



Health Consequences of Coronavirus Pandemic among Frontline Health Workers in Lagos State, Nigeria

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Abstract. Coronavirus otherwise known as COVID-19 Pandemic rocked the entire world in the wake of the year 2020. The rate at which Frontline Health Workers in Lagos State were infected with Coronavirus Pandemic increased tremendously. This was as a result of exposure to infected cases, shortage of personal protective equipment (PPE) and many others. Historical research methodology was used in this study and relied on qualitative research method of data collection from primary and secondary sources. Thirty-eight Frontline Health Workers were interviewed. The study concluded that morbidity, disability and mortality were health consequences of Coronavirus Pandemic among Frontline Health workers in Lagos State, Nigeria.

Keywords: Coronavirus, Frontline Health workers Health consequences, Lagos State, Pandemic.

1. Introduction

Coronavirus which was first reported in December 2019 in Wuhan China, declared as public health emergency of international concern in January 2020 and later Pandemic in March 2020 by the World Health Organisation. In February 27th, 2020, Nigeria recorded her first case of the dreaded Coronavirus (COVID-19) Pandemic when an Italian citizen travelled into the country. This reality woke the Federal and State Government up to protect its citizens and prevent an outbreak of the disease in the country. Civil societies and government agencies embarked on enlightenment campaigns for good hygiene and social distance in public places (Olapegba, et. al., 2020). Also, the body responsible for disease control in the country the Nigeria Centre for Disease Control (NCDC), partnered with state governments to trace and track victims and their contact. To further prevent the spread of the virus, the Federal Government of Nigeria in March 30th, 2020 took a drastic decision to

close all national borders and airspace, schools, worship centres and other public centres and placed the Federal Capital Territory (FCT), Lagos State and Ogun State on total lockdown for fourteen days and later extended this lockdown to May 3rd, 2020 (Olapegba, et. al., 2020).

This virus posed a public health risk because of the wide spread and Lagos State Government used different measures and strategies to curtail it such as; frequent washing of hands, keeping good hygiene, social distancing, use of facemask in public place and hand sanitizers (Aifuwa, et. al., 2020). The symptoms of the virus on infected individuals include; fever, cough, shortness of breath or difficulty in breathing, chills, repeated shaking with chills, muscle pain, headache, sore throat, and loss of taste or smell (Worldometers, 2020).

1.2 Statement of the Problem

The rate at which Frontline Health Workers in Lagos State were infected with Coronavirus Pandemic increased tremendously. This was as a result of exposure to infected cases, shortage of personal protective equipment (PPE) etc. Coronavirus Pandemic has led to high morbidity and mortality among frontline health workers in Lagos State. This has caused shortage of personnel, over labour and stress which resulted in change in mode of operation and personal living such as: washing of hands frequently with soap and water or using alcohol base sanitizer, unwilling to attend to patients and absurdity.

1.3 Objective of the Study

The objective of the study is to investigate the health consequences of Coronavirus among Health Workers in Lagos State, Nigeria.

1.4 Research Question

The study answered this question:

- What were the health consequences of Coronavirus (COVID-19) among health workers in Lagos State, Nigeria?

1.5 Limitation of study

The limitation encountered by researchers in this work include unwilling to be interviewed by some health workers and total refusal of some participants. Also, some participants not wanted to participate or cooperate with the researchers due to sensitive nature of the study.

1.6 Research Methodology

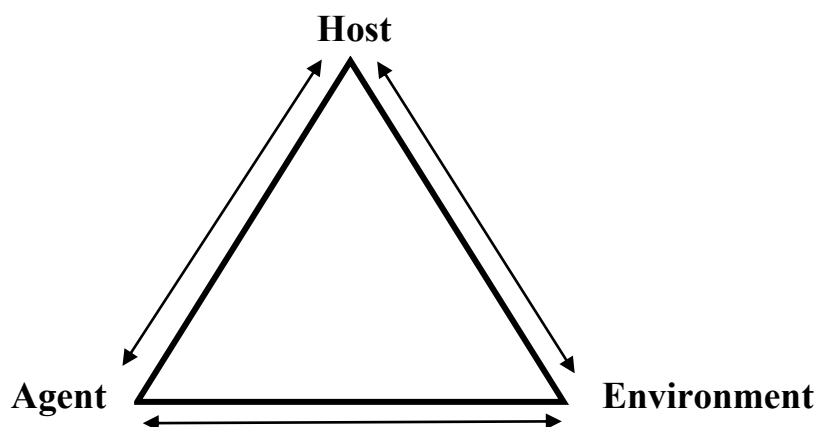
This study employed historical research methodology and relied on qualitative research method of data collection from primary source. Thirty-eight Frontline Health Workers were interviewed. It also involved the use of secondary historical data which includes, textbooks, newspapers and journals.

2. Review of Related Literature

The term Pandemic commonly used to describe diseases that are new or associated with novel variants of existing organisms for example, antigenic shifts occurring in influenza viruses, the emergence of HIV/AIDS when it was known in the early 1980s, and historical epidemics of diseases such as plague. Pandemic can be said to be a characteristic feature of certain repeatedly reemerging diseases such as cholera and influenza (Arda and Aciduman, 2012). Nigeria

3. Theoretical Framework

The Epidemiologic Triangle is a model that scientists have developed for studying health problems, propounded by Abdel R. Omran in 1971. It helps one to understand infectious diseases and how they spread.



National Pandemic Influenza Preparedness and Response Plan (NNPIRP, 2013) defined pandemic as a worldwide outbreak of influenza disease that occurs when a new type of influenza virus appears that people have not been exposed to before (or have not been exposed to in a long time). The pandemic virus can cause serious illness because people do not have immunity to the new virus.

Morens, et. al., (2009) refers to pandemic as a worldwide outbreak of a specific disease or illness that suddenly occurs in human beings within a country or region in a number of cases that clearly exceeds that of normal. Pandemic outbreaks are expected to occur simultaneously throughout the nation or continent in inevitably and unpredictable intervals. Nigeria National Pandemic Influenza Preparedness and Response Plan, (2013) added that an influenza pandemic occurs when a new influenza virus emerges for which there is little or no immunity in the human population and begins to spread efficiently from person to person causing serious illness and sometimes resulted in death. Because of its potential to cause significant illness and death worldwide, experts believed that pandemic had a major negative impact on the global health. Coronavirus was classified into five types which were named after the Greek letters (a) alpha, (b) beta, (c) delta, (d) gamma, (e) omicron. These viruses spread through the aerosol and airborne modes of transmission which marked a responsibility of about ten to thirty percent of colds occurred worldwide. Coronavirus was not deemed dangerous until it underwent mutational change resulted in upper respiratory infections and pneumonia (Livingston, Bucher, & Rekito, 2020).

The Triangle has three corners (called vertices):

- Agent, or microbe that causes the disease (the “what” of the Triangle)
- Host, or organism harboring the disease (the “who” of the Triangle)
- Environment, or those external factors that cause or allow disease transmission (the “where” of the Triangle)

Agent: is the cause of the disease. When studying the epidemiology of most infectious diseases, the agent is a microbe an organism too small to be seen with the naked eye. Disease causing microbes are bacteria, virus, fungi, and protozoa (a type of parasite). They are what most people call germs. The symptoms for the Severe Acute Respiratory Syndrome (SARS)-COV 2 virus related COVID-19 infection include fever, tiredness, shortness of breath and dry cough. Some patients had aches and pains, nasal congestion, runny nose, sore throat or diarrhea. These symptoms are usually mild and begin gradually. Some people were infected but do not develop any symptoms and do not feel unwell. According to WHO (2020), the knowledge of around 1 in 6 cases of COVID-19 resulted in serious illness and the development of breathing difficulties. Those who were more likely to develop a serious illness include older people and people with underlying medical problems.

Hosts: are organisms usually humans or animals which are exposed to and harbor a disease. The host can be the organism that gets sick as well as any animal carrier (including insects and worms) that may or may not get sick. Although the host may or may not know it has the disease or have any outward signs of illness the disease does take lodging from the host. The “host” heading also includes symptoms of the disease. Different people may have different reactions to the same agent. For example, adults infected with the coronavirus are more likely than children to develop serious complications. The host are the health workers of different sex and age. Health workers who are at risk, including individuals more than 50 years old those with presence of a systemic disease and disable individuals (Ahmed, et. al., 2020).

Environment: is the favorable surroundings and conditions external to the host that cause or allow the disease to be transmitted. It is transmitted from an infected person through coughs or sneezes. Some diseases live best in dirty water. Others survive in human blood. Still others, like corona virus, thrive in code temperatures but are killed by high heat. In case of this study, hospital is the contacting point for health workers in Lagos State in the process of their job. In

Lagos for example, a patient was admitted with malaria fever and had SARS-CoV-2 and the health workers responsible for care became infected (Adepoju, 2020).

4. Result and Discussion

4.1 Health Consequences of Coronavirus among Frontline Health Workers

Morbidity

Frontline Health workers in Lagos State were involved in testing and treatment of individuals with COVID-19 and more vulnerable than the general public as well as prone to spread infection to their loved ones. The transmission of the disease among the health workers was linked with improper training, protection, not following the recommended protocols or guidelines, absence of isolation rooms and the lack of knowledge and awareness regarding the course and spread of the disease (Alade, Oral Interview, 2025). The lack of reliable testing and the uncertainty of the diagnostic criteria were also associated with the transmission of infection to health workers in the state (Ajayi, Oral Interview, 2025). In addition, the preventive measure for COVID 19 infection require personal protective equipment (PPE) like respirators, N-95 masks, non-perforated gowns and visors or face shields for protection from infections. Due to the large scale of infection globally, the supply of these necessary PPEs has been irregular to say the least (Alebiosu, et al, Oral Interview, 2025). Besides most of the PPEs were non-reusable and discarded with the utmost precautions to prevent transmission. Therefore, the inadequate and improper use of PPEs was a critical factor in COVID 19 infection rates of frontline health workers. The reverse transaction polymerase chain reaction (RT-PCR) testing for the identification of virus was not readily available at most health care facilities in the state and for all suspected patients (Raji, Oral Interview, 2025).

Coronavirus test results on average were available more than one day. Therefore, the difficulty and lack in widespread of reliable testing kits and the uncertainty of the diagnostic criteria was also associated with the transmission of infection to health workers. Likewise, stressful working environment, long working hours led to fatigue and isolation related psychological issues also contributed to increased probability for health workers infection of COVID-19. some other factors which predisposed health workers infection were inadequately cleaned and sanitised hospital surfaces, compromise in disinfection of medical equipment and lack of training and education

related to the pandemic (Hassan, Oral Interview, 2025).

Disability

Where the virus was first discovered it was said that coronavirus caused long-term damage to survivors' lungs and twenty five percent of survivors had decreased lung function. Some recovered patients experienced twenty to thirty percent less capacity in their lungs and became short of breath during a brisk walk. While survivors may be able to regain some of their lung strength through rehabilitation and physical therapy and will take time. However, lung problems were common from survivors then number of staffers suffered lung scarring or fibrosis from coronavirus. Most of us saw coronavirus as a lung disease that caused acute respiratory distress. And doctors now believed that the virus can also damage heart, brain, kidneys, liver, and other organs (Isola, Oral Interview, 2025).

According to Olapeju et al. Oral Interview, (2025) severe pneumonia survivors and patients carry an increased risk of heart disease for roughly ten years. So, we may see increased heart attacks, strokes, and other cardiac problems in coronavirus survivors for years to come. Post-intensive care syndrome is common in coronavirus survivors. In addition to organ damage, simply being on a ventilator for an extended period poses its own challenges. Between twenty-five and seventy five percent of intensive care unit (ICU) patients experienced post-intensive care syndrome (PICS). This condition is caused by a variety of factors, including the physical and emotional stress and trauma of being in the intensive care unit and the side effects from sedatives and other medications. Symptoms of post-intensive care syndrome can include; memory problems, post-traumatic stress disorder (PTSD), depression and anxiety, muscle weakness, fatigue and insomnia, shortness of breath etc.

Mortality

Health workers were the front-line soldiers in the outbreak of any disease and were more susceptible to be infected because of their direct and close interaction with the diseased individuals (Tiamiu, et. al., Oral Interview, 2025). Some were infected but in severe cases led to the death of the frontline health workers or a similar scenario happened to their family members or closed ones (Raji, Oral Interview, 2025). Mortality rates among health workers who become infected were not high in many parts of Lagos (Ajayi, Oral Interview, 2025). Deaths among infected

frontline health workers with Coronavirus were not common in the state and mostly affected those older than fifty years or staffers with underline health issues. Tragically, health workers rehired from retirement to help at the frontline have commonly experienced the highest mortality when compared with their working age counterparts. (Adeyanju, Oral Interview, 2025).

5. Conclusion

The study concluded that morbidity, disability and mortality were health consequences of Coronavirus Pandemic among Frontline Health Workers in Lagos State, Nigeria. The high rate of infection among frontline health workers in Lagos State was a serious concern because workers infected stayed away from work for at least fourteen days, depleted the already exhausted workforce. Then, Lagos State was one of the most infected states which recorded highest number of Coronavirus Pandemic victims in the country. However, the mortality rate was high world over, it was reported by WHO, (2022) that over 1.5 million health workers died as a result of coronavirus from 2019 to 2022.

6. Recommendations

- Provision of adequate personal protective equipment (PPE) for the health workers in the State.
- Provision of adequate testing kits for health facilities in the State.
- Post-Coronavirus follow up should be provided for the health workers in the State

7. Suggestion for further studies

- Environmental consequences of Covid19 Pandemic in Lagos State Nigeria.
- Covid19 Pandemic Symptoms and Treatment in Lagos State Nigeria

References

- Addi, R. A., Benksim, A, Amine, M, & Cherkaoui, M. (2020). Asymptomatic COVID-19 infection management: The key to stopping COVID-19. *Journal of Clinical and Experimental Investigations*, 11(3), 1-2.
- Adepoju, P. (2020). Nigeria responds to COVID-19; First Case Detected in sub-Saharan Africa. National Medical. Available online: <https://www.nature.com/articles/d41591-020-0000>. 4-12. (Accessed 4th May, 2025).

- Adeyanju. E. Oral Interview, (Medical Consultant, 52 years) (3rd April, 2025). Yaba, Lagos State.
- Ahmed, N, Shakoor, M, Vohra, F, Abduljabbar, T, Mariam, Q, & Rehman, M. (2020). Knowledge, Awareness and Practice of Health Care Professionals amid SARS-CoV-2, Corona Virus Disease Outbreak. *Pakistan Journal of Medical Science*. 36(COVID19-S4)
- Aifuwa, H. O., Saidu, M & Aifuwa, S. A. (2020). Coronavirus Pandemic Outbreak and Firms Performance in Nigeria. Retrieved from <https://www.researchgate.net> publication.
- Ajayi. O. Oral Interview, (Medical Consultant, 58 years) (14th March, 2025). Ikeja. Lagos State.
- Alade. I. Oral Interview, (Medical Consultant, 63years) (18th April, 2025). Festac, Lagos State.
- Alebiosu. Y. Oral Interview, (Medical Consultant, 58years) (16th April, 2025). Ikoyi, Lagos State.
- Arda, B., & Aciduman, A. (2012). Pandemic influenza 1918-19: lessons from 20th century to the 21st from the history of medicine point of view. *Lokman Hekim Journal*; 2 (3): 13- 21.
- Hassan. R. Oral Interview, (Medical Consultant, 54years) (11th April, 2025). Isolo, Lagos State.
- Healy, M. (2020). Coronavirus infection may cause lasting damage throughout the body, doctor's fear. *Los Angeles Times*. Retrieved <https://www.latimes.com/science/story/2020-04-10/coronavirus-infection-can-do-lasting-damage-to-the-heart-liver>.(Accessed 4th May, 2025).
- Isola. T. Oral Interview, (Medical Consultant, 50years) (12th April, 2025). Ebute Meta, Lagos State.
- Livingston, E, Bucher, K, & Rekito, A. (2020). Corona virus disease 2019 and influenza. *Journal of the American Medical Association* [Epub ahead of print]. <https://doi.org/10.1001/jama.2020.2633> (Accessed 4th May, 2025).
- Morens, D. M., Folkers, G. K., & Fauci, A. S. (2009). What is a pandemic? *Journal of Infectious Disease*, 200(7), 1018-1021. <https://doi.org/10.1086/644537>
- Olapegba, P. O., Ayandele, O., Kolawole, S. S., Oguntayo, R., Gandi, J. C., Dangiwa, I. F. & Iorfa, S. K. (2020). A preliminary assessment of Novel Coronavirus (COVID-19) knowledge and perception in Nigeria. Retrieved from <https://doi.org/10.1101/2020.04.11.20061408>.
- <https://ourworldindata.org/coronavirus> [Accessed 2nd April 2025]
- Olapeju. L. Oral Interview, (Medical Consultant, 53 years) (9th April, 2025). Yaba, Lagos State.
- Raji. M. Oral Interview, (Medical Consultant, 51 years,) (3rd April, 2025). Yaba, Lagos State.
- Ren, L.L., Wang, Y.M., Wu, Z.Q., Xiang, Z.C., Guo, L, & Xu, T, (2020). Identification of a novel coronavirus causing severe pneumonia in human: A Descriptive Study. *China Medical Journal*.
- Roser, M, Ritchie, H, & Ortiz-Ospina, E. (2020). Coronavirus Disease (COVID- 19). Statistics and research. Available from: <https://ourworldindata.org/coronavirus> [Accessed 2nd April 2025]
- Tiamiu. A. Oral Interview, (49 years) (Medical Consultant, 9th April, 2025). Victoria Island, Lagos State.
- World Health Organization. (2020). Infection Prevention and Control Guidance for Long-Term Care Facilities in the context of COVID-19 Interim Guidance. Retrieved from <https://apps.who.int/iris/bitstream/handle/10665/331508/> (Accessed 4th May, 2025).
- Worldmeters, (2020). Global Statistics on COVID-19 Pandemic Outbreak (Live). <https://worldometers.info/coronavirus>. (Accessed 4th May, 2025).