Quantifying Recent Upsurge in Covid-19 Incidence and Related Fatalities: An Implication of Delayed Response or State of Delivery Health Care System?

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ABSTRACT

Study Aim: To validate the recent upsurge in COVID-19 incidence and related fatalities in a retrospective to the state of the healthcare delivery system and delayed in response to the pandemic in Nigeria.

Methods: The quantitative cross-sectional times series method was adopted. COVID-19 Data for Nigeria were extracted for reported cases and fatalities arising from COVID-19 complications from the WHO COVID-19 situational data bank between March 15 and July 15, 2020. The incidence and fatality growth rates were generated at intervals for four months. Data were analyzed with the Stata version 15.

Results: Findings showed that the recent upsurge in COVID-19 accounted for 99.2%, 98.9%, 98.5%, 99.8%, 99.2%, 99.8%, and 97.3% complications that led to the death of infected patients in the Northcentral, Northeast, Northwest, Southeast, Southsouth. Southwest and the FCT. The results showed that there was a strong uphill linear (r = 0.991) and a significant association between COVID-19 incidence and fatalities arising from COVID-19 complications in Nigeria (ß = 0.022; t = 30.2; p<0.001).

Conclusion: The study concluded that the recent upsurge in COVID-19 incidence and fatalities arising from COVID-19 complications could be attributed to delayed response and the poor state of the health delivery system in Nigeria.

Keywords: Quantifying, fatalities, incidence, Covid-19 upsurge, healthcare delivery, Nigeria

Introduction

The effects of the novel COVID-19 pandemic in terms of reported cases and fatalities emerging from its complications remain the most severe that mankind has been subjected to in most recent decades. According to the World Health Organisation reports, the tolls of fatalities as a result of the pandemic was most severe in other regions but the sub-Saharan Africa. The reports put the global reported fatalities at about 0.64 million deaths out of over 16 million reported incidences as on July 25, 2020 (16.).

In fact, the incidence rate was so low that it was widely speculated that the sub-Saharan Tropical Climate may hinder the COVID-19 from penetrating the sub-continent. Also, while a significant proportion of Nigerians was filled with the delusion that peoples of the sub-Saharan region may have immunity against the novel Covid-19 pandemic, it was contended the low incidence recoded so far may have either been underreported or not even captured at all (10). Specifically, Melinda Gate argued that the low figures reported cases of COVID-19 in many countries of the region was far from being truth based on the fact that many households due to the prevalence of poverty were founding it extremely impossible to observe the recommended physical distancing (10).

The reality seems to be gradually catching up with Nigeria. Retrospectively, the country recorded her first case of COVID-19 on February 27, 2020 (11). However, in the past four months, the confirmed cases of Covid-19 incidence in the country have increased from a relatively very low 32 cases in March, 15, 2020 to 9,885 cases on May 30, 2020; and further increased to 39,539 confirmed cases as on July 25, 2020 (16). The trend follows the same patterns for fatalities emerging from COVID-19 complications. In fact, no deaths were reported throughout

the month of March, 2020. Fatalities arising from the novel pandemic increased from 12 reported cases as on April 15, 2020, to 424 deaths by the mid of June, and subsequently increased to 845 fatalities as on July 25, 2020 (11).

As conceived by Melinda Gate (10), the likelihood of underreported cases of the novel COVID-19 pandemic in Nigeria could be mitigated as reported in a data-driven modeling analysis by (19) and (20) that upheld that it was highly certain the incidence of the novel COVID-19 in China was underreported. In the context of the upsurge of COVID-19 incidence growth rate in Nigeria, (19) (3) maintained that there was tendency for a continuous exponential in the incidence of novel COVID-19 as wider tests are being carried out. This could be justified by the rise in reported cases, as the total number of tests carried out increased from 1 person per 1 million population as on April 30, 2020 to 1,240 per 1 million population as on July 25, 2020 (18).

The healthcare facilities in Nigeria are in shortage of individual shielding tools equipment, sound medical administration and appropriate sophisticated modern medical electronic and computer gadgets for effective and sound healthcare delivery (15). As pointed out by (21) and (8), in order to effectively contain the spread of the novel COVID-19 pandemic, it is imperative that all communities adopted some highly stringent and appropriate epidemiological measures. In line with this, the recent upsurge in the pandemic incidence and fatality growth rates witnessed in Nigeria could be attributed to the unpreparedness, partial adherence to the preventive measures and poor state of healthcare delivery systems in the country (10, 14). It is against this backdrop that the study intends to provide answer to the links between the state of healthcare delivery system, delayed response and recent upsurge in the growth rates of the novel COVID-19 incidences and fatalities attributed to its complications.

Theoretical Approach: *Socioecological Theory*

The Socioecological Theory as contained in (9) gives an insight to the multifaceted influences as predisposes to human behaviour. The theorists argued that the decision made by an individual is assumed to be influenced by what such individual stands to gain from the taken-action. Hence, as argued by the theorists, in order to effectively address a socioecological challenge in relation to human health wellbeing, it is imperative that the providers of the health needs identify the vulnerable in the large population, categorise them appropriately, adopt the best available measures to address the needs and make the reasons for the interventions fully known to the beneficiaries and the population at large.

The socioecological theory best suits this study because it provides insight to the dynamics in the social environment as it relates to how man is ready to adhere to the expected change of life style. Also, the theory is considered appropriate since it elucidates the influence of the institutions, interpersonal processes and the public policy on the achievement of targeted healthcare outcomes. In line with the rising incidence of COVID-19 across regions in Nigeria, it is imperative that the Nigerian government across all levels, concerned local and institutional bodies and the entire country's population come to should adhere to approaches that will enable the socioecological settings to be inundated – while personal hygiene as stipulated by the World Health Organisation are strictly adhered to, there is a need to improve the state of healthcare delivery system across communities in the country (17).

Evidently, the socioecological model sufficiently explains the needful theoretical approach to the reasons for the upsurge in the incidence and fatality growth rates arising from COVID-19 spread in Nigeria – thus, the theory appropriately relates the recent upsurge in Nigeria to the unpreparedness and poor state of healthcare delivery system in the country.

Methods

The study employed the quantitative cross-sectional times series method. Data were extracted from the COVID-19 data bank of the World Health Organisation for March 15 to July 15, 2020. Data were extracted for reported cases of COVID-19 and fatalities arising from the patients who died from the pandemic complications in Nigeria. The extracted data were keyed into the excel spreadsheet, and thereafter transported into the Stata version 15 analysis software. The COVID-19 incidence growth rates for the six geopolitical zones (Northcentral, Northeast, Northwest, Southeast, Southsouth and Southwest), the FCT, Nigeria and the Globe at large were calculated from

a-two successive intervals (a-week between) with the specific formal extracted data being considered as the denominator (base value) for the current total reported incidence of COVID-19, while the latter extracted data was considered as the numerator (current value). Correspondingly, the fatality growth rates arising from COVID-19 complications in the country was generated following the same pattern employed in the generation of incidence growth rates.

The patterns of incidence and fatality growth rates across the regions, FCT and Nigeria were presented descriptively in figures, while the Pearson Correlation and the Linear Logistic Regression were used in the analytic analyses of trend disparities, the strength of association and the causal-effect relationship between the growth rates of incidence of covid-19 and fatalities arising from its complications among victims. The unit of analysis of the study was a documented case of COVID-19 infection. The confidence interval for this study was set at 95%. Invariably, the inferential analytic results are considered significant where the p-value is < 0.05.

Results

Figures 1 to 5 present the trends of variations in percentage growth rates of reported incidences and the fatalities that were attributed to complications emerging from COVID-19 infection in regions of Nigeria and the Globe at large. As indicated Fig. 1, 2 and 3, the trends of growth rates of reported incidences of COVID-19 followed similar patterns in Northeast, Northwest and Southsouth regions of Nigeria respectively. The results showed that the growth rates for Northcentral (See Fig. 1) increased from 100% in (t_{nr1}) to 600% in (t_{nr2}), then dropped to 157.1% in (t_{nr3}), then moved up to 600% in (t_{nr4}). In the Northeast region (See Fig.1), the incidence growth rate increased from 100% in (t_{nr1}) to 200% in (t_{nr2}), then peaked at 3083% (t_{nr3}) before declining to 218.3% in (t_{nr4}). For the Northwest region (See Fig. 2), the incidence growth rate jumped from 200% in (t_{nr1}) to 866.7% in (t_{nr2}) and further to 1082% in (t_{nr3}) before declining to 349.3% in (t_{nr4}). The results for the Southsouth (See Fig. 3) showed an increase in the incidence growth rate from 50% in (t_{nr1}) to 800% in (t_{nr2}), and the dropped to 222.2% in (t_{nr3}). The growth rates of reported incidences of COVID-19 in the Northcentral, Northeast, Northwest and Southsouth followed similar trends but with a very slight fluctuations over the covered period.

As indicated in Fig. 2, 3 and 4, growth rate trends in the reported cases of COVID-19 for the Southeast, Southwest, the FCT and Nigeria slightly differed. For instance, the incidence growth rate for the Southeast (See Fig. 2) increased from100% in (t_{nr1}) but dropped to 50% in (t_{nr2}) before moving in 200% in (t_{nr3}) and further to 255.6% in (t_{nr4}). For the Southwest (See Fig. 3), there was however, a declined in incidence growth rate from 196.9% in (t_{nr1}) to 91.6% in (t_{nr2}) was experienced, but an upsurge growth rate of 299.3% in (t_{nr3}) which was later followed with a drop to 108.8% in the (t_{nr4}) and 60% in (t_{nr5}) respectively. For the FCT (See Fig. 4), the growth rate of the reported cases of COVID-19 followed the same patterns until the sixth interval – the growth rate declined from 127.3% in (t_{nr1}) to 132% in (t_{nr2}), increased to 206.9% in (t_{nr3}), then dropped to 116.9% in (t_{nr4}) and further to 59.6% in (t_{nr5}) but increased again to 105.2% in (t_{nr6}). The results for the country as a whole (See Fig. 4) indicated that the growth rates for reported cases increased from 172.9% in (t_{nr1}) to 210.7% in (t_{nr2}), and further upsurge higher to 374.7% in (t_{nr3}) ; then followed a declining patterns first to 181.8% in (t_{nr4}) and finally to 33.3% (t_{nr8}).

Unlike the feasible variations noticed in the growth rates of COVID-19 reported cases in Nigeria, the Global movement growth rates maintained a constant decline all though the periods covered in this study (See Fig. 5). For instance, the growth rate dropped rapidly from 856.7% in (t_{nr1}) to 176.2% in (t_{nr2}), the followed with a further dropped to 61.4% (t_{nr3}) and finally to 27.3% in (t_{nr8}). The results for the last terminal period (t_{nr8}) covered in this study showed that the two regions with the highest COVID-19 growth rates were the Northcentral (57.4%) and Southsouth (50.7%) while the Northeast (12%) and the Northwest (16.7%) were the two regions with least incidence percentage growth. Also, it is evident from the study that the percentage growth rates in incidences of COVID-19 for the covered periods ($t_{nr1 – }t_{nr8}$) were higher for Nigeria than the Global rates except for the first period (t_{nr1}).

Evidence showing the percentage growth rates of fatalities connected with COVID-19 complication showed the fatality movements for the Northeast, Northwest, Southeast and Nigeria followed similar patterns, except for slight differentials at the onset of the curves. For instances while first cases of fatality were not reported until the second (t_{dr2}) and fourth interval (t_{dr4}) in Northeast (See Fig. 1) and Southeast (See Figure 2), the growth rates in

fatalities for Northwest and Nigeria increased from 0% in (t_{dr1}) to 100% (t_{dr2}) and 500% (t_{dr2}) respectively (See Fig. 2 and 4). Further evidence showed that the movements of the growth rates of fatalities connected to COVID-19 followed nearly the same patterns for Northcentral and Southsouth. While the growth rate for the former (See Fig. 1) upsurge from 0% in (t_{dr3}) to 200% (t_{dr4}) and further to 250% (t_{dr4}) before dropping to 128.6% in (t_{dr6}) and further to 23.1% (t_{dr7}), the growth rates in fatalities for the latter (See Fig. 3) moved from200% in (t_{dr2}) to 350% (t_{dr3}) then dropped to 55.6% in (t_{dr4}) before increasing to 157.1% in (t_{dr5}).

In fact, the fatality growth rates arising from COVID-19 related complications followed an up-and-down pattern for all regions in the country except for (t_{dr4}). For instance, a continual decline in fatality growth rates were evident in the Southwest (See Fig. 3) from the (t_{dr6}) through the (t_{dr8}). Similarly, a constant declining fatality growth rate pattern could be observed for the FCT (See Fig. 7) from the (t_{dr5}) through the (t_{dr8}). The highest fatality growth rate of 2500% was reported in the Northeast in (t_{dr4}) while the least rate of 5% was reported in the Northwest in (t_{dr8}). On the other hand, while the fatality growth rate for Nigeria had been fluctuating, the globe at large had been experiencing a gradual downward movement in the growth rates of fatalities connected to COVID-19 complications (See Fig. 4 and 5). Also, it should be noted that while global rate dropped from 16.8% in (t_{dr7}) to 13.2% in (t_{dr8}), a relatively rates were reported for Nigeria, 39.2% in (t_{dr7}) to 28.8% (t_{dr8}).
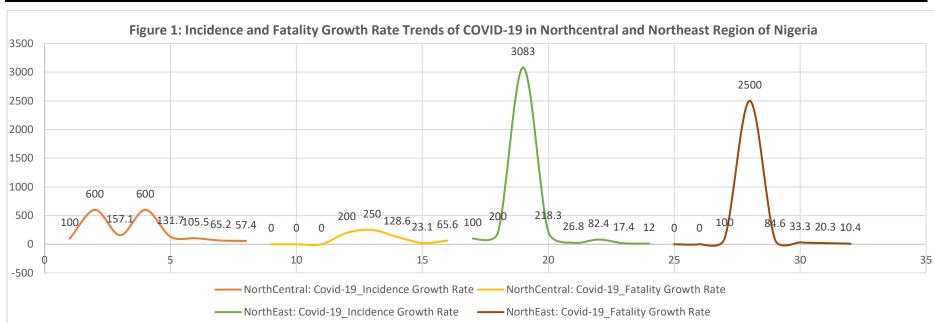
Table 1 indicates the outcomes of the analysis of the causal-effect relationship existing between the prevalence of COVID-19 pandemic and fatalities emerging from its complications across regions of Nigeria and the globe at large. It is evident from the study that the COVID-19 outbreak accounted for 97.3%, 99.2%, 98.9%, 98.5%, 99.8%, 99.2% and 99.8% complications that led to the death of the infected patients in the FCT, Northcentral, Northeast, Northwest, Southeast, Southsouth, Southwest region of Nigeria respectively. Also, it was evident from the results that the COVID-19 infection accounted for 99.6% and 97.6% of complications which led to the death of the infected patients in Nigeria and the Globe. The results further indicated that there was a direct and very strong association between the upsurge in the reported incidence of COVID-19 infection and the fatalities arising from COVID-19 complications.

Invariably, it is evident from Table 1 that there was a very strong uphill linear relationship between fatalities emerging from COVID-19 complications and the recent upsurge in the reported incidence of COVID-19 outbreak in the FCT (r = 0.940),Northcentral (r = 0.984), Northeast (r = 0.976), Northwest (0.967), Southeast (r = 0.995), Southsouth (r = 0.982), and Southwest region (r = 0.995) of Nigeria respectively. Also, the results correspondingly indicated that there was a very strong uphill linear relationship between the recent upsurge of COVID-19 incidence and a rise in fatalities among infected patients in Nigeria (r = 0.991) and the Globe (r = 0.945).

The regression analysis results established an existence of a strong relationship between the recent upsurge of COVID-19 outbreak fatalities arising from its complications among infected patients in Northcentral (ß = 0.035; t = 20.8; p<0.001), Northeast (ß = 0.047; t = 17.9; p<0.001), Northwest (ß = 0.038; t = 15.3; p<0.001), Southeast (ß = 0.021; t = 39.8; p<0.001), Southsouth (ß = 0.032; t = 21.1; p<0.001), Southwest region (ß = 0.014; t = 38.7; p<0.001) the FCT (ß = 0.015; t = 11.2; p<0.001) and Nigeria at large (ß = 0.022; t = 30.2; p<0.001). Similarly, the results revealed that there was a strong association between COVID-19 pandemic outbreak in the Globe and fatalities attributed to its complications among infected patients (ß = 0.045; t = 11.7; p<0.001).
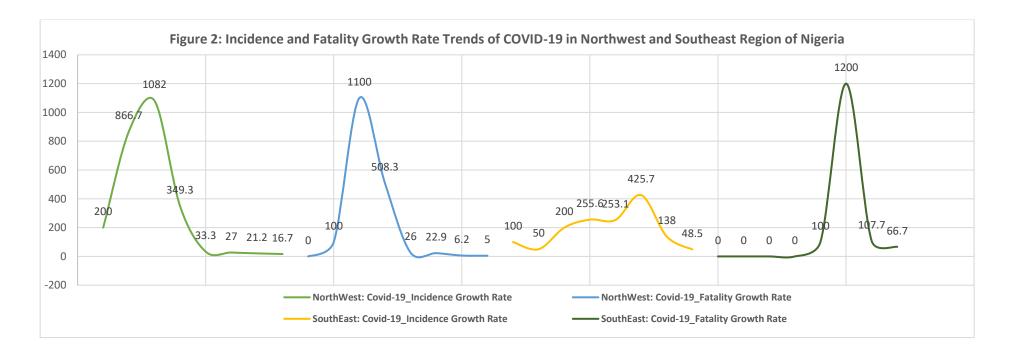
Trends of Growth Rates in the Reported Cases and Fatalities Associated with COVID-19 across Regions of Nigeria,
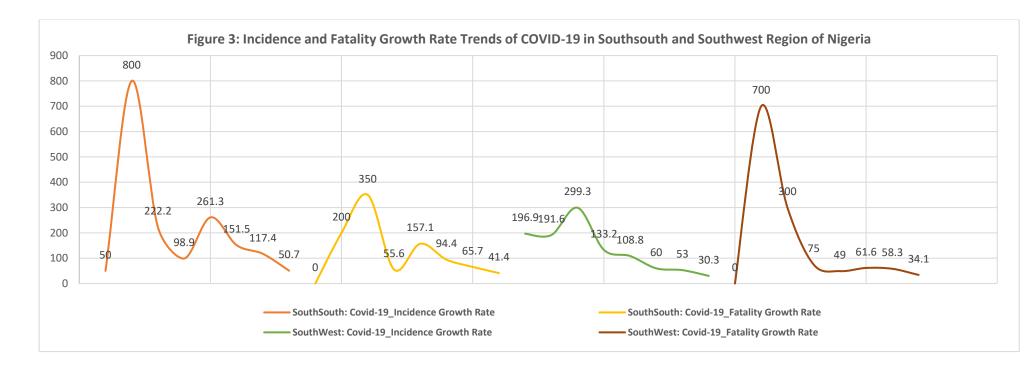
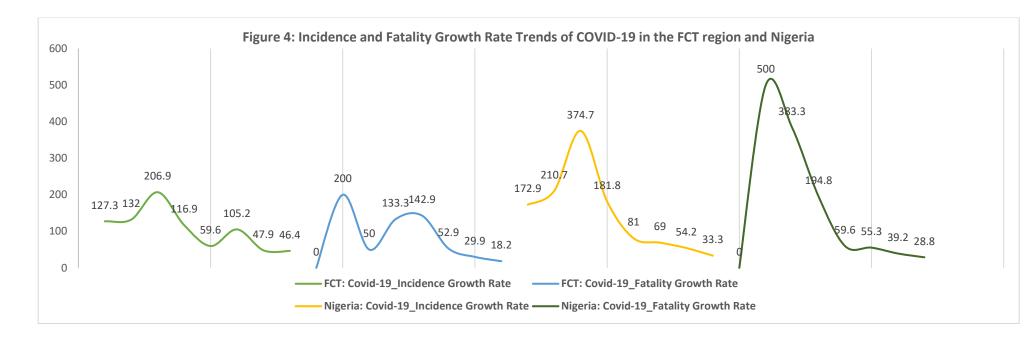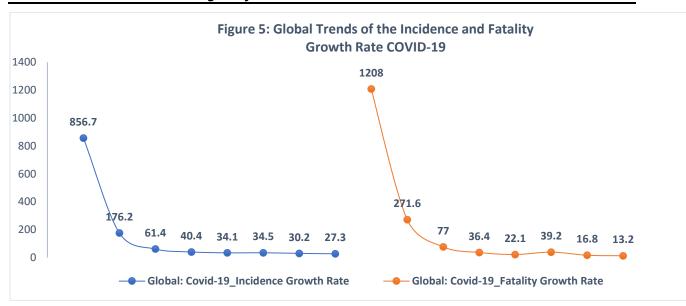**the FCT (Federal Capital Territory) and Nigeria: March 15 through July 15, 2020**

Figure 1: Incidence and Fatality Growth Rate Trends of COVID-19 in Northcentral and Northeast Region of Nigeria

Figure 2: Incidence and Fatality Growth Rate Trends of COVID-19 in Northwest and Southeast Region of Nigeria

Figure 3: Incidence and Fatality Growth Rate Trends of COVID-19 in Southsouth and Southwest Region of Nigeria

Figure 4: Incidence and Fatality Growth Rate Trends of COVID-19 in the FCT region and Nigeria

Global Trends of Growth Rates in the Reported Cases of COVID-19 and Fatalities Associated with COVID-19 from March 15 through July 15, 2020

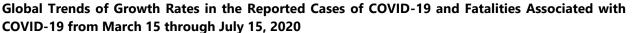Figure 5: Global Trends of the Incidence and Fatality Growth Rate COVID-19

(t_{nr1}) indicates percentage growth in reported incidences of COVID-19 from March 15, through March 30, 2020; (t_{nr2}) indicates percentage growth in reported incidences of COVID-19 from March 30, through April 15, 2020; (t_{nr3}) indicates percentage growth in reported incidences of COVID-19 from April 15, through April 30, 2020; (t_{nr4}) indicates percentage growth in reported incidences of COVID-19 from April 30, through May 15, 2020; (t_{nr5}) indicates percentage growth in reported incidences of COVID-19 from May 15, through May 30, 2020; (t_{nr6}) indicates percentage growth in reported incidences of COVID-19 from May 30, through June 15, 2020; (t_{nr7}) indicates percentage growth in reported incidences of COVID-19 from June 15, through June 30, 2020 and (t_{nr8}) indicates percentage growth in reported incidences of COVID-19 from June 30, through July 15, 2020.

(t_{dr1}) indicates percentage growth in reported fatalities attributed to COVID-19 complications from March 15, through March 30, 2020; (t_{dr2}) indicates percentage growth in reported fatalities attributed to COVID-19 complications from March 30, through April 15, 2020; (t_{dr3}) indicates percentage growth in reported fatalities attributed to COVID-19 complications from April 15, through April 30, 2020; (t_{dr4}) indicates percentage growth in reported fatalities attributed to COVID-19 complications from April 30, through May 15, 2020; (t_{dr5}) indicates percentage growth in reported fatalities attributed to COVID-19 complications from May 15, through May 30, 2020; (t_{dr6}) indicates percentage growth in reported fatalities attributed to COVID-19 complications from May 30, through June 15, 2020; (t_{dr7}) indicates percentage growth in reported fatalities attributed to COVID-19 complications from June 15, through June 30, 2020 and (t_{dr8}) indicates percentage growth in reported fatalities attributed to COVID-19 complications from June 30, through July 15, 2020.

Table 1: Results of Regression Analysis and Correlation Coefficients Showing the Association between Incidence of COVID-19 and Fatalities Arising from COVID-19 Complications across Regions of Nigeria and the World

Variables	North Central	North East	North West	South East	South South	South West	FCT	Nigeria	Global
t_{x1_x9}	t_{y1_y9}	t_{y1_y9}	t_{y1_y9}	t_{y1_y9}	t_{y1_y9}	t_{y1_y9}	t_{y1_y9}	t_{y1_y9}	t_{y1_y9}
ß	0.035	0.047	0.038	0.021	0.032	0.014	0.015	0.022	0.045
std error	0.002	0.003	0.002	0.001	0.002	0.001	0.001	0.001	0.004
t_c	20.8	17.9	15.3	39.8	21.1	38.7	11.2	30.2	11.7
p-value	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***
R_0	0.992*	0.989*	0.985*	0.998*	0.992*	0.998*	0.973*	0.996*	0.976*
r	0.984	0.976	0.967	0.995	0.982	0.995	0.940	0.991	0.945

Note: *Significant at p<0.05, **Significant at p<0.01, ***Significant at p<0.001; R_0 = adjusted R^2; r = correlation coefficients; ß = regression coefficient; t_{x1_x9} = total reported cases of Covid-19 for March 15, 2020(t_{x1}), March 30, 2020 (t_{x2}), April 15, 2020 (t_{x3}), April 30, 2020 (t_{x4}), May 15, 2020 (t_{x5}), May 30, 2020 (t_{x6}), June 15, 2020 (t_{x7}), June 30, 2020 (t_{x8}) and July 15, 2020 (t_{x9}); t_{y1_y9} = total fatalities arising from reported cases of Covid-19 for March 15, 2020(t_{y1}), March 30, 2020 (t_{y2}), April 15, 2020 (t_{y3}), April 30, 2020 (t_{y4}), May 15, 2020 (t_{y5}), May 30, 2020 (t_{y6}), June 15, 2020 (t_{y7}), June 30, 2020 (t_{y8}) and July 15, 2020 (t_{y9}) respectively.

Discussion

The study primarily validates the recent upsurge of COVID-19 pandemic across the FCT and the six regions, of Nigeria. The study relates the upsurge in a retrospective to the poor state of healthcare delivery system and the delayed response to the pandemic by the government in the country. In order to achieve the broad aim of the study, trends of variations of growth in the incidence and fatalities arising from complications of COVID-19 infection among its victims were captured descriptively. I observed that the upsurge in incidence of COVID-19 peaked at 3083% (t_{nr3}) in the Northcentral region and also the least incidence of 12% (t_{nr8}) was reported in the same region. Correspondingly, findings from the study showed that growth in fatalities arising from COVID-19 infection peaked at 2500% (t_{dr4}) in the Northeast while the 5% (tdr8) in fatality growth rate reported in the Northwest region was the fewest deaths arising from COVID-19 complications in the country. This study also investigates the association between the upsurge in the spread of COVID-19 in the country the growth in fatalities observed over the period covered in the study.

Consistently, the incidence growth movements are following nearly the same patterns across all regions of the country. Based on the findings of the study, the incidence growth peaked for all the regions peaked in the (t_{nr3}) but for the Northcentral, Southeast and Southsouth which were observed in the (t_{nr2}), (t_{nr6}) and (t_{nr2}) respectively. A critical observation of the descriptive analysis evidently showed that while the COVID-19 incidence growth in the Globe kept declining from the (t_{nr1}) to the (t_{nr8}), the decrease in the pandemic growth rate began in the (t_{nr3}). Also, the findings showed that the COVID-19 incidence growth rates for Nigeria were higher at every stage but the first stage (t_{nr1}) than the Global growth rates. This is an indication that while the COVID-19 Global growth rate is gradually declining faster, the same cannot be said for Nigeria.

 The lower growth rate of COVID-19 outbreak witnessed across regions of Nigeria could be explained in context of the fewer numbers of tests that were carried out at the early stage of the pandemic. The findings explained the arguments put up by (8) that the frequency of COVID-19 infection was likely to rise with the increase in number of tests carried out. Similarly, the findings to a large extent agreed with Melinda Gates prediction that the number of infections in the sub-Saharan Africa were likely to upsurge with time (10). Another point of argument that could be explained from these findings indicated that the COVID-19 growth rate would have been reduced to the lowest level if those in the helms of affairs had responded earlier than they did.

 In fact, at the early stages of the outbreak, attentions were primarily focused on returnees from abroad rather strictly and completely enforcing the measures recommended by the World Health Organisation. In this context, the findings in this study were in line with (19), (21) and (14) that the non-adherence to the COVID-19 preventive measures, and a weak or poor approach to public health interventions would bring about an upsurge in the spread of the pandemic across boundaries.

 Also, a critical look at the growth rate patterns of fatalities arising from COVID-19 complications between Nigeria and the Globe indicated the pandemic is worse managed in Nigeria. In fact, at the start up point a 0% fatality growth rate was recorded in Nigeria, while the Global fatality growth rate stood at 1208%. However, while the Global fatality growth rate dropped from 1280% in the (t_{dr1}) to 271.6% in the (t_{dr2}), the COVID-19 fatality growth rate for Nigeria upsurge from 0% to 500% over the same period.

More so, the trends of the COVID-19 fatality growth rates for Nigeria were relatively higher compared to the Global fatality growth rates from the (t_{dr2}) all through the (t_{rd8}) periods covered in the study. contemporary studies addressing the state of the primary and community health in Nigeria revealed that the healthcare delivery system in the country was not only poor but also inadequate (4, 6, 12). Hence, the comparatively higher growth of COVID-19 fatalities in Nigeria could be attributed to the shortage of well-trained medical personnel and the ill-equipped of the few medical healthcare facilities in the country (7).

Thus, the upsurge in both COVID-19 reported cases and fatalities evolving from COVID-19 complications mainly as a result of the poor state of healthcare delivery system in Nigeria were consistent with (13), (20) and (1) who maintained that the spread of the COVID-19 pandemic outbreak and its consequences would be more severe in communities with weak or inadequate healthcare facilities needed to contain the pandemic to the lowest level. In fact, the few available well-trained medical professionals as a result of poor financing of the healthcare sector not only in Nigeria but also in many of the sub-Saharan African countries (2, 5, 7).

Conclusion

The recent upsurge of the COVID-19 pandemic in Nigeria appears to relatively across all regions of the country compared to the Global COVID-19 incidence and fatality growth rates. The current situation threats posed by the pandemic, although was very minimal at the early stage of the outbreak, the inability of the Nigerian government to contain the pandemic at the early stage of spread together with the weak and poor state of public and community healthcare delivery system could be attributed to the state of the nation. The study concluded that in the event of an undesirable impending occurrence of a similar outbreak, it is imperative that the observed lapses in the country healthcare delivery system should be given the topmost priority while an urgent approach to addressing public or community healthcare needs of the population should be the primary concerned of all stakeholders. Evidence showed that both the incidence and fatality growth rates across regions in Nigeria were higher than the global rates.

Policy Implications

Due to the recent upsurge in the growth rates of COVID-19 incidence and fatalities that are attributed to complications connected to the pandemic, the author recommends that:

i.   The government, at all level should be more proactive to addressing serious healthcare challenges that call for immediate and timely responses should such needs arise in the nearest future. It is imperative that the public healthcare facilities in country are upgraded and fully equipped to healthcare needs of the population.

ii.   Also, it is imperative that there is the need to make healthcare services cheaper and affordable to the timing impoverished population. In fact, healthcare services should be made free for citizens of the country that are below the age of 18 years and those that age 60 years and above. Thus, it is imperative that the government make the healthcare scheme available to all not just to the few privileged government workers.

iii.   Nigeria should enter into bilateral educational agreement in healthcare related fields with developed countries such as the UK, USA, Canada, Japan, Germany, China and Australia. The award of scholarships must be based on merit rather than nepotism and favouritisms. Also, the recipients of such scholarship awards must be compelled to sign understandings which will mandate them to return to the country and use the gained knowledge for the growth and development of the country

Limitation

While the dataset employed in this study provided the author with a current situational trends of the COVID-19 incidence and fatalities arising from the pandemic in Nigeria, the dataset did not provide the authors with differentials across gender, age, lifestyle behaviour and the socioeconomic status of the victims who contracted the virus, recovered from it or died of the pandemic complications in the country.

Consent for publication

Not Applicable

Ethical Consideration

The ethical issue of this study has already been met based on the fact that the generated dataset used in the study were pulled from the World Health Organisation 2020 COVID-19 data bank.

Author Biographies:

Taofik Olatunji Bankole, PhD, is a Research Associate, Consultant and a Graduate of Demography and Social Statistics at Obafemi Awolowo University, Ile-Ife. His research interests include epidemiology, infant nutrition, reproductive health, but not limited to Gender Based Violence. He employs the mixed-methods in arriving at research outputs that could provide stakeholders with insight to formulating sound healthcare and child's right policies.

Glory Urhere, MSc., is a Senior Nigerian Police Officer, and also a Doctoral Candidate at the Centre for Gender Studies at Obafemi Awolowo University, Ile-Ife. Her research focuses on domestic violence, child's rights and crime analysis. She uses the exploratory and time-series techniques as tools in deriving her end results which could be used for tracking and adverting crimes.

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