



THE EFFECTS OF COVID-19 LOCKDOWN- REGULATION ON SCIENTIFIC RESEARCH IN SUB-SAHARAN AFRICA (NIGERIA AS A CASE STUDY).

ABSTRACT

To assess the effects of covid-19 lockdown-regulation on scientific research in sub-Saharan Africa, using Nigeria as a case study, an online survey-based study of 300 participants, comprising lecturers, postgraduate students and graduating students randomly selected from different tertiary institutions across the country. An online survey

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Introduction

Coronavirus disease 2019 or covid-19 was first reported in Wuhan, china in December 2019. The disease spread rapidly to other parts of china in a very short time. Wuhan being the capital and major business city of Hubei province, attracted a lot of people within and outside the region. Therefore, people got infected unnoticed. As the number of infection rise and mortality rate skyrockets across the globe, the World Health Organization(WHO) on march 11, 2020 declared covid-19 a pandemic, having met the epidemiological criteria of having infected more than 100,000 people in at least 100 countries (Ohia *et al.*, 2020, Bernadine *et al.*,2020).

The name “Coronavirus” was coined in 1968 because of the “crown-like” morphology when viewed in an electronic microscope during study. Coronavirus also belong to the family of RNA viruses that infect bats, birds and mammals including humans. Covid-19 is caused by a new strain of SARS-Cov-2, belonging to the same class with Severe Acute Respiratory Syndrome (SARS)



and Middle East Respiratory Syndrome (MERS). Scientist and researchers established that based on Virus genome sequencing results and evolutionary analysis, bats have been suspected as natural host of the virus but its transmission to humans is still unclear (Guo *et al.*,2020, Etukudoh *et al.*,2020).

Due to globalization, sub-Saharan African countries are not spared from the life-threatening covid-19 infection as there has been reports on increased confirmed cases of covid-19 in Nigeria, the Democratic Republic of Congo, Mali, Gambia, Senegal, Ghana, Sudan, Tanzania and many other countries in Africa, because of continent's close commercial link with Beijing and deplorable health care system in Africa. Countries in sub-Saharan Africa making up a population of Frempong *et al.*,2020). According to Raymond *et al* (2020), sub-Saharan population is made up of 53.05% of citizens younger than 20 years. As a result, countries in sub-Saharan Africa could end up with lower mortality rates than the aging societies in the global North. The infection rate is lower than the projected estimate by Walker *et al* (2020). The older persons are at the risk of infection, and younger persons too especially those with pre-existing

was conducted from 14th January to 20th January, 2021. To collect the information, an unstructured or open-end questionnaire link using "google form" was sent to the participants through WhatsApp. Greater percentage of the respondents did not conduct research during the lockdown. Reasons are the stay-at-home order, funding, closure of schools and laboratories, psychological stress due to non-payment of salaries and other entitlement, high cost of chemical and unstable power supply among others. Government should develop more infrastructure in tertiary institutions, there should be synergy between the government and industries for enhancing research funding and modern teaching facilities need to be introduced in tertiary institutions.

Keywords: *lockdown-regulation, covid-19, Research, Funding, Government.*



medical conditions such as respiratory diseases, hypertension, diabetes, coronary heart disease and HIV/AIDS.

The first index case of covid-19 in Nigeria was announced on 27th February, 2020 by the federal ministry of health. An infected Italian man doing a business with Ogun state entered the country through the airport which was under surveillance since January, 2020, and interacted with a lot of people. In the face of rising cases of this infection, Nigeria and other African countries are still battling with dilapidated health care system (Ohia *et al.*, 2020). Covid-19 is air born, it moves from person to person through droplets from infected persons and contaminated surfaces. The receptors for the virus is in the cells resident in the mouth, nose and eyes. The symptoms after infection could include fever, flu-like symptoms such as cough, sore throat and fatigue, shortness of breath, diarrhea, nausea and vomiting (Bernadine *et al.*, 2020).

Lockdown-regulation measures

A lockdown is an emergency measures that requires people or citizens of a country, state or local government to stay at home, except for those on essential duties. The lockdown measure was first introduced by the central government of China in Wuhan on January 23th, 2020. Between April and June 2020, over 100 countries declared and adopted the lockdown measures. The federal government of Nigeria eventually announced a nationwide lockdown on march 30th, 2020, taking immediate effects in three states, Lagos, Ogun and the Federal Capital Territory (kazeen *et al.*, 2020), because the virus spread when people move. The stay-at-home measures placed limitations on social gatherings, inter-state travel, sports, festivals postponed indefinitely, country borders and airports closed and business activities slowed down. Returnees from covid-19 high risk countries had been restricted from entering the country. Most of them have to be quarantine until proven not infected. Social distancing measures are strongly advertised, placing of face mask became mandatory in banks, religious gatherings and commercial transportation. According to UniRank database 2020, there are currently 1,225 officially recognized higher education in Africa, 586 publics and 601 private. In Nigeria, there are 170 universities and 70 polytechnics (simona, 2020), other institutions and research centers were affected by the lockdown regulation due to covid-19 pandemic. At the time of declaration of the stay-at-home order, most



students, final year students, post- graduate students and researchers in sciences in Nigeria and countries in sub-Saharan Africa put their research on hold. Therefore, the present study aims to identify the effects of lockdown- regulation on scientific research in sub-Saharan Africa, Nigeria as a case study.

Methodology

This is an online survey-based study of 300 participants, comprising lecturers, postgraduate students and graduating students randomly selected from different tertiary institutions across the country.

Procedure and Data collection

An online survey was conducted from 14th January to 20th January, 2021. To collect the information, an unstructured or open-end questionnaire link using “google form” was sent to the participants through WhatsApp. The participants were first informed before participating in the survey. A total of 300 respondent provided complete information. Respondents are at liberty to express their views, describing their conditions at the time nationwide lockdown.

Data analysis and presentation of results

The data was analyzed using Statistical package for Social Science (spss). Simple percentage distribution was estimated to assess the responses of different categories of participants. A descriptive survey was employed in the study. The survey was guided by the following research questions:

1. Did you carry out any research during the lockdown periods?

Table .1 shows number of respondents that carry out research and those that did not carry out research during the lockdown period by percentage.

Category	No. of respondents	Conducted research(%)	No research conducted(%)
lecturers	50	46	54
postgraduate	100	15	85
Graduating students	150	13.33	86.67



2. What are the reasons for not conducting research during the lockdown?

Table 2. indicating different reasons for not conducting research during the lockdown

Category	Reasons	Percentage
Lecturers		
	Lockdown	54%
	Funding	15%
	Psychological stress	31%
Postgraduates		
	Lockdown	80%
	Laboratories closed	7%
	high cost of chem.	7%
	No Resources	6%
Graduating students		
	Lockdown	80%
	schools are closed	10%

3. Was the research related to covid-19?

Table 3. showing percentage of covid-19 related research.

Category	Percentage
Lecturers	20%
Postgraduates	0%
Graduating students	0%

4. What are the challenges encountered during the conduct of the research?

The challenges as gathered from the respondents are presented here in points:

- Unstable power supply and internet services
- High cost of chemicals
- Lack of sufficient resources
- Running experiment was difficult



- Sample collection was difficult
- Face to face meeting with the respondent to collect data was difficult.
- Psychological stress due to non-payment of salaries and entitlement
- No access to laboratories and equipment
- Difficulty in obtaining ethical approval.

Discussion

The results presented above shows that the covid-19 lockdown regulation has really affected scientific research as it is observed in (Table 1) the percentage of people that conducted research (46%) and those that did not conduct any research (54%) in lecturers' category during the lockdown. For most of them (54%), the lockdown did allow them to carry out any research. According to Jane and Roger (2020), research may not be the core function in many African universities. While others (15%) needed funding. Most research centers, specifically in the scientific discipline rely heavily on external funds from government agencies such as TETFUND, PTDF and foreign agencies to make their research possible. This reliance on external funds has been affected by global pandemic and more money is being poured into covid-19 research. In developed countries such as USA, China, France etc., government is the largest funder of research. The remaining support comes from industries, non-governmental grants, charitable organization, university funding, state and local government. It is time for Nigerian industries to support research funding because it is vital and is a long term national investment (Jane and Roger, 2020). Research funding in Nigeria is not adequate. According to Eze *et al* (2020), Nigerian budget for education has not gone above 8.5% in contrast to the 26% recommendation by The United Nations Education, Social and cultural Organization (UNESCO). Funding challenges has hindered Universities, polytechnics and collages of education from achieving optimum result and meeting the requirement of the 21st century (Department of public administration, 2018). The scientific community is seriously encouraging research on covid-19 in many areas such as drug delivery, proteomics,



vaccine production, drug discovery, epidemiology, pathogenesis, therapy and preventive approaches to fight the pandemic. Research conducted in these areas are very low in Nigeria and the entire sub-Saharan regions. Many countries in the western world are conducting serious research on the covid-19 through funding. There was little or no calls for covid-19 research funding for scientist in Africa from non-governmental organization, private organization or the African government because of weak economy, inadequate health infrastructure and ineffective policies. (Oladipo *et al.*,2020). For Nigeria to develop and find her footings among developed nations of the world, priotizing research funding cannot be over emphasize.

Psychological effects from non-payment of salaries and entitlements affected some lecturers (31%). Apart from the interruption and hardship caused by the covid-19, the industrial disharmony between federal government and The Academic Staff Union of Universities (ASUU) further compounded the problem, because of nonpayment of salaries and other entitlements for months. Many state-owned higher institutions could not pay their staff. Lecturers in the higher institutions are critical tools through which young minds are shaped. Constant strike action or industrial disharmony renders both students and lecturers emotionally and psychologically unstable. Issues like nonpayment of salaries, earned allowances, poor university funding among others should not be heard in Nigeria in this 21st century (Department of Public Administration,2020). The way the educational sector is being handle by the government signifies it is of little priority to them.

Considering the postgraduates' category, most (85%) of them did not embark on any research during the lockdown while few (15%) conducted research during the lockdown. The major reason for not embarking on any research was as a result of the stay-at-home order (80%) which restricted movement from place to place. For some, high cost of chemicals (7%) was a hindrance, while some had no access to laboratories (7%) and others because of lack of resources (6%). The government ordered the closure of schools as part of the measures to curtail the spread of coronavirus pandemic. Apart from molecular biology laboratories established in each of the geopolitical zones of



Nigeria specifically to run covid-19 cases, most laboratories in the high institutions remained closed, hindering research during the lockdown. Most of the laboratories are poorly equipped. Laboratories are the workshop where practical activities are conducted to enhance a meaningful learning of science concept and theories (Uche, 2013). The government through the TETFUND is making effort to purchase modern scientific equipment in various universities, polytechnics and collages but most of them remained unused, poor maintenance culture, underutilization, corruption, insufficient trained technologist etc. Increase in the number of student's enrolment into various institutions of learning now places emphasis on theories rather than skill acquisition through laboratory practices thereby reducing the skill workforce. Government should do more because its effort cannot cater for the growing population in the high institutions. Proliferation of higher institutions of learning without proper funding is still not helpful.

From the findings, one of the challenges affecting research is unstable power supply and internet services. In Nigeria, the most common infrastructural deficit that affects research is the power sector. The unstable nature of power supply can place hindrance on the efficient used of analytical equipment, computing facilities, the internet and the researcher's work hours. Biotechnology, molecular biology, Biochemistry and other scientific laboratories requires constant supply of light for the preservation of fragile and sensitive biological samples like enzymes, microbial samples and sensitive reagents (Global Development Network, 2020). The covid-19 vaccine the federal government of Nigeria is proposing to purchase can only be preserve when there is constant and sufficient power supply. According to Samson and Abdulmalik (2016), the causes of unstable power supply are corruption and looting of funds meant for the power sector, poor maintenance culture, insufficient alternative power supply, load shedding, continual used of old and outdated equipment, theft and destruction of equipment, employment of unqualified staff among others. Dwindling internet services affects research as most information are now mostly gotten on the internet. The service providers should upgrade the networks in order to satisfy national demand.



Recommendations

- Government should establish more molecular Biology Laboratory all the tertiary institutions in Nigeria.
- Technologists and Lecturers should be train on the use of modern laboratory equipment.
- Government should keep to their agreement with ASUU to make sure outstanding salaries are paid, payment of earned allowances and the provision of funds for the revitalization of tertiary institutions.
- Government should give more priority to the development of infrastructure in tertiary institutions in Nigeria.
- Modern teaching facilities and equipment be introduced in all the tertiary institutions to avoid school closure in pandemic situation.
- Government should priotize research in policy.
- Budgetary allocation to tertiary education be increased to 30%.
- Industries should collaborate with government to enhancing research funding.
- Industries should key into research funding by providing to research funding.
- Government should do more in upgrading the power sector.
- Health care system should be revamp.

However, the pandemic has posed some positive outcome through innovation. For example, Nigeria as a country with a population of 200 million people had just 350 ventilators and 350 ICU beds for its entire population before the outbreak. In April, 2020, the government acquired 100 more additional ventilators but still was not sufficient. On the 29th May,2020, the Nigerian Institute for Science and Engineering Infrastructure Produced the first ventilator with mobile sprayers. More personal protective equipment such as gowns, face shield and face mask were produced locally at a low cost. The first two coronavirus sequencing from African continent were published by laboratories in Ede Nigeria and Kinshasa in D.R Congo in early March. The sample from the first index case analyzed at the African Centre of Excellence for Genomics of Infection Diseases(ACEGID) at Redeemers University. They



became the first to analyze SARS-Cov-2 in Africa, signaling the Continent's contribution to the growing global body of evidence to understanding the virus behavior (Inuoma, 2020, Munyaradzi, 2020). The days when there was no research capacity in Africa is over. The capacity is there now but it only brings out more of the potential through serious funding,

REFERENCES

- Bernadine. E, Chukwuemeka J.O, Godwin O.O, Kelechukwu. A, Okonokhua O.L, Damian C.E and Uchechukwu I.O (2020). Assessment of Knowledge, practice and Guidelines towards the Novel covid-19 among eye-care practitioners in Nigeria- A survey-based study. *International Journal of environmental research and public Health*.17:1-12.
- Department of Public Administration, University of Calabar (2018). The effects of ASUU strike on Students' Academic performance and Human Resource Development. *International journal of Education and Research*. 6. www.ijern.com.
- Donwa. P.A(2006). Funding of Academic Research in Nigerian Universities. UNESCO forum on Higher Education, Research and Knowledge.
- Etukudoh N.S, Ejinaka R.O, Olowu F.A, Obeta M.U, Adebowale O.M and Udoudoh M.P (2020). Coronavirus (covid-19): Review from a Nigerian Perspective. *American Journal of Biomedical research*.2020.9.
- Eze N.M., Asogwa O.C and Clement I.O (2020). A time series analysis of federal budgetary allocations to Education sector in Nigeria (1970-2018). *American Journal of Mathematic and Statistics*. 8:1-8.
- Frempong. R.D, Stadelmann. D, and Wild. F (2020). Secondary Effects and Sustainable exit-strategies for sub-Saharan Africa. Centre for Research in Economics, Management and the Arts (CREMA). 2020.09. <http://hdl.handle.net/10419/225551>.
- Global Development Network (2020). Doing research in Nigeria. National Centre for Technology Management and the Global Developmental Network. www.gdn.int.
- Inuoma .C (2020). The Punch
- Jane. R and roger. C.S (2020). The Impact of covid-19 Enterprise: A landscape Review. Research Report.
- Kazeen B.A, Ridwan L.I and Olorunfemi Y.A(2020). Estimating the impact of lockdown on covid-19 cases in Nigeria. *Transportation research interdisciplinary Perspective*. 7(2020) 100217.
- Munyaradzi. M (2020). News report.
- Ohia .C, Adeleye S.B, and Tauseef A (2020). Covid-19 in Nigeria: Putting the Realities in context. *International Journal of Infectious Diseases*. 95:279-281.
- Oladipo E. R, Ajayi A.F, Oladipo A. A, Ariyo O. E, Oladipo B.B, Ajayi L. O, Oloke J.K (2020). A Call: Covid-19 research funding in Africa. *African Journal of Clinical and Experimental Microbiology*. 21:256-257.
- Samson, D.F and Abdulmalik. A (2016). Dwindling electrical power supply in Nigeria: causes and possible solution. *International Journal of Science and Research*.1:335-338.



- Simona Varrella (2020). Number of Universities in Nigeria by ownership. Education/Science Statista.
- Uche E.N (2013). The state of Science and Technology Infrastructure in Secondary Schools in Nigeria. *Academic Journal of Interdisciplinary Studies*. 2:103-112.
- UniRank Database (2020). Higher Education in Africa.
- Walker. P, Whittaker. C, Watson. O, Baguelin. M, Ainslie. K, Bhatia. S and Ghani. A (2020). Report 12: The Global Impact of covid-19 and Strategies for Mitigation and Suppression. <http://doi.org/10.25561/77735>.
- Walter, L. F, Anabela.M. A, Tony. W, Claudio, R.P.V, Amanda L.S, Arminda. D, Kalterina. S, Vanessa. L, Federica. D, Lorena. A.C, Claudia. M, Lucas. V.A, Launa, I.D, Paula. C, Ulisses.M. A, Barbara. F, Paula. F and Fermenda. F (2020). Covid-19: The impacts of Global Crises on Sustainable Development Research. *Sustainability Science*.16:85-99.