare simply because many people (firms or countries) who otherwise would not experience a drain in their socioeconomic status have experience it due to the outbreak of corona virus and the measures taken to curb its spread such as lockdown and travel ban; while few people (firms or countries) who otherwise their economic status would not increase, has increased due to the outbreak of the pandemic.

Above assertion has been buttressed by various studies that have examined the effects of the Covid-19 pandemic on different sectors of the economy. According to Nicola et al. (2020), measures such as social distancing, self-isolation, movement restrictions have led to serious reduction in workforce and loss of jobs across social and economic sectors particularly manufacturing and service sectors. They further stated that the long term impacts of schools shutdown are yet to be seen as this affects total years of schooling and child cognitive development.

Income-Expenditure Dilemma

The lockdown measures adopted to mitigate the spread of covid-19 has resulted to large reduction in output as shown in table 3 above for the case of some selected African countries which can be translated into decrease in government revenue. However, while governments anticipate sharp decline in revenue, there is a growing demand for more spending particularly in health sector and the provision of welfare packages to the most affected as part of the responses to the pandemic. This is supported by a report of World Bank Group (2020) that government revenue in Sub-Saharan Africa may

drop from 17.2% to 16.4%, while government expenditure will definitely increase by about 13% in response to the pandemic. However, the decline in revenue on one hand, and increase in spending on the other, will create serious fiscal deficit in most of the African economies. Similarly, assessing the impact of covid-19 on Africa's economic development, the findings of Gondwe (2020) revealed that the region will experience an average decline in revenue by about 5% and a sharp fall in GDP by about 1.4% whereas at country level, some economies' growth may shrink by as high as 7.8%. This, according to him, is due to the decline in export particularly of primary products and the resultant losses in tax income which eventually weakened the government efforts in the provision of social services.

Although Africa has not been enormously affected in terms of the incidence and prevalence rates of the covid-19, however, being highly dependent, various sectors in the region were adversely affected. As posited by Ozili (2020), the lockdown measures taken by African economies have put them into serious economic crisis which requires well coordinated response from African governments to salvage the situation. Some of the key sectors adversely affected are highlighted as follows:

Aviation Industry

In aviation industry, the demand for flight to and from African countries has virtually stopped for several months which disconnected the region from the rest of the world. The operations of airlines such as Mauritius, Egypt, Ethiopian, Royal Morocco, Tanzania, Kenya, and South African Airways were totally halted to and from Asian and European countries. As a result, millions of jobs and revenue to governments and airline companies were lost. According to the estimates by IATA (2020), dated 13th August, 2020, loss of jobs in aviation and related industries could increase by up to 3.5 million in Africa. This is more than half of the region's 6.2 million aviation-related employment and 400,000 more than the previous estimate in April, 2020. Similarly, the total air travel in 2020 is expected to crash by over 80 million passengers trips compared to 2019. Moreover, IATA (2020) estimated that the contributions of aviation industry to Africa's GDP could fall by \$35 billion, more than the earlier estimate of \$28 billion in April 2020.

Below is a table showing country-level impact for the five major markets in Africa in terms of number of passengers, jobs at risk, and GDP.

Table 3*Country-level Impact of Covid-19 on Africa's Aviation Industry and GDP*

Country	Passengers (millions)		Jobs at Risk		GDP (US\$ Billions)	
	June	August	June	August	April	August
South Africa	-15.6	-16.6	269,000	287,700	-5.1	-5.8
Nigeria	-5.3	-5.7	139,500	149,400	-0.9	-1.1
Kenya	-3.8	-4.0	207,800	223,600	-1.6	-1.8
Rwanda	-0.47	-0.5	17,300	18,500	-0.06	-0.07
Ethiopia	-2.6	-2.8	530,400	564,100	-1.9	-2.1

Source: International Air Transport Association (IATA), 2020.

From table 3 above, it is apparent that all the countries have experienced sharp decline across the three benchmarks. It is interesting again that South Africa is the country highly affected in terms of loss of passengers and decline in economic growth. This corroborated the analysis in tables 1 and 2. The highest number of jobs at risks in Ethiopia is also not surprising being highly dependent on aviation industry which makes the country second in terms of decline in economic growth. Nigeria follows South Africa in terms of loss of passengers and it is the third and fourth in terms of number of jobs at risks and decline in economic growth respectively. This may be due to being the largest market in Africa which may influence the demand for international travel. Kenya and Rwanda assumed third and fifth position across all the metrics. The least impact in Rwanda may not be unconnected with its size of population.

4.3. Education Sector

With the outbreak of covid-19, virtually all levels of educational attainment were disrupted across African countries. Schools and research institutes were closed following the adoption of lockdown measures. This has not only brought a serious setback but also exposed the technological backwardness in African educational institutions with many disappointments to students, parents, teachers and other stakeholders. In Kenya for example, the whole of 2019-2020 academic year has been canceled following the announcement by government authorities on 10 July, 2020. This has automatically changed the average years of schooling for the students. As rightly asserted by World Bank (2020), covid-19 will

have tremendous impact on education particularly in countries with low learning outcomes, high rates of out of school children, and low ability to absorb shocks. The report further revealed that as of 24th March, 2020, over 160 countries have authorized closing of schools at different stages which affected not less than 1.5 billion children and youth. In Africa particularly, schools closure affected almost 253 million students. Most of these students are from poor background with lower chances to learn at home. In addition, their stay at home may create additional economic burden on the parents. Above all, prolonged closure of schools may create a serious knowledge-gap in the short run, and in the long run, there will be a decrease in human capital and economic opportunities (World Bank, 2020).

Health Sector

No doubt, even in developed countries, the emergence of covid-19 has overpowered the facilities in the health sector given the large number of reported cases particularly in Italy, Spain, USA, and Britain. In many African countries also, the pandemic has not only overpowered the health facilities but also exposed the failure of governments in the provision of adequate healthcare services. In Nigeria for instance, it may be surprising to hear that many people were unaware of the existence Nigeria Center for Disease Control (NCDC) before the outbreak of covid-19. In an interview with health experts in Africa by HRW (2020), poor facilities in the health sector are associated with lack of sufficient government investment, and this has affected the ability of health personnel to carry out their duties efficiently in the trying period of the pandemic.

Moreover, in an attempt to contain the spread of covid-19, the lives of many people suffering from illness associated with Non-communicable Diseases (NCDs) were lost and others' health conditions were worsened. As rightly posited by the Director General of the World Health Organization (WHO), Dr Tedros Adhanom Ghebreyesus, "Many people who need treatment for diseases like cancer, cardiovascular disease and diabetes have not been receiving the health services and medicines they need since the COVID-19 pandemic began. It's vital that countries find innovative ways to ensure that essential services for NCDs continue, even as they fight COVID-19". Following this assertion, a survey was conducted in June, 2020 on 155 countries by WHO to assess the impact of covid-19 in the provision of health services for the treatment of NCDs and the findings showed that the impact has global outlook, though low income countries, of which many are

in Africa, are highly affected. Specifically, the result revealed that treatment of NCDs particularly hypertension has been disrupted partly and totally in 83 of the studied countries. Similarly, treatments of diabetes, cancer and cardiovascular diseases were halted in 76, 65 and 48 of the total countries surveyed respectively.

Responses from Governments and Agencies

In response to contain the spread of the pandemic, various governments in African countries have increased their budget to the health sector for the construction and equipping many isolation centers, and purchase of medical supplies purposely to reduce the pressure on the existing healthcare facilities. Also, more health personnel were employed by governments to bridge the gap in the needed human resource. In Zambia for example, 400 doctors and 3000 paramedics were employed, while Kenya employed over 6000 worker all in the fight against the pandemic (Etyang, 2020). Similarly, governments such as that of Nigeria have distributed palliatives in terms of foodstuffs and financial assistance known as “Covid-19 Loan” and “Survival Fund” to the most vulnerable people and presently allocated N75 billion as National Youth Investment Fund (NYIF) under the apex bank of the country, all with the aim to ease the burden caused by the covid-19 (Central Bank of Nigeria, 2020). Again, Egypt approved and disbursed \$227 million to the Ministry of Health to provide the instant needs of the sector like medical supplies, and allowances for medical personnel (Etyang, 2020).

Furthermore, multilateral agencies like World Bank have also offered financial supports to strengthen health sector in combating the pandemic. Many countries have used the money in providing necessary facilities such as testing kits, Personal Protection Equipments (PPE), etc. Some of the countries that benefitted from this gesture include: DR Congo, Djibouti, Ethiopia, Kenya, Malawi, and Rwanda. Specifically, Malawi received \$37 million from the World Bank as a support in response to the fight of the pandemic (Etyang, 2020). In addition, individual business moguls like Dangote Group, Bilgate have contributed in no small measure in the provision of funds and health facilities for diagnosing and treatment of the virus particularly in Nigeria.

Equally, when the first case of covid-19 was recorded in Africa on 14th February 2020, the African Union (AU) responded immediately by

approving a joint continental strategy in order to support the efforts of individual countries and regional economic organizations. Specifically, the chairperson of the union, President Cyril Ramaphosa of South Africa constituted four special delegations with the mandate of mobilizing the support of international agencies purposely to complement the efforts of Africa in tackling the economic hardship brought by covid-19. Similarly, the Africa Center for Disease Control and Prevention (Africa CDC), established in 2017, was able to come up with ‘Africa Covid-19 Response Fund’ together with the Public-Private Afro-Champions Initiative, under which an initial sum of \$150 million was raised to meet the urgent needs in the fight against the pandemic. Later, over \$400 million was pooled in order to assist the most vulnerable groups in Africa (AU & Africa CDC, 2020).

Conclusion and Recommendations

This study analyzed the trend and economic impact of covid-19 pandemic on 54 African countries using the cross-sectional data of covid-19 update report of 11th November, 2020. Although Africa has not been enormously affected in terms of the incidence and prevalence rates of the covid-19, the findings based on the descriptive statistical techniques as well as discourse analysis approach, indicated that the pandemic has significant negative impact on various sectors of African economy notably aviation, education and health which consequently brought a serious setback in the overall growth and development in the region. Also, a strong correlation was found to exist between the number of covid-19 cases and deaths associated with the pandemic. Therefore, the fact that Africa recorded lower number of reported cases and deaths compared to other parts of the world particularly Europe and Asia, the pandemic should not be seen as less deadly as many people assume in the region. Moreover, the study found that emergence of covid-19 has exposed the failure of various governments in Africa in the provision of adequate healthcare services for all as enshrined in the WHO constitution which states that “... the enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, political belief, economic or social condition”. Although it is difficult to believe that equal health status is attainable in the same way that equal political freedom may be, health should be seen as so fundamental that constraints to its full attainment must be minimized.

In view of the above, the study offered some recommendations as follows:

- i. The fact that the pandemic still exists and some countries have already entered into second wave, there is a need for additional investment in the health sector in order to sufficiently equip the isolation centers with all necessary facilities to fast-track the testing process. To achieve this, African countries have to adhere to the 'Abuja Declaration Summit' of 2001 which calls for all governments in the region to allocate at least 15% of their yearly budget to health sector.
- ii. Also, the study calls for rigorous commitments on the part of governments to invest massively particularly in the highly affected sectors and come up with policies for ease of doing business in the region. Here, implementing the African Continental Free Trade Area (AfCFTA) will immensely contribute not only in diversifying the economies but also provide more job opportunities thereby reducing the level of poverty especially in the post covid-19 period.
- iii. Similarly, the fact that many people suffering from NCDs were made more vulnerable during the pandemic, there is a need for governments to identify innovative means of providing necessary healthcare to these categories of individuals as the fight for the pandemic continues.
- iv. Finally, given that covid-19 is a global phenomenon and no country is completely safe from it, there is a need for more enlightenment of the African people so that their view of covid-19 as a less deadly virus should be cleared.

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Appendices

Appendix 1

Covid-19 Update on Africa as at 11th November, 2020.

S/N	Country	New Cases	Cumulative Cases	New Deaths	Cumulative Deaths
1	Algeria	753	63446	15	2077
2	Angola	136	12816	0	308
3	Benin	63	2844	0	43
4	Botswana	0	7835	0	27
5	Burkina Faso	1	2582	0	67
6	Burundi	5	620	0	1
7	Cameroon	110	22490	2	433
8	Central African Republic	0	4884	0	62
9	Chad	10	1561	0	99
10	Comoros	0	563	0	7
11	Congo	0	5379	0	92
12	Côte d'Ivoire	15	20847	0	126
13	Democratic Republic of the Congo	34	11641	0	316
14	Egypt	232	109654	14	6394
15	Equatorial Guinea	10	5102	0	85
16	Eritrea	0	491	0	0
17	Eswatini (Swaziland)	11	6024	0	117
18	Ethiopia	345	100327	7	1537
19	Gabon	0	9029	0	57
20	Gambia	1	3685	1	122
21	Ghana	100	49302	0	320
22	Guinea	33	12459	0	74

S/N	Country	New Cases	Cumulative Cases	New Deaths	Cumulative Deaths
23	Guinea-Bissau	0	2414	0	42
24	Kenya	1344	64588	24	1154
25	Lesotho	0	1967	0	44
26	Liberia	13	1461	0	82
27	Libya	970	70010	13	957
28	Madagascar	0	17233	0	249
29	Malawi	0	5953	0	185
30	Mali	39	3745	0	137
31	Mauritania	28	7848	0	165
32	Mauritius	12	467	0	10
33	Mayotte	0	4815	0	46
34	Morocco	5214	265165	69	4425
35	Mozambique	69	13892	0	99
36	Namibia	13	13253	0	134
37	Niger	13	1256	0	69
38	Nigeria	152	64336	2	1160
39	Rwanda	20	5262	2	40
40	Saint Helena	0	0	0	0
41	Sao Tome and Principe	0	962	0	16
42	Senegal	9	15720	0	326
43	Seychelles	4	158	0	0
44	Sierra Leone	0	2383	0	74
45	Somalia	0	4301	0	107
46	South Africa	1729	740254	106	19951
47	South Sudan	0	2960	0	59
48	Sudan	45	14346	0	1116
49	Togo	42	2558	0	57
50	Tunisia	1424	72993	86	2006

S/N	Country	New Cases	Cumulative Cases	New Deaths	Cumulative Deaths
51	Uganda	130	14704	0	133
52	Tanzania	0	509	0	21
53	Zambia	26	16997	1	350
54	Zimbabwe	49	8610	1	255
	All African Countries	13204	1894701	343	45833

Source: World Health Organization Covid-19 Update. Available at <https://covid19.who.int/table>.

Appendix II

Descriptive Statistics of the Data

	NEW_CASES	CUMULATIVE_CASES	NEW_DEATHS	CUMULATIVE_DEATHS
Mean	244.5185	35087.06	6.351852	848.7593
Median	13.00000	5988.500	0.000000	103.0000
Maximum	5214.000	740254.0	106.0000	19951.00
Minimum	0.000000	0.000000	0.000000	0.000000
Std. Dev.	783.8458	106619.9	20.57857	2868.972
Skewness	5.099665	5.697026	3.795142	5.784153
Kurtosis	31.50129	37.21408	16.55381	38.10102
Jarque-Bera	2061.787	2925.962	542.9659	3073.291
Probability	0.000000	0.000000	0.000000	0.000000
Sum	13204.00	1894701.	343.0000	45833.00
Sum Sq. Dev.	32563951	6.02E+11	22444.31	4.36E+08
Observations	54	54	54	54

Appendix III

Correlation Matrix

	CUMULATIVE_CASES	CUMULATIVE_DEATHS
CUMULATIVE_CASES	1.000000	0.972565
CUMULATIVE_DEATHS	0.972565	1.000000
