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Coronavirus (COVID-19) in Nigeria: Survival rate

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ABSTRACT

The novel coronavirus is a new disease threatening the population size and economic activities across the world. Due to the poverty rate in Africa, as well as poor access to quality health care, inadequate medical staff and poor technology, Africa has been predicted to be one of the most severely affected continents in the world by COVID-19. The objective of this study was to examine the survival rate of COVID-19 patients in Nigeria using the Autoregressive Integrated Moving Average (ARIMA) forecasting approach. The source of the data used for this study was the secondary data obtained from the daily publication/report of the Nigeria Centre for Disease Control (NCDC) from 28th February 2020 to 30th June 2020. The mean daily survival rate of COVID-19 patients was found to be 27.5% with a median survival rate of 25.4% which is below 50%. Also, the ARIMA (0, 1, 1) was identified to be appropriate for predicting the survival rate of COVID-19 patients in Nigeria within the observed period. Further findings showed that little variation exists between the predicted and actual survival rate of COVID19 for June 2020 which indicates that the obtained ARIMA model (0, 1, 1) was adequate for the estimation of the survival rate of COVID-19 in Nigeria. Based on the findings of the study, the need for the Nigerian government to explore effective treatment strategies both internationally and locally to improve the survival rate of patients with the disease was strongly recommended. Also, the need for the government to encourage local manufacturing of Personal Protective Equipment (PPE) such as garment, which is expected to help health workers effectively manage affected persons without being infected at the front line was recommended.

Introduction

The coronavirus belongs to a family of viruses that is responsible for various symptoms such as pneumonia, fever, difficulty breathing, and lung infection [1]. These viruses are known to be common in animals around the world with very few

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cases known to affect humans. The World Health Organization was notified about a possible emergence of a novel coronavirus infectious disease in Wuhan, Hubei Province, China in December 2019. The virus was thereafter named COVID-19. The epidemic spread to 19 countries with 11,791 confirmed cases and 213 deaths as of 31/01/2020 which prompted the World Health Organization (WHO) to declare it a Public Health Emergency of International Importance. However, due to the widespread of the virus from China to other countries, the COVID-19 virus was declared a pandemic on 11/03/ 2020 [2]. The first case of the virus in Nigeria was announced by the Nigeria Centre for Disease Control (NCDC) on the 28/02/2020. As at 30/05/2020, the total global cases of the pandemic was 5,968,693 confirmed cases with 365,796 deaths, the United States of America recorded 1,749,846 confirmed cases with 102,900 deaths while Nigeria recorded 9855 confirmed cases and 273 deaths attributed to the pandemic.

Factors such as access to quality healthcare, inadequate medical personnel, poor technology, and high rate of poverty have been attributed to the prediction that Africa will be the worst impact from the effect of the pandemic. However, fear and anxiety have been identified as a powerful emotion that can be associated with overwhelming reports of the COVID-19 pandemic through social, electronic and print media. Considerable anxiety is natural and promotes preventive and protective behaviour [3]. But at the peak of the pandemic situation, people with persistent anxiety can panic and are more likely to make mistakes that lead to irrational decisions and behaviour. It should be noted that such fears have generated stigmatization against those with likely symptoms of the pandemic especially in developing countries like Nigeria. In some health facilities in Nigeria, a lot of patients have been denied access to healthcare and this has led to several avoidable deaths recorded during the current pandemic period. In the light of the pandemic challenge faced by the world, it was observed that most of the related studies focused more on the assessment and estimation of the confirmed cases and mortality of the COVID-19 while little or no study considered the survival rate of the COVID-19 patients. Assessing the survival rate of COVID-19 patients is important because the outcome of the study can be used to examine the quality or effectiveness of treatment rendered in managing the pandemic in Nigeria or the world in general. Hence, the need for the present study to examine the survival rate of the novel Coronavirus (COVID-19) in Nigeria.

Literature review

The author [4] considered a holistic picture of the current research in response to the outbreak of COVID-19. Their results showed that numerous studies on the epidemiology, causes, clinical manifestation and diagnosis, as well as prevention and control of the novel coronavirus, have been published. They noted that most studies reviewed have focused on the epidemiology and potential causes. While studies exploring prevention and control measures began to increase gradually. It has been observed that most government agencies around the world have quickly incorporated recent scientific discoveries into public policy at the community, regional and national levels to slow and/or prevent the spread of COVID-19.

The author [5] stated that as of 18th March 2020 about 46 out of the 47 World Health Organization (WHO) member states from 56 African countries have recorded more than 2400 cases of COVID-19, with South Africa leading with more than 700 cases. Egypt has the second highest with more than 400 cases and more than 20 deaths, followed by Algeria with more than 260 confirmed cases and more than 19 deaths, while Sudan has the lowest record of one death in the 2 cases reported within this period.

A study by Adegboye et al. [2] examined the preliminary epidemiological analysis of the first 45 days of the COVID-19 outbreak in Nigeria. The study estimated early transferability through time-varying reproductive numbers using the Bayesian method, which takes into account uncertainties in the distribution of the serial interval. In this case, they took into account the time interval between the appearance of symptoms in an infected person and the infector and were further adjusted for importing the disease. It was found that 318 confirmed cases and 10 virus-related deaths were recorded in Nigeria were recorded in Nigeria as of April 11, 2020. The study found that on day 45, the exponential growth rate was 0.07 with a doubling time of 9.84 days.

In their study, [6] considered estimating the serial interval of the novel coronavirus from information obtained from 28 infectors – *infectee* pairs. The study employed the Bayesian approach with the doubly interval-censored likelihood to obtain the estimated serial interval. The outcome of the study found an estimated median serial interval of 4 days. This result shows that the serial interval of the new coronavirus is close to or shorter than its mean incubation time.

A study by Pinter et al. [7] noted that machine learning can be used to offer a solution to a challenging problem like COVID-19 by improving existing predictive models, identifying vulnerable groups, diagnosing early, driving drug delivery, assessing the likelihood, and developing the problem into integrated systems for Spatial-temporal prediction, assessment of the risk of infection, further development of reliable biomedical knowledge graphs and data mining of social networks. The authors noted that due to the novelty of the COVID19, the lack of quality data has been attributed to the inaccuracy of many machine learning models in predicting the outbreak and mortality rate in many nations. However, the potency of machine learning-based model relies on choosing the right model according to the context and the relevant assumptions. In support of the argument by Pinter et al. [7], author [8] speaking on employing artificial intelligence (AI) in the fight against the COVID-19 pandemic, he explained that the lack of adequate and unbiased time series data has hindered the use of artificial intelligence in providing a solution to the fight against the COVID-19. However, the growing number of international contributions for more diagnostic testing and the use of other analytical tools should be encouraged for providing policy-makers with inferences that will help in the effective management of the pandemic and reducing its cost in human lives and economic damage.

Also, [3] examining the anxiety and fear of being infected among healthcare workers during the pandemic situation observed that most dental practitioners across the globe are aware of the pandemic. But a high level of fears exists while providing medical services due to the COVID-19. This situation has led to a number of the practitioners to either modify their services according to the recommended guidelines to emergency treatment only or closed down practices for an uncertain period.

Materials and methodology

Data collection

The source of the data used for this study was the secondary data obtained from the daily publication/report of the Nigeria Centre for Disease Control (NCDC) from 28th February 2020 to 30th June 2020.

Method of data analysis

The Autoregressive Integrated Moving Average (ARIMA) approach has been identified as a useful tool for estimating and predicting the epidemic trend of diseases such as the COVID-19 pandemic. A few months after COVID-19 was declared a pandemic, several publications have contributed to the body of knowledge in trying to determine the trend of the COVID-2019 pandemic using different approaches [6,9–13].

One of the forecasting approaches used in some literature was the Autoregressive Integrated Moving Average (ARIMA) model [11-14]. The ARIMA model could be considered as one of the most widely used prediction models for epidemic time series [14]. It is often used in non-stationary time series to capture the linear trend of an epidemic or disease. In particular, it is possible to predict a certain time series taking into account its lags. This can be achieved by taking into account the previous values of the time series and the forecast errors. However, the choice of the ARIMA forecasting approach in the present study is because the ARIMA model does not account for noise and the sensitivity of the model in identifying outliers in the data. The ARIMA model is known to work effectively for relatively short series especially when the number of observation is not sufficient to apply more flexible methods. The COVID-19 pandemic is novel and lack of sufficient time-series data on COVID-19 cases across the globe has hindered the use of other approaches such as artificial intelligence and machine learning. Hence, the reason for the choice of the ARIMA model for the present study. Also, the ARIMA model requires only the prior data of a time series to generalize the forecast due to the strict statistical approach involved in building the model [15]. This indicates that the ARIMA model increases the forecast accuracy while keeping the number of parameters to a minimum. One disadvantage of using the ARIMA model is the ability to identify an appropriate ARIMA model for the series of interest.

ARIMA models are also known as Box-Jenkins models which require historical chronological data of the underlying variables. The time-series approach involves three stages, namely the process of identifying the model, estimating the parameters, and verifying the model. At the model identification stage, the data series is determined if the series is stationary before the development of the Box-Jenkins model or the ARIMA model. A stationary series in the Box-Jenkins model will have a constant mean, a constant variance, and a constant autocorrelation. For a non-stationary series, a differentiation on the non-stationary series one or more times will be made to achieve stationary.

Model identification

The order (the p and q) of the autoregressive and moving average terms can be identified when the series has been tested for stationarity. The tools employed for determining the order of the model are the Autocorrelation Function (ACF) and the Partial Autocorrelation Function (PACF).

The procedure used to identify the terms of the autoregressive or moving average models is given below; a. An ACF with a steady decline and a PACF which cut off suddenly after p lags indicates an autoregressive process at lag p, AR(p). b. An ACF that cuts off suddenly after q lags and a PACF with steady decline indicates a moving average process at lag q, MA(q).

Also, when both the ACF and PACF have large spikes that are gradually becoming extinct, it indicates that there are both autoregressive and moving average processes.

In the present study, the Auto ARIMA approach was used to determine the appropriate ARIMA model for the study. The auto ARIMA function uses the generated AIC and BIC to determine the best combination of parameters for the model. The AIC (Akaike Information Criterion) and BIC (Bayesian Information Criterion) values are estimators for comparing the models. The lower these values, the better the model.

Suppose we consider the following ARIMA model define by [16] as:

$$Y_t = \alpha_1 Y_{t-1} + \alpha_2 Y_{t-2} + \cdots + \alpha_p Y_{t-p} + \varepsilon + \beta_1 \varepsilon_{t-1} + \beta_2 \varepsilon_{t-2} + \cdots + \beta_q \varepsilon_{t-q} \tag{1}$$

Eq. (1) can also be expressed as:

$$\alpha(L) Y_t = \beta(L) \varepsilon_t \tag{2}$$

where,

L is the Log operator, $LY_t = Y_{t-1}$ and $L^2 Y_t = Y_{t-2}$

$$\alpha(L) = 1 - \alpha_1 L - \alpha_2 L^2 - \cdots - \alpha_p L^p \quad (3)$$

$$\beta(L) = 1 - \beta_1 L - \beta_2 L^2 - \cdots - \beta_q L^q \quad (4)$$

The degree of homogeneity d is determined in the identification process while is the response variable representing the stationary series. However, the model parameters are estimated using the least-squares method.

The response variable in this study is the daily survival rate of COVID-19 confirmed cases in Nigeria which was computed using the formula:

$$\text{SurvivalRate} = \text{NumberofDischargedPatients}/\text{Totalnumberofactivecases} \quad (5)$$

The required data to compute Eq. (5) was obtained from the daily report of the Nigeria Centre for Disease Control (NCDC) from 28th February 2020 to 30th June 2020 and presented in Table 1. The report showed that the first confirmed case of COVID-19 in Nigeria was 28th February 2020.

Data analysis and result

Descriptive analysis of the survival rate of COVID-19 patients in Nigeria

The result presented in Table 2 shows the descriptive analysis of the survival rate of COVID-19 patients in Nigeria from 28/02/2020 to 30/06/2020.

The result obtained in Table 2 found a daily mean survival rate of 27.5% with a median of 25.4% and a coefficient of variation of 85.41. The Skewness was found to be 0.56 while the Kurtosis was -0.37. The low mean and median survival rate can be attributed to the non-existence of an approved vaccine or treatment procedure for the pandemic.

Testing the survival rate for stationarity

A test of stationarity was carried out as required for the ARIMA model using the Augmented Dickey-Fuller (ADF) test.

H_{00}: Series has a unit root (Non-Stationarity)

Versus

H_{01}: Series has no unit root (Stationarity)

The result of the unit root test on the variable using the Augmented Dickey-Fuller test statistic obtained in Table 3 found that the series has no unit root and stationary overtime at integration order of zero (0) since the test statistic value has a more negative value than the critical values and p-value falling on the rejection region assuming a 95% confidence level. This result implies that the series has no unit root and can be used to make a forecast for future behaviour of the process.

The result of the auto arima function for the survival rate of COVID-19 patients in Nigeria

The auto ARIMA function in R software was employed as discussed in the methodology to identify the appropriate ARIMA model for forecasting the Survival rate of COVID-19 patients in Nigeria using data from 28/02/2020 (the official date of report of the first confirmed case of COVID19 in Nigeria) to 31/05/2020 (which comprises of 76% of the total data set) while data from 01/06/2020 to 30/06/2020 (which comprises of 24% of the total data set) was used to verify the adequacy of the obtained ARIMA model for the estimation of survival rate of COVID19 patients in Nigeria.

The result of the auto ARIMA function was obtained as:

Series: Survival_Rate

ARIMA(0,1,1)

The result obtained in Fig. 1 shows that the distribution of the survival rate of COVID19 patients in Nigeria from 28/02/2020 to 31/05/2020 has a random increasing trend from the date of the first confirmed case of COVID-19 in Nigeria.

The auto ARIMA function presented in Table 4 found that ARIMA (0, 1, 1) will be best for forecasting the survival rate of COVID-19 patients in Nigeria within the observed period. The model found a log-likelihood value of 24.91, AIC value of -45.82, AICc value of -45.69, and BIC value of -40.75.

The result in Table 5 showed that by 01/06/2020 and 30/06/2020 the survival rate of COVID-19 patients will be about 38.99% all things being equal. Also, the result obtained from Fig. 2 showed that there is very little variation between the forecasted and actual survival rate of COVID-19 for June 2020. This result implies that the obtained model is adequate for estimating the survival rate of COVID-19 in Nigeria.

Table 1
The distribution of total cases, number of discharged cases and survival rate of COVID-19 cases in Nigeria from 28/02/2020 to 30/06/2020.

S/No	Day	Month	Total Number of Active case	Number Discharged Case	Survival Rate
1	28	2	1	0	0
2	29	2	1	0	0
3	1	3	1	0	0
4	2	3	1	0	0
5	3	3	1	0	0
6	4	3	1	0	0
7	5	3	1	0	0
8	6	3	1	0	0
9	7	3	1	0	0
10	8	3	1	0	0
11	9	3	1	0	0
12	10	3	2	0	0
13	11	3	2	0	0
14	12	3	2	0	0
15	13	3	2	0	0
16	14	3	2	0	0
17	15	3	2	0	0
18	16	3	2	0	0
19	17	3	2	0	0
20	18	3	3	0	0
21	19	3	5	0	0
22	20	3	8	0	0
23	21	3	4	0	0
24	22	3	10	2	0.20
25	23	3	8	2	0.25
26	24	3	10	2	0.20
27	25	3	4	2	0.50
28	26	3	7	3	0.43
29	27	3	14	3	0.21
30	28	3	16	0	0
31	29	3	16	0	0
32	30	3	16	0	0
33	31	3	34	0	0
34	1	4	34	0	0
35	2	4	20	11	0.55
36	3	4	23	5	0.22
37	4	4	16	2	0.13
38	5	4	20	6	0.30
39	6	4	22	2	0.09
40	7	4	16	9	0.56
41	8	4	16	0	0
42	9	4	22	7	0.32
43	10	4	12	7	0.58
44	11	4	17	12	0.71
45	12	4	18	15	0.83
46	13	4	18	6	0.33
47	14	4	20	8	0.40
48	15	4	30	29	0.97
49	16	4	34	24	0.71
50	17	4	35	7	0.20
51	18	4	51	7	0.14
52	19	4	49	22	0.45
53	20	4	38	0	0
54	21	4	117	9	0.08
55	22	4	91	0	0
56	23	4	108	0	0
57	24	4	114	11	0.10
58	25	4	87	14	0.16
59	26	4	91	17	0.19
60	27	4	64	16	0.25
61	28	4	195	30	0.15
62	29	4	196	52	0.27
63	30	4	205	12	0.06
64	1	5	238	32	0.13
65	2	5	220	34	0.15
66	3	5	170	15	0.09
67	4	5	245	17	0.07
68	5	5	148	64	0.43

(*continued on next page*)

Table 1 (*continued*)

S/No	Day	Month	Total Number of Active case	Number Discharged Case	Survival Rate
69	6	5	195	53	0.27
70	7	5	381	67	0.18
71	8	5	386	78	0.20
72	9	5	239	66	0.28
73	10	5	248	33	0.13
74	11	5	242	124	0.51
75	12	5	146	57	0.39
76	13	5	184	111	0.60
77	14	5	193	110	0.57
78	15	5	288	140	0.49
79	16	5	176	152	0.86
80	17	5	338	122	0.36
81	18	5	216	50	0.23
82	19	5	226	90	0.40
83	20	5	284	106	0.37
84	21	5	339	67	0.20
85	22	5	245	100	0.41
86	23	5	265	167	0.63
87	24	5	313	89	0.28
88	25	5	229	48	0.21
89	26	5	276	74	0.27
90	27	5	389	116	0.30
91	28	5	182	91	0.50
92	29	5	387	105	0.27
93	30	5	553	159	0.29
94	31	5	307	151	0.49
95	1	6	416	115	0.28
96	2	6	241	117	0.49
97	3	6	348	90	0.26
98	4	6	350	206	0.59
99	5	6	328	161	0.49
100	6	6	389	130	0.33
101	7	6	260	133	0.51
102	8	6	315	81	0.26
103	9	6	663	166	0.25
104	10	6	409	145	0.35
105	11	6	681	143	0.21
106	12	6	627	397	0.63
107	13	6	501	210	0.42
108	14	6	403	119	0.30
109	15	6	573	129	0.23
110	16	6	490	274	0.56
111	17	6	587	344	0.59
112	18	6	745	340	0.46
113	19	6	667	274	0.41
114	20	6	661	137	0.21
115	21	6	436	161	0.37
116	22	6	675	230	0.34
117	23	6	452	229	0.51
118	24	6	649	275	0.42
119	25	6	594	209	0.35
120	26	6	684	431	0.63
121	27	6	779	372	0.48
122	28	6	490	382	0.78
123	29	6	566	395	0.70
124	30	6	561	344	0.61

Source: Nigeria Centre for Disease Control (NCDC), 2020 [17].

Table 2
Descriptive analysis of the survival rate of COVID-19 patients in Nigeria.

	Mean	Median	Std. Dev.	Skewness	Kurtosis	Coefficient of variation
Survival Rate	0.2750	0.2538	0.2348	0.56	-0.37	85.41

Source: Authors Analysis

Table 3
Result of augmented Dickey-Fuller unit root test for the survival rate of COVID-19 patients in Nigeria.

Series	Level No Trend	With Trend	Order of integration
Survival Rate	-4.7358	-5.7133	I(0)
Critical values			
5%	-2.8928	-3.458856	
Prob.*	0.0002*	0.0000*	

Source: Results computed by authors
Note: The critical values are taken from Mackinnon (1996) one-sided p-values. The null hypothesis is based on the series having unit root. Asterisks (*) denote statistical significance at a 5% level and the variable have a constant and linear trend.

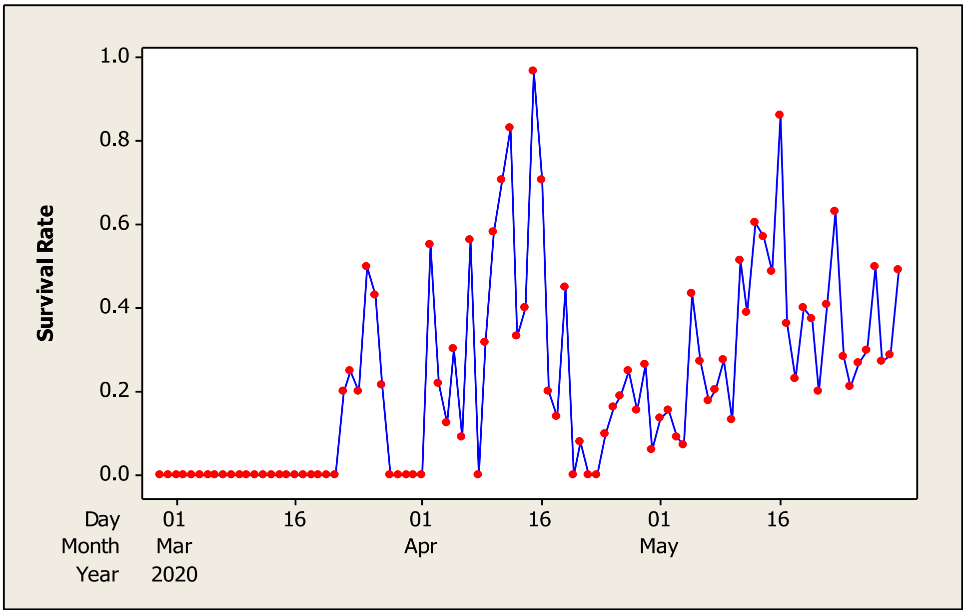

Fig. 1. Distribution of the Survival Rate of COVID-19 Patients in Nigeria form 28/02/2020 to 31/05/2020.

Table 4
Result of model coefficients for the ARIMA (0, 1, 1) Model.

	ma1
Coefficients	-0.5766
s.e.	0.0976

sigma^2 estimated as 0.03449: log likelihood=24.91, AIC=-45.82, AICc=-45.69 BIC=-40.75

Table 5
Result of the forecasted survival rate of COVID-19 patients for June 2020.

Day	Actual Survival Rate	Predicted Survival Rate	Lo95	Hi95
1	0.2764	0.38996	0.025967	0.75395
2	0.4854	0.38996	-0.00531	0.78522
3	0.2586	0.38996	-0.03429	0.8142
4	0.5885	0.38996	-0.06141	0.84132
5	0.4908	0.38996	-0.08699	0.8669
6	0.334	0.38996	-0.11126	0.89118
7	0.511	0.38996	-0.13442	0.91433
8	0.2571	0.38996	-0.15659	0.93651
9	0.2503	0.38996	-0.1779	0.95781
10	0.3545	0.38996	-0.19844	0.97835
11	0.2099	0.36060	-0.21828	0.9982
12	0.6331	0.37060	-0.2375	1.01741

(*continued on next page*)

Table 5 (*continued*)

Day	Actual Survival Rate	Predicted Survival Rate	Lo95	Hi95
13	0.4191	0.38060	-0.25614	1.03606
14	0.2952	0.38060	-0.27427	1.05418
15	0.2251	0.38060	-0.29191	1.07182
16	0.5591	0.36020	-0.3091	1.08902
17	0.586	0.38060	-0.32589	1.1058
18	0.4563	0.38996	-0.34229	1.1222
19	0.4107	0.38996	-0.35832	1.13824
20	0.20726	0.36020	-0.37403	1.15394
21	0.3692	0.36020	-0.38941	1.16933
22	0.3407	0.37030	-0.4045	1.18442
23	0.5066	0.38060	-0.41931	1.19922
24	0.4237	0.38996	-0.43385	1.21376
25	0.3518	0.38996	-0.44814	1.22805
26	0.6301	0.38996	-0.46219	1.2421
27	0.4775	0.38996	-0.47601	1.25592
28	0.7795	0.38996	-0.48961	1.26953
29	0.6978	0.38996	-0.50301	1.28292
30	0.6131	0.38996	-0.51621	1.29612

Source: authors Computation.

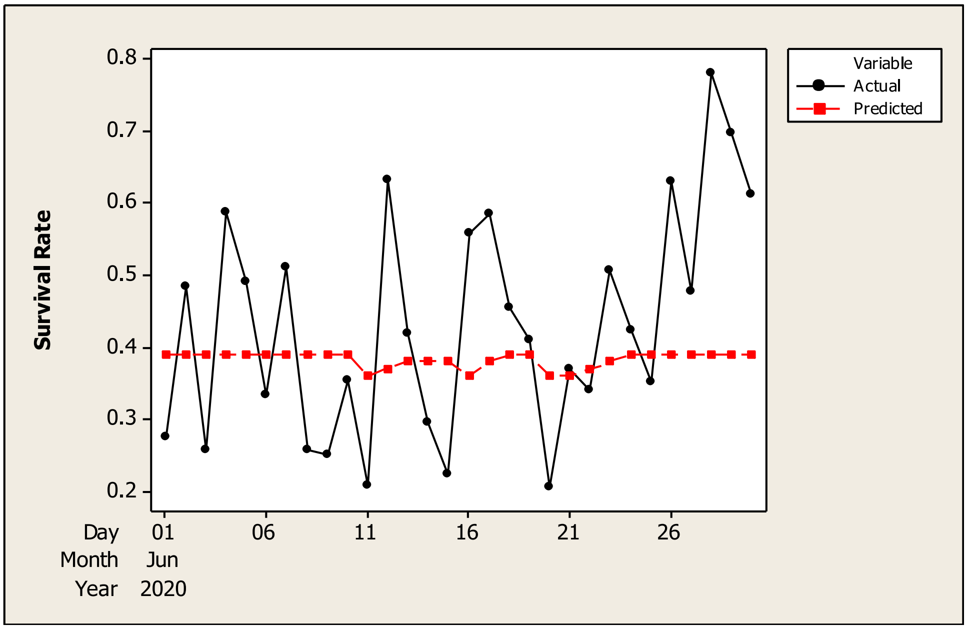

Fig. 2. Distribution of the Actual and Forecast Survival Rate for the month of June 2020 of COVID-19 Patients in Nigeria.

Conclusion

The novel coronavirus is a disease threatening the population size and economic activities across the world. Due to the rate of poverty in Africa as well as poor access to quality healthcare, inadequate medical personnel, and poor technology, Africa has been predicted to be amongst the worst hit by the COVID-19 in the world. This study examined the survival rate of COVID-19 patients in Nigeria using a tine series approach unlike studies such as [4] which focused on epidemiology and potential causes of the pandemic and [5] which considered the number of confirmed cases in some Africa countries.

The data for the study was split into 76:24 ratio where 76% (this comprises of data on the survival rate of patients from 28/02/2020 to 31/05/2020) data was being used for building the ARIMA model and 24% (data on the survival rate of patients from 01/06/2020 to 30/06/2020) was used for testing the adequacy model in estimating the survival rate of COVID-19 patients in Nigeria.

The mean daily survival rate of COVID-19 patients was found to be 27.5% with a median survival rate of 25.4% which is below 50%. The low mean and median survival rates can be attributed to the lack of an approved vaccine or treatment regimen for the pandemic. Also, the ARIMA (0, 1, 1) was identified to be appropriate for predicting the survival rate of COVID-19 patients in Nigeria within the observed period. Further findings showed that little variation exists between the forecasted and actual survival rate of COVID19 for June 2020 which indicates that the obtained ARIMA (0, 1, 1) model is adequate for estimating the survival rate of COVID19 in Nigeria.

Policy implication

The outcome of the present study found that the daily mean and median survival rate of COVID-19 was below 50%, hence the need for the Nigerian government to explore effective treatment strategies both internationally and locally to improve the survival rate of patients with the disease. Also, the government should encourage local manufacturing of Personal Protective Equipment (PPE) such as garment, which is expected to help health workers effectively manage affected persons without fear of being infected at the front line.

In addition, there is a need for the media to shun instilling unnecessary fear about the virus on the people because this has given birth to the stigmatization of a person suspected to have the symptoms. Rather we recommend that the media should focus more on educating the people on the recent guidelines published by the World Health Organization (WHO) on how to stop the spread of the virus.

Also, the media practitioners delivering the COVID-19 guidelines should do that by example by wearing their face mask during the delivery and observe the acceptable physical distancing. This will help the viewers to learn and adapt easily in the challenging fight against the pandemic.

Availability of data and material

Available on request

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Authors contributions

The contributions of the various authors are as stated below:

Aronu, Charles Okechukwu – lead author responsible for initiating the work, drafting the methodology, analysis, and interpretation of results.

Ekwueme, Godspower Onyekachukwu, Sol-Akubude, Vincent Ikemefuna, and Okafor, Patrick Nnaemeka – were responsible for drafting the introduction and literature review.

Declaration of Competing Interest

The authors declare that they have no financial and non-financial competing interest.

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