

COVID-19 PANDEMIC: PARKS RESPONSES TO SOCIAL DISTANCING LOCATION IN NIGERIA

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ABSTRACT: *Recreation is one of the ways people keep themselves healthy. Physical activity is critical to good health, and parks provide a venue in which physical activity can occur. This research developed a model to show how parks in Nigeria respond to social distance practice to mobility changes in residential areas. The research shows that social distance is practiced more in states where the figure of COVID-19 is high as compared to other states. The research suggested some recommendations to parks operators and the government on what to do to flatten the curves and still make parks open for recreational activities.*

KEYWORDS: COVID-19 pandemic; Social distancing; Parks; Tourism

INTRODUCTION

Recently, there is a global awareness of the COVID-19 outbreak, an infectious disease caused by a novel coronavirus, which was first discovered in Wuhan City, Hubei Province of China in December 2019 with only 44 infected individuals, now with more than 5 million individuals already affected worldwide (Worldometer 2020). The virus spread from China to other parts of the globe as a result of the movement of an infected person that are not showing symptom among other environmental-related transmissions. Almost all countries in Africa have cases of COVID-19 and the entire globe. The disease has been declared a pandemic and global emergency by the World Health Organisation (WHO) since the 28th of February 2020, declaring the risk of spread to be very high at the global level (WHO 2020).

Regulation against the use of public spaces including parks, confinement, and social distancing has been early key policy measures to reduce transmission of the contagious SAR-CoV-2 (COVID_19) and to protect public health. Currently the world's population is amid unprecedented restrictions in the use of public spaces worldwide due to the ban on movement (Sandford, 2020). As of today, there has been no known cure. However, not all the closed cases led to death, some individuals recovered from the virus. On May 14 2020, there are 1,988,107 COVID-19 closed cases (close cases are addition of deaths and recovered cases), out of which 1,687,097 individual, accounting for 85% recovered and 301,010 deaths (15%). The virus spread faster in areas where people come together or in a social gathering. The only sure way to prevent the virus is through practicing good hygiene, social distancing, regular hand

washing, and protection of face by wearing a face mask since it is spread through droplets produced by infected person's coughs, sneezes, or speaks. The COVID-19 virus can survive on plastic and stainless for up to 3 days, on copper for less than 4 hours, and on cardboard for less than a day. Many developed countries of the world like the United States of America, Italy, the United Kingdom, Germany, France, Canada were locked down for weeks to enforce social distancing and reduce the rate of virus transmission.

Nigeria, which recorded her index case on the 28th of February 2020, by 14th May 2020 has total cases of 4,971 infected individuals, out of which 164 individuals are dead and 1,070 individuals recovered, leaving the active cases at 3,737 individuals. This implies that out of the total 4,971 infected individuals, 1,234 cases have been closed and are out of the hospital. Out of these closed cases, mortality rate is 13.3% while survival rate is 86.7%. This implies that out of every 100 closed COVID-19 cases, there are 13 deaths, which is lower than the global mortality rate of 15%.

To reduce the spread of this infectious disease, when grocery shopping, it is advisable to keep at least 1-metre distance apart from other individuals and touching of eyes, mouth, and nose should be avoided. It is advisable to sanitize the handles of shopping trolleys or baskets before and after shopping. It is necessary to wash your hands thoroughly with soap and running water when at home. Also, washing of hands thoroughly after handling and storing your purchased products. So far, COVID-19 has not been transmitted through food or food packaging.

Quarantine is the restriction of activities or separating people, who are not ill but may have been exposed to COVID-19. Exposed individuals need to be quarantined to prevent the spread of the disease at the time when people just develop symptoms. Isolation means separating people who are ill with symptoms of COVID-19 and may be infectious to prevent the spread of the disease. Physical distancing means being physically apart. WHO recommends keeping at least 1-metre distance from others. This is a general measure that everyone should take even if they are well with no known exposure to COVID-19. WHO has given different reasons why social distancing at least 1 metre distance between persons is important during this period. These reasons include:

- When someone coughs, sneezes, or speaks they spray small liquid droplets from their nose or mouth which may contain the virus. If you are too close, you can breathe in the droplets, including the COVID-19 virus if the person has the disease.
- Where people come together in crowds, you are more likely to come into close contact with someone that has COVID-19 and it is more difficult to maintain a physical distance of 1 metre.
- Hands touch many surfaces and can pick up viruses. Once contaminated, hands can transfer the virus to your eyes, nose, or mouth. From there, the virus can enter your body and infect you.
- Avoiding contact with others will protect them from possible COVID-19 and other viruses.

Based on these reasons, everyone should stay at home. However, if you need to leave your house, wear a mask to avoid infecting others. If a stay-at-home order is declared by the government and a person leaves his or her home without using a mask, then such a person can

be arrested for an attempt of murder, irrespective of who the person is. Even if the person is on special duties, it is expected that such an individual should put on his or her mask.

To reduce the spread of this coronavirus both states government and the federal government have declared close down of all social gatherings to obey social (physical) distance. Center for Disease Control (CDC) updated their slogan on the 27th March 2020 from social distance to physical distance. It is a more accurate description and is the term recommended by the World Health Organization. Keeping physical distance is essential for mitigating the spread of COVID-19, but that doesn't mean we have to socially disconnect from one another. Initially, 14 days stay at home was declared because the time between exposure to COVID-19 and the moment when symptoms start is commonly around 5 to 6 days but can range from 1 – 14 days. Most sectors have complied with this policy but some sectors still find it difficult to adhere to social distance practice.

Public parks serve different purposes for various demographics and are especially essential for socially vulnerable residents (Anguelovski, 2020). Parks are most-times the only outdoor recreational spaces for low-income earners and can provide comfort from cramped living conditions. Parks are particularly important for children and youth (Christian et. al. 2015). Senior citizens living alone visit public parks for social interactions to mitigate emotional stress, isolation, and loneliness. Restrictions on the use of parks and public open space impacted greatly the mental health and physical fitness of the people.

Many authors have written different articles on COVID-19 but have not worked on parks and recreational centres responses to social distance. Ekum and Ogunsanya (2020) used hierarchical polynomial model to predict COVID-19 cases at global level, Adeniyi et al. (2020) applied dynamic model to model Italy COVID-19 cases. Ekum et al. (2020) used stochastic model in analysing COVID-19 cases in Nigeria, Rabajante (2020) deployed mathematical models to measure COVID-19 dynamics, Jia, et al. (2020) applied different mathematical models to predict the number of individuals expected to be infected in Wuhan and in China as a whole. Li, et al. (2020) developed dynamic models and time series models based on different mathematical formulations to predict the spread of COVID-19, Are and Ekum (2020) did some visualization on COVID-19 data using moment about mid-point, Wu et al. (2020) used logistic growth model to compare the dynamics of COVID-19 in 29 provinces of China, and Sengupta et al. (2020) machine learning algorithms to forecast COVID-19 pandemic in Indian.

However, in this research, we are interested in studying how parks in Nigeria have responded to social distance practice by all the States in Nigeria.

MATERIALS AND METHODS

This research relies so much on materials from WHO, CDC, and Google on-line materials. The google COVID-19 community mobility report of April 11, 2020, shows mobility changes between baseline days and days during close down order. The baseline days are days before the closedown order. The data help to know how people cluster around a place before close down and during close down. The report helps health officials and individuals to understand responses to social distancing guidance related to COVID-19. Data on retail and recreation, grocery and pharmacy, parks, transitions, workplace and residential. The stay at the home

policy is expected to increase mobility at parks but increase mobility in residential areas. How would stay at home policy affects mobility at parks? However, in this research, we are only interested in mobility changes in parks, which include national parks, public beaches, marinas, amusement parks, plazas, and public gardens. The data were collected from Saturday, 29th of February 2020, to Saturday, 11th of April. Mobility data are also collected in residential areas. The hierarchical polynomial regression model is used to fit a line of best fit to parks response to COVID-19 social distance in relationship with residential areas response to social distance.

RESULTS AND DISCUSSION



Figure 1. Nigeria map showing the spread of COVID-19. Source: NCDC

Figure 1 shows that Lagos has above 100 cases as at the time of this report on the map, FCT (Abuja) has above 50 but less than 100 COVID-19 cases, 18 states had less than 50 cases while 17 other states had not recorded any case as at 11th April 2020.

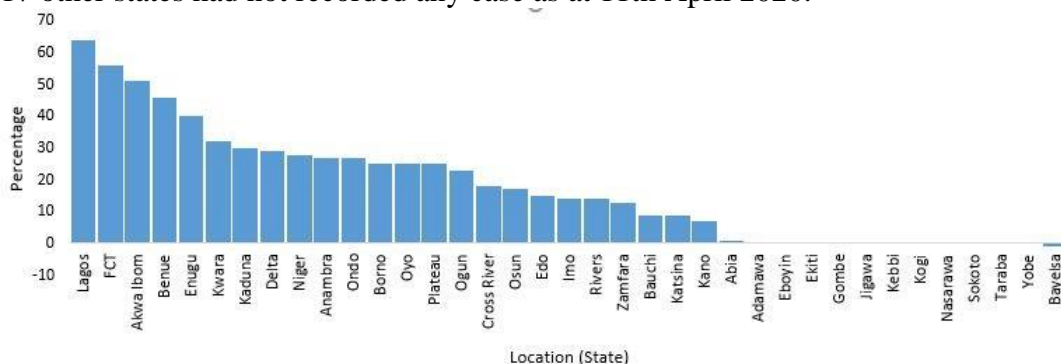


Figure 2. Park's responses to social distancing to COVID-19 by Location

Figure 2 shows that parks in Lagos State respond to social (physical) distancing directives of the incident command of the state and the federal government task force managing the spread of COVID19 than any other parks in other states of the federation, followed by parks in the Federal Capital Territory, Abuja. The parks in Bayelsa State is the least to respond to the social distancing directives during the period under study. Figure 2 above shows that the mobility in

parks in Lagos State reduced by 64% and those in Abuja have reduced by 56%. Mobility changes in parks in Bayelsa State increased by 1%. These mobility changes could be attached to the number of reported COVID-19 cases in each state.

Lagos and Abuja responded more to social distancing as a result of the restriction placed by the President. The mobility changes in residential are shown in Figure 3.

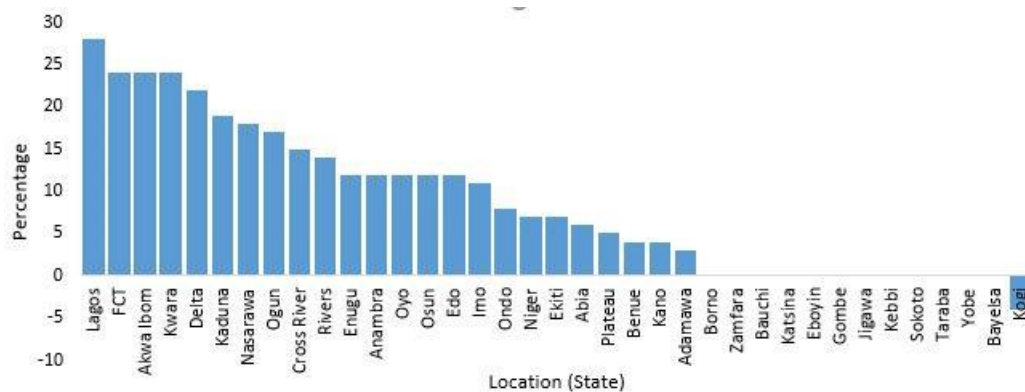


Figure 3. Residential responses to social distancing to COVID-19 by Location

Figure 3 shows that residents in Lagos respond to social (physical) distancing than any other residents in other states, followed by residents in Abuja. The residents in Kogi and Bayelsa States did not respond to social distance. The mobility changes in residential in Kogi State reduced while that of other states increased. Figure 3 shows that mobility in the residential of Lagos State has increased by 28% and those in Abuja have increased by 24%. Akwa-Ibom and Kwara States also have 24% each. Mobility changes in parks in Bayelsa state increased by 1%. Keeping physical distance in a state is proportional to the number of COVID-19 cases in the state. Figure 1 shows that Lagos and Abuja have higher cases than the rest states and thereby respondent to physical distance than other states. The following states did not respond to COVID-19 social distancing because they did not have any laboratory-confirmed cases as at the period of study, Adamawa, Ebonyi, Gombe, Jigawa, Kebbi, Kogi, Nasarawa, Sokoto, Taraba, Yobe, and the Bayelsa States. Ekiti State has confirmed laboratory cases and did not practice social distance in parks, but their residential data shows that they observe the social distance.

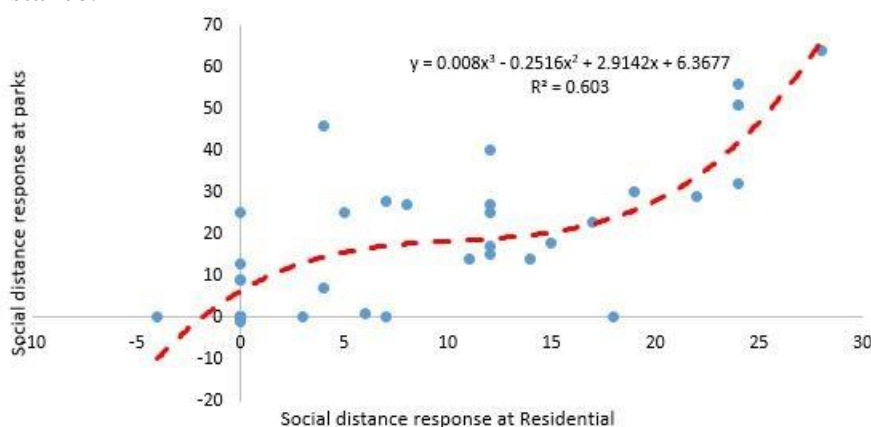


Figure 4. Relationship between parks and residential responses to social distancing to COVID-19

Figure 4 shows that parks' response to social distance is dependent on residents' response to social distance. The relationship is a polynomial of order 3. The plot shows that 60.3% of the changes in mobility at the parks can be explained by the mobility changes in residential areas. The social distance at the residents is expected to increase or higher than that of the baseline, while mobility changes at parks are expected to decrease if the social distance is observed. Cross River state is one state that observes social distance at parks and in residential areas and has not recorded any laboratory-confirmed case as at the period of the study. However, the trend shows that states with the virus tend to observe social distance at parks and in residential areas more than states with little or no laboratory-confirmed cases.

CONCLUSION

This research has shown that people only practice social distance if cases of COVID-19 in their environment is reportedly high. States with high COVID-19 cases tend to practice social distance as compared with states with little or no case. The stay at home policy has affected most parks in states where exposure is high. This stay at home is different from a holiday. During holidays, parks are very busy but in this case, parks are closed down and the ones that are opened record very few attendances. These parks will not be permanently closed down. As the government tries to ease down the stay-at-home policy, the park owners would also want to start operation. There are recommendations for park owners who want to reopen for recreational activities. These recommendations are for both park users and park operators as stated in the public health advisory on COVID-19 issued by the Nigeria Centre for Disease Control (NCDC).

- Individuals exhibiting COVID-19 symptoms should not be allowed into the parks.
- Share the trail and warn other trail users of your presence and as you pass.
- Limited access to public restrooms or water fountains.
- Follow Nigeria Centre for Disease Control (NCDC) guidance on personal hygiene before visiting parks or trails.
- Observe Nigeria Centre for Disease Control (NCDC) minimum recommended physical distancing of 6 feet from other persons at all times.
- Parks owners should place notice informing the visitors on how to stay safe during their stay at the parks.

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Declaration of Interest Statement

The authors declare that there is no conflict of interest.