Health Performance and COVID19: Lessons for Nigeria

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ABSTRACT

This study examines the effect of the health sector performance globally on the management of COVID-19. This study was carried out in order to seek a way of curbing the negative spread and death causality from the Corona virus 2019 (COVID-19). The research design used for this study is the expost-facto research design and secondary data was used which was gotten from 85 countries. The variables examined on which data were gotten comprises of COVID-19 rate of infection and death rate as dependent variables and the health sector independent rating as the independent variable. The analysis was carried out with the simple regression model and ANOVA significance test of 5%.The result reveals that health performance has a low inverse impact on COVID-19 infection rate. It also reveals that health performance has a low positive impact on COVID-19 death rate. In conclusion, health performance does not have a significant effect on COVID-19 infection rate. It was recommended that in addition to the reliance on the health sector, other measures such as non-pharmaceutical processes be explored to curb COVID-19 spread and death casualty and that more funds should be apportioned to the health sector in Nigeria to improve the rating of the health sector in the country.

Keywords*: COVID-19, Health Sector, Non-Pharmaceutical processes, Pandemic*
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Introduction

The 'Corona virus disease 2019' termed as COVID-19 belongs to the family of virus known as Corona virus which is responsible for respiratory disease such as pneumonia, common cold etc. (Hafeez, Ahmad, Siddqui, Ahmad & Mishra, 2020). Discovery of COVID-19 is traced to the country of China in the year 2019 and has gone across the globe which is classified as a global pandemic (Docea, *et al*, 2020). The rapid spread of this virus has led to drastic public health measures across various countries in the globe (Tsamakis *et al*, 2020). Singhal (2020) states that new facts about the virus is still been observed to understand the features of COVID-19 better. The virus infection is gotten from individual to individualvia respiratory droplets from carriers of the virus still at the infectious state and takes between two to fourteen days to manifest with visible signs such as fever, dry cough, shortness of breath etc. (Tsamakis *et al*, 2020). Between January to June, 2020, the virus has impacted approximately two hundred and ten countries and about 8.86 million people has been infected by the virus (Elfein, 2020). Pandemic disease spread has been identified to put pressure on the health sector facilities and also on health care professionals (Chong et al, 2004; Goulia, Mantas, Dimitroula, Mantis and Hyphantis, 2010). Hence this paper seeks to examine how the health sector performance affects the management of Corona virus 2019 spread. The primary aim of this study is therefore to determine the level of effect of the health sector performance on the management of Corona virus 2019in Nigeria. In order to achieve this, the main objective of this study, the following secondary objectives were formed which are:

i. To examine the level of health sector performance on the rate of spread of COVID-19; &
ii. To assess the level of the health sector performance on the rate of COVID-19 deaths.

The following research questions were posed in a bid to achieve the secondary objectives of this study and they are:

i. How does the level of health sector performance affect the spread of COVID-19?
ii. To what extent does the health sector performance affect the rate of COVID-19 deaths?

The breakdown of subsequent sections of this study is structured as follows; literature review which contains a brief conceptual review of the key variables in this study, the review of theories on which this study is built on and the review of extant literature; the methodology employed in carrying out this study; result and discussion of findings, conclusion based on the findings and recommendations to policymakers.

Corona Virus 2019 which is shortened to COVID-19 is a new strain of the Corona Viruses such as the severe acute respiratory syndrome Corona-virus 2 (SARS-CoV-2), middle east respiratory syndrome (MERS) etc. which is responsible for pneumonia and other respiratory diseases (Adegboye, Adekunle & Gayawan, 2020). It was first traced to a seafood market in the province of Wuhan in China in December, 2019 (Li, Guan, Wu, Wang, Zhou & Tang, 2020; Zhu, Zhang, Wang, Li, Yang & Song, 2020). Ebeneso and Otu (2020) pointed out that transmission is slow in Nigeria compared to similar countries. This they attributed to the actions of the federal government of Nigeria reaction to confirmation of COVID-19 infection been officially reported in Nigeria. Actions taken by the federal government in Nigeria includes a ban initially on travel to 15 countries with higher rates of COVID-19 infection, ban on schools and on all social gatherings before the total lock down. The COVID-19 is a rapid infectious disease that can gotten directly or indirectly from an infected person through the transmission of droplets from such a person to a non-infected person's nose, eye, mouth etc. (Chen et al, 2020; He, Tang & Rong, 2020).

Health Sector Performance

The health sector performance is measured by the health care index rate which is a score of the quality of health care system of a country which is derived based on the availability of health care professionals, health equipment, cost of accessing health facilities etc. The higher the quality of the health care system, the higher the rating (Adamovic, 2020).

Theoretical Review

The theory that underpins this study is the theory of public budgeting. The theory of budgeting is aimed at explaining how and why government spend the way they do (Gibran & Sekwat, 2009). Koven (1999) explains that budgets reflect the ideology and perception and focus of the government. Gibran and Sekwat (2009) further explains budget as playing a dual role which includes communicating the government intention and as a means of guiding and controlling the government's intention. Lewis (1997) states that budget is significant as it shapes the political and ideological forces driving the activities of the government. Rubin (1994) opined that budgets were created to manage cost and drive efficiency on the utilization of funds available to the government. Hyde (2002) explains that budgets were aimed at expenditure rather than explaining the basis for which this expenditure were incurred.

Hence, this study is aimed at providing a basis for increasing government allocation to the health sector. A review of the 2016 approved budget of the federal republic of Nigeria shows that about 4% of the state resources was allocated to the health sector this shows the low interest of the government in the health industry. Thus this study is aimed at providing a rationale for the increase of funds and allocation to the health sector of Nigeria.

Empirical Review

Adegboye, Adekunle and Gayawan (2020) carried out a study in Nigeria with the aim of understanding the dynamics of the transmission of COVID19 within the first 45days of its identification in Nigeria. They adopted an expost factor research design and discovered that within the first 45 days, based on the officially announced detected cases, it was mostly transmitted from importation from other countries than locally transmitted.

In another study, undertaken by Adhikari *et al* (2020), where they sought to understand COVID19 and identifying ways to curb its spread. The study was carried out using a qualitative research design. They found out that the origin of the virus is linked to the province of Wuhan China, its visible signs such as fever, dry cough, pneumonia, headache,

hemoptysis etc. Its spread is minimized through the use of masks, hand hygiene practice, case detection and contact tracing, quarantines etc.

Also, Cirrincione *et al* (2020) carried out a study which also adopted the qualitative research design to investigate ways in preventing the spread of COVID19. They discovered that environmental measures and protective measures should be adopted to curb the spread of the virus.

Similarly, Hafeez, Ahmad, Siddqui, Ahmad and Mishra (2020) undertook a study with the aim of describing the features of COVID-19 using a qualitative research design also. It was found out from their study that Covid-19 infection presents various symptoms and new discovery on it are made with the passage of time. Some of it symptoms found out from patients include fever, cough, sore throat, difficulty in breathing, tiredness and malaise etc.

Mabueze, Dachollom and Onwubuya (2020) also carried out a study in Nigeria using a quantitative research design to identify on how to curb the spread of Corona Virus. They discovered that a combination of non-pharmaceutical approach which includes quarantine, isolation and public health education had a significant effect in curbing the spread of the virus within the first 100days of infection in a geographical territory.

In the same direction, Mustapha, Adedokun and Abdullahi (2020) undertook a study in Nigeria also using a qualitative research design with the aim of assessing the health sector capability to handle infectious disease spread in Nigeria. Their study revealed that the Nigerian health sector will be able to handle the spread of COVID19 through the Nigerian center for disease control (NCDC).

In another clime, Tsamakis *et al* (2020) carried out a study in Greece using a qualitative research design to examine the effect of COVID19 on healthcare workers. It was discovered that it has increased psychological burden on workers in the health care industry.

Literature Gap

Based on extant literature review, it shows that existing studies examining the relationship between health and COVID-19 are mostly done qualitatively without empirical backings thus findings from these studies are subject to the bias of authors. Also from existing literature even among those carried out empirically which are quite similar to this study, their findings were limited to geographical locations in which their studies were conducted. Based on these gaps identified, this study was carried out in order to get empirical backing to it findings with data gotten across various countries over the globe and also to be able to better generalize the results gotten from this study.

Methodology

To attain the secondary objectives of this study, the below hypotheses stated in their null form were postulated:

I. H_0: Health performance does not have a significant effect on the spread of COVID19;&

ii. H_0: Health performance does not have a significant effect on the death causality rate from COVID19.

The ex-post facto research design was adopted in this study. This was used as the study relied on data of events that have already taken place. In this regard, secondary data on the variables (health care index, COVID19 infection and COVID19 death rate) for 85 countries were extracted and a simple linear regression was used in testing the hypotheses. 5% level of significance ANOVA was utilized to analyze the significance of the model. The simple linear regression model was adopted in order to determine the relationship and also the degree of association or level of effect of the predictor variable (health performance) on the predicted variables (COVID19 infection and death rates). Hence, it is represented as:

$Y=f(X)$

COVID19 = f (Health Performance).

Mathematically, this can be written as shown below:

$INF = \beta_0+\beta_1 HP+ e$

$DR = \beta_0+\beta_1 HP + e$

Where

INF =COVID19 Infection rate (Dependent Variable)

DR =COVID19 Death rate (Dependent Variable)

β_0 = Intercept where independent variables are zero

$\beta_1 HP$= Health Performance

e = error term

Decision rule:

If the computed co-efficient is higher than the significant level of 5%, (H_0) is to be retained and

(H_1) is to be rejected.
But if the computed co-efficient of is lower than the significant level of 5%, (H_0) is to be rejected and (H_1) is to be retained.

Data Analysis and Discussion of Findings
Data analyzed was gotten from 85 countries which comprised of the health sector performance rating, the number of infections and death from COVID-19 as at June 26, 2020. The result is as presented in the subsequent sections.

Test of Hypotheses
Hypothesis One
H_0: Health performance does not have a significant effect on the spread of COVID19.

Table 1. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.044[a]	.002	-.010	312741.17059

a. Predictors: (Constant), Health Care Index

Table 1 reveals the existence of a very low positive association between the health sector performance and the spread of COVID-19 which is represented as 4.4%. It also shows that there is a very low inverse effect on the health performance on the spread of COVID-19 which is shown as -1%.

Table 2. ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	15450540316.789	1	15450540316.789	.158	.692[b]
	Residual	8117984301665.962	83	97807039779.108		
	Total	8133434841982.751	84			

a. Dependent Variable: COVID19 Infection

b. Predictors: (Constant), Health Care Index

Table 2 shows the computed value as 0.692 which is higher than the set p-value of this study of 0.005 hence, we are to reject the alternate (H_1) hypothesis and retain the null(H_0) hypothesis which states that 'health performance does not have a significant effect on the spread of COVID19'.

Table 3. Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	30407.654	201861.108		.151	.881
	Health Care Index	1245.507	3133.715	.044	.397	.692

a. Dependent Variable: COVID19 Infection

Table 3 reveals the value of the integers of the model that was used in testing hypothesis one. It reveals that the value of the intercept and the independent variable are positive.

Test of Hypothesis Two

H_0: Health performance does not have a significant effect on the death causality rate from COVID19.

Table 4. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.235[a]	.055	.044	3.72542

a. Predictors: (Constant), Health Care Index

Table 4 reveals a low positive association between the health performance and the death causality rate from COVID-19. This is shown as 23.5% also, the result reveals that there is a low positive effect of health performance on the death causality rate from COVID-19 this is shown as 4.4%

Table 5. ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	67.236	1	67.236	4.845	.031[b]
	Residual	1151.937	83	13.879		
	Total	1219.173	84			

a. Dependent Variable: Death Rate

b. Predictors: (Constant), Health Care Index

Table 5 reveals the computed value as 0.031 which is lower than the set p-value of this study at 0.05. Hence, the null (H_0) hypothesis is rejected and the alternate (H_1) hypothesis is to be retained which states that 'health performance does have a significant effect on the death causality rate from COVID19'.

Table 6. Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1.103	2.405		-.459	.648
	Health Care Index	.082	.037	.235	2.201	.031

a. Dependent Variable: Death Rate

Table 6 shows the value of the integers that was used in the model for testing the second hypothesis. It shows that the intercept value is negative while the integer for the independent variable is positive.

Discussion and Policy Implication of Findings

Research Question One: How does health sector performance affect the spread of COVID-19?

Table 1 reveals a very low positive association between the health sector performance alongside the spread of COVID19. It also reveals a very low inverse effect of the health sector performance on the infection rate of COVID-19 which suggests that the better the health sector structure and facilities, the less likely the spread of COVID-19 in such climes and thus the need for government to channel more funds to the development of the health sector in Nigeria in line with the theory of public budgeting. This result also shows a rationale for the channeling of more funds into the health sector. However, the study reveals that this nota significant technique in curbing the infection rate of COVID-

19 which is in line with the findings of (Cirrincione et al, 2020) who opined that environmental measures are effective in curbing the spread of COVID-19.

Research Question Two: To what extent does the health sector performance affect the rate of COVID-19 deaths?

Table 4highlights a low positive association between the health sector performance with the rate of COVID19 deaths. It also shows that the effect of the health care performance on the level of COVID-19 deaths is significant which means that the better the health sector structure and facilities, the more likely that such climes will experience a COVID-19 death. This is explained in tangent with the findings of (Tsamakis *et al,* 2020) who stated that COVID-19 has led to increased pressure on health facilities and professionals thus climes where the health facilities are sophisticated encourages more patients' consultation which explains for the more official death rate as reported from such climes due to the reliance on the health sector. Also, the study reveals that the health performance has a significant influence on the rate of COVID-19 death rate.

Conclusion

The major aim of this study was set to examine the level of effect of the health sector performance on the management of COVID-19. It revealed that COVID-19 spread is not dependent on the health sector performance. On the other hand, with regard to deaths from COVID-19 which significantly depends on the health sector performance in a very minute way, overall, it is safe to conclude that for an effective COVID-19 management the health sector alone will not provide for the effective management of the virus but other measures beyond relying on the health sector is needed.

Recommendations

From the study and based on the findings, it is recommended that:

i. To curb the rate of infection of COVID-19, funds should be invested not just in the health sector alone but also into medical research as the finding from this study shows that investment in the health sector with a bid to curbing the virus spread might not yield the significant results needed;
ii. In order to curb the death rate of COVID-19 other traditional medical procedures should be explored in helping infected persons to recover;&
iii. The government should ensure that adequate investment be made in the health sector performance even though it won't significantly curb the spread but it will contribute to the curbing of the rate of infections from the virus.

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