

## ORIGINAL RESEARCH ARTICLE

# Coronavirus (COVID-19) Pandemic in Nigeria: Preventive and Control Challenges within the First Two Months of Outbreak

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## Abstract

The spread of the novel Coronavirus disease (COVID-19) has continued to rise in Nigeria despite all scientifically proven preventive measures. Factors militating against preventive and control efforts are yet to be addressed thus the study examined COVID-19 pandemic in Nigeria within the first two months of outbreak and its preventive and control challenges. Data from the daily updates of Nigeria Centre for Disease Control (NCDC) were graphically used to describe the trend of spread while facts from both verified online and print media reports on COVID-19 were used to assess the challenges. Outcome of the study showed a steady increase in COVID-19 from one case on the 27<sup>th</sup> of February 2020 to 1,932 confirmed cases, 58 fatalities, and 319 discharged cases by 30<sup>th</sup> April 2020. COVID-19 preventive measures in the country include hand washing, use of sanitizers, wearing of face masks, lockdown and social distancing. Factors which undermined government preventive efforts were poor compliance attitude, selective lockdown, social media interference, misconceptions and myths, stigmatization, fear, inadequate health facilities, and distrust for government. It is recommended among others that there is need to ameliorate the adverse effects of COVID-19 misconceptions and myths through evidence-based campaigns using all sources of information. (*Afr J Reprod Health 2020 (Special Edition); 24[2]:87-97*).

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**Keywords:** COVID-19, Prevention and Control, Nigeria, Challenge

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## Résumé

La propagation de la nouvelle maladie à coronavirus (COVID-19) a continué d'augmenter au Nigéria malgré toutes les mesures préventives scientifiquement prouvées. Les facteurs qui militent contre les efforts de prévention et de contrôle doivent encore être abordés. L'étude a donc examiné la pandémie de COVID-19 au Nigéria au cours des deux premiers mois de l'épidémie et ses défis en matière de prévention et de contrôle. Les données des mises à jour quotidiennes du Nigeria Center for Disease Control (NCDC) ont été utilisées graphiquement pour décrire la tendance de la propagation, tandis que les faits des rapports vérifiés des médias en ligne et imprimés sur le COVID-19 ont été utilisés pour évaluer les défis. Les résultats de l'étude ont montré une augmentation constante du COVID-19 d'un cas le 27 février 2020 à 1 932 cas confirmés, 58 décès et 319 cas libérés au 30 avril 2020. Les mesures préventives du COVID-19 dans le pays comprennent le lavage des mains, utilisation de désinfectants, port de masques faciaux, verrouillage et éloignement social. Les facteurs qui ont sapé les efforts de prévention du gouvernement étaient la mauvaise attitude de conformité, le verrouillage sélectif, l'ingérence des médias sociaux, les idées fausses et les mythes, la stigmatisation, la peur, les établissements de santé inadéquats et la méfiance à l'égard du gouvernement. Il est recommandé, entre autres, qu'il soit nécessaire d'améliorer les effets néfastes des idées fausses et des mythes sur le COVID-19 grâce à des campagnes fondées sur des preuves utilisant toutes les sources d'information. (*Afr J Reprod Health 2020 (Special Edition); 24[2]:87-97*).

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**Mots-clés:** COVID-19, Prévention et Contrôle, Nigéria, Défi

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## Introduction

The novel coronavirus disease (COVID-19) has become an important health threat ravaging the

entire world with numerous health and economic implications. The disease occurred first in Wuhan, China in late 2019 and since then has spread to almost all continents in the world. As described by

the World Health Organization (WHO), COVID-19 is a viral infection that causes respiratory illness<sup>1</sup>. The disease is basically transmitted from person to person through contact with droplet of an infected person. Although most people can easily recover from the illness without specialized treatment, people who are older and those with existing medical conditions such as cancer, chronic respiratory infections, diabetes and cardiovascular diseases are more likely to experience severe illness and death due to COVID-19<sup>1</sup>. The virus, SARS Cov2 is the main causative organism of COVID-19, with shortness of breath, dry cough and fever as its most common symptoms<sup>2,3</sup>. COVID-19 is ordinarily difficult to prevent and control, thus, the best way of thwarting it is by adopting measures that will reduce exposure to the virus that causes the disease<sup>4</sup>.

Since the outbreak of COVID-19, numerous preventive and control measures have been applied globally to contain the disease. Preventive efforts notwithstanding, statistical global report on the disease from December 2019 to 30<sup>th</sup> April, 2020 shows a continuous worldwide increase with a total of 3,090,455 confirmed cases, 217,769 fatalities and 1,007,971 discharged cases distributed across 210 countries<sup>5,6</sup>. The deadliness of the disease is underscored by its potential to infect, cause hospitalization and death of so many persons within the shortest time frame. Worse still, some measures targeted at preventing the disease in emergency cases such as the lockdown procedure could cripple the economy and thus increase poverty level of the affected community<sup>7</sup>. It is for these reasons that World Health Organization declared COVID-19 “a public health emergency of international concern”<sup>3</sup>. As at 30<sup>th</sup> April, 2020 no cure or vaccine has been found and the disease keeps spreading unchecked with USA, Spain, Italy, France, UK, and Germany being the most affected. This left the world in a state of fear and confusion<sup>8</sup>.

In Nigeria, the first outbreak of COVID-19 occurred on 27<sup>th</sup> February 2020 through an Italian businessman who visited the country<sup>9</sup>. The declaration of this index case spurred the Nigeria Government, with the support of relevant health agencies to embark on measures targeted at curtailing the spread of the disease. Amazingly, despite all preventive and control efforts of the Nigeria government following the outbreak, the

disease as of 30<sup>th</sup> April 2020 had spread to 36 states with 1,932 confirmed cases, 319 discharged cases and 58 deaths<sup>6</sup>. Controlling this rise in COVID 19 in the country was particularly challenging and thus gave reason for worry especially in the face of limited health care facilities to contend with the virus. The event of a continuous increase in the number of cases as could be seen in Figure 1 indicated that the execution of prevention and control measures in the country met with some challenges most of which were political, social and behavioral in nature.

Consequently, due to the adverse implications of the disease on people’s health and economy as well as the urgent need for total eradication of the virus, it becomes expedient to evaluate factors that interfered with and thus undermined government’s COVID-19 preventive efforts in the country especially at the early stage of outbreak. Identifying and evaluating these challenging factors is pertinent most especially, if the war against the disease must be successfully won, as it will help to unveil loop holes of prevention in the country and more promising means of combating the disease in the future. This paper thus, did an analysis of coronavirus pandemic in Nigeria and its prevention and control challenges within the first two months of outbreak.

### ***Trends of occurrence of COVID-19 within the first two months in Nigeria***

The first case of COVID-19 in Nigeria as indicated earlier occurred on 27<sup>th</sup> February 2020 in Lagos state<sup>9</sup>. The number of cases within the first few weeks of outbreak was gradual with no record of death and number of cases, below emergency threshold. However, surges of daily increase in the number of new cases began to occur from the 19<sup>th</sup> of March 2020 with the number of confirmed cases rising steadily to emergency level. As of April 30, 2020, the total number of confirmed cases rose to 1932 with 58 deaths and 319 discharged cases<sup>6</sup>. The total number of blood samples tested from the first day of outbreak to 30 April 2020 was 15,759 out of which 1932 were positive. Epidemiological data of those tested that positive revealed that 210(11%) had travel history, 539(28%) had contact with infected persons, 986(51%) were from unknown sources and 197(10%) had incomplete

information. It was also observed that males (70%) were more likely than females (30%) to be infected and that 22 percent (22%) of those between the age of 30- 40 were more likely to be infected than other age groups<sup>6</sup>. Below is a graphical presentation of the daily occurrence of number of cases, fatalities and discharged cases within the first two months of outbreak in Nigeria (27<sup>th</sup>February – 30<sup>th</sup> April 2020).

The graphical representations of COVID 19 outbreak in Nigeria as could be seen in Figures 1, 2, and 3 reveal the possibility of a continuous increase, in the number of cases with consequent hospitalizations and deaths if stringent measures are not put in place. The slow increase in the number of deaths as seen in Figure 2 is an encouraging factor and implies that little number of persons died due to the disease. The graph shows that no record of death was seen between 27 February to 22 of March 2020. Even when death occurred the increase was irregular compared to the daily increase observed in confirmed cases. This could be attributed to the fact that those mostly affected were young people (31-34) with stronger immunity to contend with the virus compared to the elderly. However, the steady increase in the number of confirmed cases with a comparable slower rate of discharged cases as could be seen in figures 1 and 3 indicates the need to intensify prevention and control efforts in the country. This is expedient since the graphs suggest the possibility of more deaths as number of new cases increase.

Figure 4 indicates that the rate at which confirmed cases occurred was far higher than the number of cases discharged from the hospital. It also shows that the rate of fatality was far lower than the number of confirmed cases. Nigerians by this need to scale up control interventions to reduce the steady daily increase in the number of confirmed cases, and also improve on treatment procedures in order to increase the no of discharged cases, otherwise, the low rate of death observed in the first two months might increase to the level of emergency.

### ***Prevention and control measures of COVID-19 in Nigeria***

Before the outbreak of the disease in Nigeria, the government was relatively not forceful regarding disease prevention and control activities in the

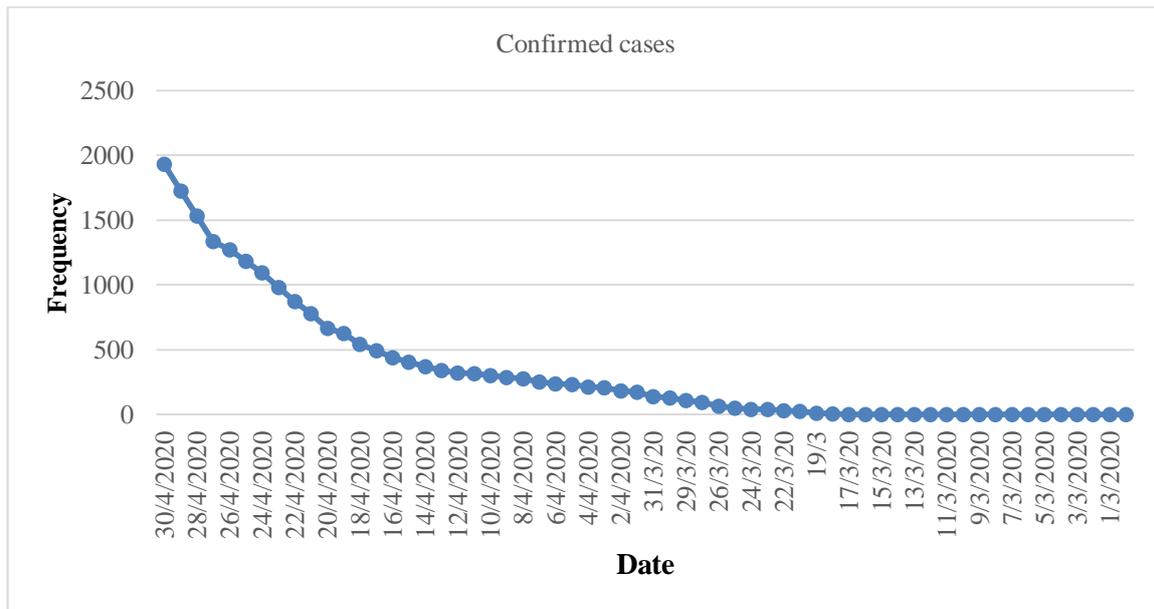
country<sup>10</sup>. Nonetheless the arrival of the index case triggered extreme measures towards containing the spread of the disease. The first line of action was the immediate activation of the country's National Emergency Operations Centre to level 3 by the multi-sectoral Corona virus Preparedness Group. This group which was led by Nigeria Centre for Disease Control with the support of Lagos State Health authorities aptly responded to the first case and carried out strict control measures as deemed appropriate<sup>9</sup>.

Consequently, contact tracing, testing and isolation of confirmed positive cases commenced in Lagos and Ogun States. Another preventive step taken by the federal government and relevant stake holders was aggressive sensitization of the masses on COVID-19 as well as ways of preventing the disease. Using all sources of information, including the radio, television, print and social media. Furthermore, people were encouraged to maintain social distancing, regular hand washing and use of sanitizers, use of face mask in public and good reparatory hygiene<sup>9</sup>. As number of cases increased, other control measures were applied such as the lockdown of the three most affected states and closing the Nigerian borders<sup>11</sup>. Again, some states that had the outbreak also carried out various degrees of lockdown. This lockdown directive involved the closing down of all schools, government parastatals, bans on religious and social gatherings involving more than 20 persons, restrictions on businesses except those involving essential products such as foods, drugs, fuel and gas etc. In order to ensure complete compliance on the directives on lockdown, social distancing, use of face masks and sanitizers, different state governments constituted taskforces to ensure that people in their respective states do not default. All these efforts did not prevent the steady increase in number of cases as well as number of affected states. Challenging factors that may have contributed to this scenario are hereunder discussed.

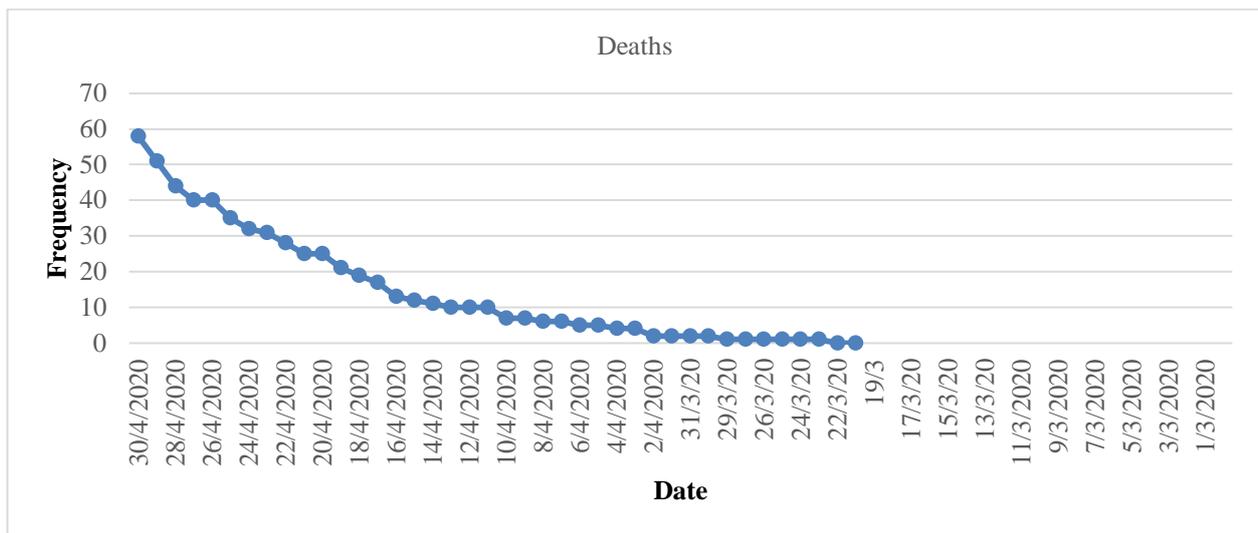
### ***COVID 19 prevention and control challenges***

#### **Poor compliance attitude**

A major challenge that undermined the control and prevention of COVID-19 in Nigeria was the issue of poor compliance attitude<sup>10</sup>. The response to COVID-19 prevention and control as reported in



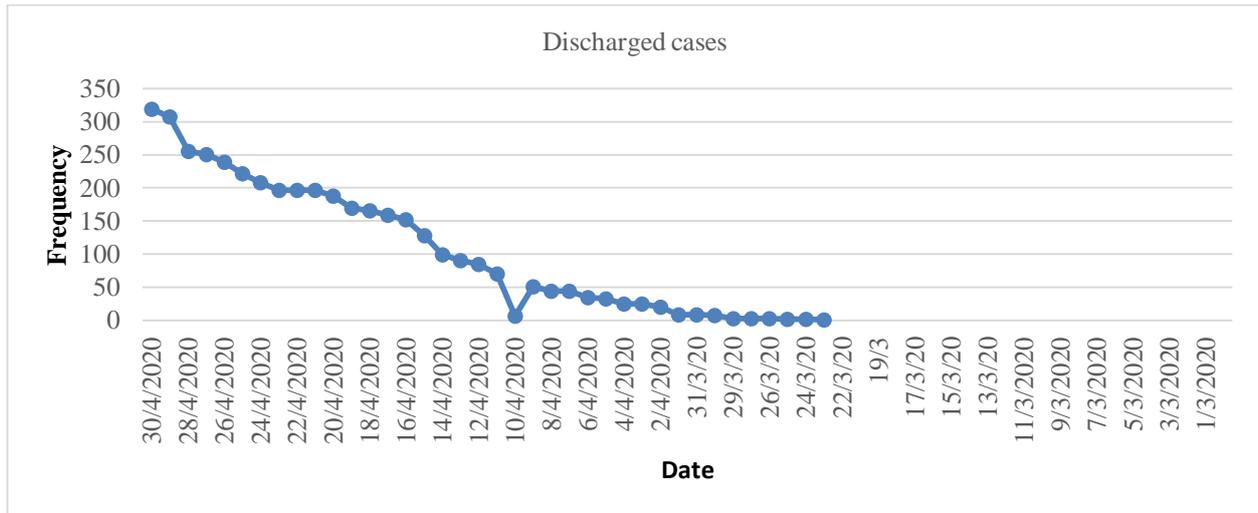
**Figure 1:** The trend of confirmed COVID-19 cases in Nigeria from February 27 to April 30, 2020



**Figure 2:** The trend of reported COVID-19 deaths in Nigeria from March 22 to April 30, 2020

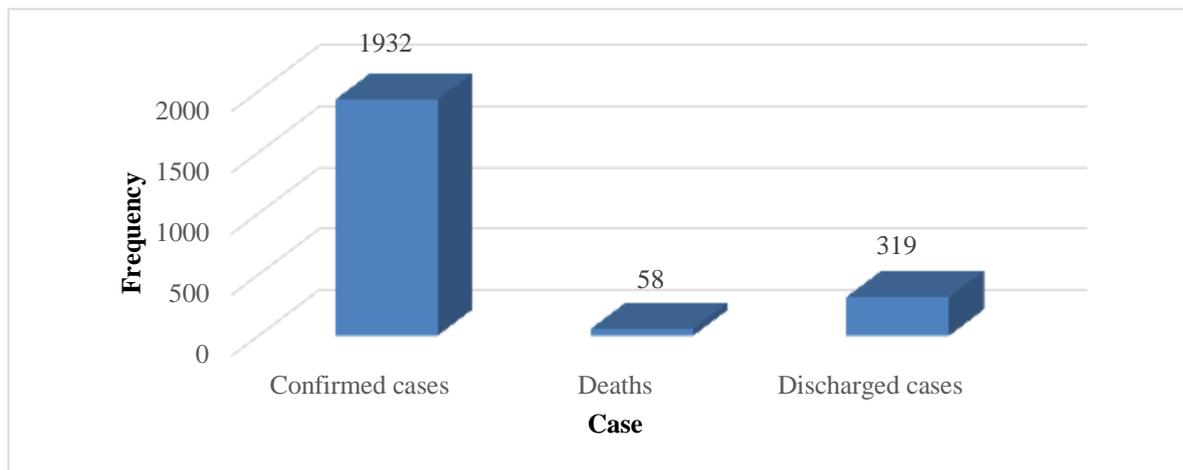
some states were below expectation especially on the side of the public. It was observed that most people especially at the early stage of outbreak of the disease demonstrated nonchalant attitude with total lack of commitment to preventive guidelines by government authorities<sup>10</sup>. In some parts of the states the compliance level was reportedly zero. People were seen going about their normal duties as usual without face masks, washing or sanitizing their hands as well as defaulting lockdown and social distancing directives<sup>12-14</sup>. A typical example was the case of a popular Nollywood actress who

after the lockdown directive in Lagos state organized a birthday party in her house that attracted a large crowd more than the recommended number. Amazingly the party was attended by a good number of well-respected government functionaries who ordinarily should comply with government directives. More so, this Nollywood actress was one of those chosen by NCDC to sensitize the masses and create awareness through the media on the importance of social distancing in COVID-19 prevention. Therefore, to have defaulted an order which she



Data source: Nigeria Centre for Disease Control update of COVID-19 outbreak in Nigeria

**Figure 3:** The trend of discharged cases of COVID-19 patients in Nigeria



**Figure 4:** Overall confirmed, deaths and discharged cases of COVID-19 in Nigeria from February 27 to April 30, 2020

took part in advertizing was disheartening and embarrassing, indicating how lowly the people complied with COVID-19 control measures<sup>15</sup>.

Similarly, it was also reported that the social distancing rule was not observed during the burial of the late Chief of staff to the Nigerian President who died due to COVID-19 complications. This case was particularly shameful because contrary to the order against social gatherings, a burial was conducted, most especially, at a time when COVID-19 had risen (to 542 confirmed cases, and 19 fatalities distributed in 20 states) in the country; and the said burial, conducted by high government officials who are leaders and as such, expected to lead the way for

the masses to follow by maintaining strict social distancing<sup>16,17</sup>. If people cooperated adequately with the orders of the government geared towards control and prevention of the virus, perhaps the outbreak may have been minimal or even limited to the index case. This is because the Federal government’s preparedness group effectively tracked, tested, and isolated all those that had contact with the Italian, through contact tracing. Besides, the index case was successfully treated and discharged<sup>18</sup>. This is likely to be part of the reason why for many weeks from the month of outbreak, no new case was reported until 9th March 2020. Compliance with preventive and control directives is therefore crucial in the war

against COVID 19 and suggests whether or not the virus will continue to spread as well as the possibility of survival or death<sup>10</sup>.

### Myths and misconceptions

A very important challenging factor that affected COVID-19 control and prevention efforts in the country was the case of having to contend with COVID-19 myths and misconceptions amongst a good number of Nigerians. The arrival of COVID 19 attracted numerous misconceptions regarding its origin, cause and prevention. This although has been the case in the face of pandemics, but that of COVID was distinct because it is a novel pandemic which at first had unclear epidemiological facts. An important consequence of misconceptions is the likelihood of complacency<sup>19</sup>. It is not in issue that proper knowledge of a disease is likely to influence attitude and compliance with preventive measures. Consequently, high level misconceptions concerning COVID-19 which trended in the country may have contributed to the poor comprehension of the grievousness of the disease and essentiality of its preventive practices. This misconception most importantly comprises messages that lead to the erroneous understanding of the disease, unscientifically recognized solutions and imaginary explanations on the outcome of the spread of the disease<sup>20</sup>.

For instance, people believed that the virus cannot thrive in Africa because of its hot climate and thus felt immune to its infection. Again, report across the states also showed that people perceived that the disease is meant for the rich and politicians<sup>21</sup>. This misconception perhaps was deduced from the fact that most reported fatalities involved the rich and top government personalities. Another misconception that had strong influence on Nigerians especially Christians was the association of the virus to 5G, new world order, punishment from God and the coming of antichrist<sup>22-26</sup>. This was a major challenge since it originated from the clergies who apparently are highly respected and command high levels of followership among the people. The misconceptions regarding the prevention of COVID-19 engendered different practices such as, steaming self with hot water, drinking of gins, gargling throat with salt water, consumption of hot drinks made of ginger, pepper, lemon, garlic and all manner of herbs perceived to prevent the

disease<sup>27,28</sup>. It was also observed that some individuals refused to report to the hospital but stayed at home to carry out self-treatment with chloroquine, a malaria drug, due to the misconception that such could be used to treat the disease<sup>19</sup>. It is thus apparent that if these misconceptions are not addressed, they will continue to hamper preventive and control efforts in the country.

### Social media interference

For many years now the social media is known for its efficacy in the dissemination of information to the masses especially the youth within the shortest time frame. In Nigeria, as a result of the constant power outage which makes it impossible to have access to reliable information at all times from sources such as radio and television, both young and old depend on the social media for daily news on trending issues. However, in as much as the social media is a good source of information, it most times present itself as a source of unverified and false information hence, can be as bad as it is good<sup>29-31</sup>. In the case of COVID 19, controlling the influx of excessive false COVID-19 information otherwise known as *infodemics* through different social media in the country was as challenging as the virus itself<sup>32,33</sup>. The danger with *infodemics* is that it beclouds the mind of the people against the truth. Through the social media, numerous persons were misinformed concerning the true cause of the disease and its prevention<sup>34</sup>. For instance, concerning the use of face mask, a lot of persons became discouraged from using face masks after seeing the video of a man whose face and lips allegedly reacted to the face mask produced in China. This video which trended heavily affected the use of face mask and prompted the production of locally made masks due to fear of the Chinese face mask. Again, there were numerous video clips that dissuaded the masses from accepting any COVID-19 vaccine for the fear that it was a plot to wipe away Nigerians and Africa as a whole. More so, all the myths, misconceptions, and misinformation were spread through the social media. Such information which characterized the first two months of COVID-19 outbreak in Nigeria exaggerated the situation, generated fear, lack of trust, and downplayed the gravity of the disease as well as lowered the effectiveness of healthcare services. Comprehensively, the social media may

have affected the minds of the people as it relates to the perceived severity of the disease and susceptibility as was seen in the poor compliance attitude generally, to control and preventive measures across the country<sup>35,34</sup>.

### Poverty

The high level of poverty in Nigerian cannot be over emphasized. This obviously played out as the government embarked on measures to curb the COVID-19 pandemic. As observed earlier, fighting COVID-19 in emergency cases require measures that halt and cripple the economy. During the first and second two weeks lockdown, so many Nigerians were unable to cope financially. This was because 85% of Nigerians are self-employed and most of which are traders, labourers and craftsmen<sup>36</sup>. Only small percentages are civil servants who will be paid whether they work or not. Apparently, the teeming number of self-employed members of the society cannot survive for long without daily wage from their work<sup>37</sup>. Consequently, asking such persons to stay at home without savings as a buffer was suicidal<sup>36</sup>. It was indeed difficult for people to cope without daily movement due to lack of money to procure food items that could last for weeks. This was perhaps one of the reasons why people defaulted the lockdown directive of the government. Commonly, some lamented that; “they will rather die of COVID than die of hunger”.

### Poor distribution of reliefs

As number of confirmed cases and fatalities increased, the Government declared that the 3 most affected states should be on lockdown. Some states that were affected also followed government directive to carry out different degrees of lockdown in their states. During the lock down the federal government gave directives that reliefs of food materials and money should be distributed to the poor and vulnerable groups. As interesting as this was, the exercise lacked transparency and was encompassed by dishonesty. Distribution of relief materials in most of the states was politicized and those distributed were ridiculously inadequate. For instance as at 29<sup>th</sup> March 2020, report from the three most affected states (Lagos, FCT and Ogun) revealed that ways in which relief materials were dispensed to the people fell below expectation, as a

result those who should benefit from the food and financial reliefs were yet to do so<sup>38,39</sup>. In some states, lamentations concerning the distribution of small and expired sachet of rice as well as restricted distribution of palliatives to members of the ruling political parties were common. Worse still the use of 5000 Naira (US\$13.1) maximum account balance as benchmark qualification for beneficiaries of financial palliatives and unclear details regarding “who” and “how” to benefit from the cash transfer marred the effectiveness of the programme. It was also generally observed that distribution of palliatives across the states was grossly delayed perhaps due to corruption and bureaucratic bottle necks. This situation increased hunger and as a result people could not obey the sit at home order<sup>40-42</sup>.

### People’s lack of trust in the government

Due to decades of nonchalant attitude towards the needs of the people, the political class in Nigeria has always been faced with the challenge of winning the trust of the citizens<sup>43,44</sup>. This was particularly the case with the arrival of COVID-19 in the country. At first, most Nigerians due to misconception felt the virus cannot survive in Nigeria and so when the index case was declared people felt it was a political scam aimed at attracting international fund. For some people, arrival of COVID-19 presented a big opportunity for politicians to defraud the country's treasury<sup>43</sup>. There was popular opinion that figures were been falsified and that state governors in order to partake in the fund mapped out for COVID-19 in the country were declaring inexistent number of cases. This distrust was made worse when the government through poor distribution of relief materials was unable to adequately account for the financial support given to the country by donor agencies, philanthropists and the international organizations<sup>43</sup>. This lack of trust influenced negatively, compliance to preventive measures in the country.

### Stigmatization

Stigmatization of suspected or isolated patients was observed among the people especially within the first two months of COVID- 19 outbreak in Nigeria. People fled on sighting any individual who coughed or displayed symptoms of fever even

when the cause of fever or cough was unknown. Cases where people were afraid and kept away from the Chinese or any person suspected to come from China were common. Stigmatization was also displayed by health workers. Report of health workers abandoning their patients frequently occurred and even became worse as number of cases increased<sup>45</sup>. Through the social media, family members whose relations were stigmatized and abandoned by health care givers made short videos through which they lamented the ordeal of their relation in isolation<sup>46</sup>. Fear of stigmatization was partly responsible for some person's unwillingness to be tested, isolated and treated. This could also be the reason why some persons even while at the isolation centre made frantic efforts to run away from isolation<sup>47</sup>. Apart from the fact that people were hiding from being tested, some refused to give truthful data of their contact with a person who came back from countries where the prevalence of the disease was high. Therefore, people who were positive and refused to be tested roamed the streets as COVID-19 free agents while unknowingly infecting people that came across them resulting in a vicious circle of continuous increase in number of confirmed cases<sup>48</sup>.

### **Inadequate healthcare facilities**

Nigeria in the bid to control the COVID-19 outbreak was particularly challenged by already existing weak health sector<sup>18</sup>. Available health facilities and equipment to contend with the virus were grossly inadequate<sup>49</sup>. There was limited number of test kits which was why no comprehensive tests were conducted on the masses. Those tested were gotten through contact tracing and people who were caught at state borders. There were also limited numbers of ventilators, isolation centres as well as health care providers<sup>50</sup>. Due to limited facilities some patients reportedly suffered neglect and were allowed to die in the isolation centres<sup>46,51,52</sup>.

### **Fear**

Fear was one of the major challenges of COVID-19 outbreak in Nigeria. This feeling was not necessarily due to the fatality of the disease since the people at the early stage did not believe that the disease was real. However, fear was stirred up by truckload of misinformation, fake news and

perceived implications of government preventive directives. Many persons became tensed and fear of how to cope with the novel situation engendered panic buying with consequent scarcity of food and other essential materials. Again due to fear of being infected by the disease, many health care providers rejected patients in their hospitals especially those that showed symptoms related to fever increasing the dilemma of sick persons<sup>18,45</sup>. Similarly, fear of being captured and isolated caused many persons with fever related symptoms to indulge in self-medication at home.

### **Selective lockdown procedure**

At the beginning, most preventive and control efforts of the federal government of Nigeria were limited to the 3 states where the infection was high with other states left to decide what measure to take<sup>10</sup>. No uniform preventive measures were carried out in all the states. While some states locked down their borders others who were yet to record any case were nonchalant. For this reason, there were mass movement of people across the country especially movement from states of high infection. People who were resident in states of high infection due to fear of the financial consequences of the lockdown travelled to their hometown. This movement may have led to the increasing number of cases as witnessed even as the lockdown was being observed. The spread to other states thus may have also been occasioned by movement of asymptomatic individuals from states of high infection to states of zero infection. More so, enforcing the lockdown in most states was cumbersome as cases of people rebelling and thus refusing to obey the directive was observed. In some cases, there were confrontation between the government security agents and the masses leading to conflicts and subsequently, death of citizens<sup>44</sup>.

### **Conclusion**

The study reveals that COVID-19 prevention and control was very challenging in the first two months of outbreak leading to unwavering increase in number of confirmed cases and deaths despite all government efforts. Although increase in number of deaths was comparably slow in the first two months there is evidence that more deaths might occur as new cases continue to rise. Numerous factors were found to have contended

with preventive efforts which included poor compliance attitude, stigmatization, misconceptions and myths, fear, inadequate health facilities and others. Consequently, if stiffer preventive measures are not applied, COVID-19 in the country will continue to rise with its life threatening and economic implications.

## Recommendations

- In order to ameliorate the effect of wide range COVID-19 misconceptions and myths among the people, there is urgent need for the government and other stake holders to organize well-articulated evidence based health campaigns, employing all necessary means of information dissemination, including traditional channels.
- The federal government should intensify prevention and control measures by ensuring that all states comply with the Federal government preventive orders in order to ensure uniformity of purpose.
- The government should look into the modalities adopted for relief distribution across the states, with the aim of ensuring that reliefs get to the target audience.
- Government might need to explore house to house testing of residents especially in states with high level of prevalence.
- The already existing laws on COVID-19 should be enforced and sanctions attached to them and implemented vigorously on defaulters in all the States in order to enhance compliance to preventive directives.
- Federal government should scale up provisions for health care facilities for COVID-19 treatment as number of cases continue to increase
- Health workers deployed to Isolation centres should be highly compensated in order to encourage hard work and more work.
- Laws against stigmatization of COVID-19 patients or survivors should be enacted and enforced by the Federal Government.

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## Conflict of Interests

The authors declare no conflict of interest.

## Authors' Contributions

Lois NO, Christian OA, Edith NO, Eunice NA, Onyechi N and Patricia CN conceived and commissioned the study. Lois NO, performed the literature search and screened for the selected studies, extracted the data and wrote the first draft of the manuscript. Patricia CN, Edith NO, Onyechi N and Eunice NA supervised all aspects of the study. All the authors have read, agreed and approved to the final manuscript.

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