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## **Behavioral Scientists-Panacea for Curtailing the Spread of Covid-19 in Rural Areas in Nigeria**

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### **Abstract**

Behavioral scientists are specialists in the study of human behavior and how the society is influenced by the behaviors of human beings. The covid-19 pandemic that is ravaging the world spreads like wild fire, meanwhile, government all over the world concentrate more on taking care of infected persons through the help of medical personnel. Though, there is massive enlightenment on curtailing the spread in the media, but the behavior of the people seems contradictory, thus, the massive spread of the virus in rural areas in Nigeria which is draining the resources of the various states governments in providing care for those infected and the reduction in production capacity. The paper emphasized the involvement of behavioral scientists in using empirical skills to help curtail the spread of covid-19 in rural area, which is more strategic to the economy of Nigeria. The paper also state the reasons why rural people have refused to maintain the covid-19 protocols. The paper proffers solution on how to address the behavior of the people in order to keep strictly to the covid-19 protocols in order to mitigate the spread Covid 19. The behavioral approach theory was used to explain the article.

**Keywords:** Covid-19, Rural Areas, Behavioral Scientists and Nigeria

### **INTRODUCTION**

Covid-19 is a novel virus that is currently ravaging the entire world. The virus first became known in Wuhan, China in 2019 and has continued to spread. The virus has brought a new world order in the aspect of observing Covid-19 protocols all over the world. Developed countries with better medical facilities and competent doctors were almost helpless at the initial stage of the spread of Covid-19 as people in those countries continue to lose their lives to the virus. Zhou, et al (2020), stated that, in December, 2019 a new coronavirus (SARS. Cov-2) emerged sparking an epidemic of acute respiratory syndrome (Covid-19) in humans, centered in Wuhan, China. The spread of the virus is almost as fast as electric current, Jay et al (2020) viewed that within three months when the virus was discovered, it had spread to more than 118,000 cases and caused 4,291 deaths in 114 countries which caused the World Health Organization to declare Covid 19 a global pandemic. The death toll is as a result of the virus that is still on the rise on daily basis. Prominent persons including, president of the United State of America, Donald Trump, British Prime Minister, Christina Ronaldo etc., were not spared by the virus. In Africa, Nigeria, Abba Kyari, Chief of Staff to the Nigerian President lost his life to the virus. Members of parliaments and political heavy weights have been hit by the pandemic. While some survived it, others died.

This shows how serious the deadly virus has affected the world and the need for the government of the world to step up effort in curtailing the spread of the virus, while pharmaceutical intervention is being awaited. It is true that scientists all over the world are in the laboratories trying to discover vaccines and subsequently drugs that can treat infected persons. While waiting for the scientific approach to find solution to the virus, there is need for the inclusion of behavioral scientists to help combat and curtail the spread of the virus. Since the inception of the pandemic, governments of various countries have concentrated more on medical doctors and other health workers to fight the virus amidst consistent spread and vulnerability in the society. This article is to show how behavioral scientists can display their social science skills in contributing their methodologies in curtailing the spread of Covid-19 in Nigeria.

Though the article is narrowed down to rural areas in Nigeria because of its strategic influence to the economic development of Nigeria and the world at large. Majority of the people in Nigeria reside in rural areas. Mabogunje (1981, 1987), clearly states that, rural societies harbor over 80 percent of the country's population in Nigeria, hence the occupational activities that constitute the majority in the rural areas are tied to farming, animal husbandry, fishing, poultry, cattle rearing, forestry, food processing and small scale cottage industrial ventures. Rural areas are key to the industrial growth and food consumption in urban centers and exportation. The rural population in Nigeria was 79,528440 as of 2010 representing 50.2 percent of the nation's population (World Bank, 2010). Curtailing the spread of Covid-19 in rural areas is a variable in rural development in recent times. According to Bello Imam (1990), the objectives of rural development are.

- (a) To enhance the productive capacity of rural dwellers
- (b) To substantially improve the incomes, consumption, life chances and quality of life of the rural dwellers.
- (c) To effectively develop a framework for grass root socio-political mobilization through encouraging the development and establishment of institution and organization within the grassroots and streamlining the internal dynamics of such organization as well as the relationship between them and the rest of the national economy.

The importance of rural areas in the development of Nigeria and the world cannot be overemphasized. Thus, behavioral scientists are key in providing solutions to the spread of Covid-19 in rural areas. If the virus is allowed to spread unmitigated in rural areas, which is termed community infection, the economy would be affected and the productive capacity of the people would be low, dwarfed industrial growth and a challenge to the informal sector of the economy of Nigeria. Since the spread of Covid-19 in Nigeria, federal and state governments have been spending many resources to treat people who are infected by keeping and feeding them in isolation centers and carrying out media campaigns against the spread of the virus. In fact, the government of Nigeria solicited financial assistance from, financial institutions, Non Governmental Organizations, Charity Organizations, and Religious bodies in order to cushion the impact of Covid-19 also support economy and grant financial aids to the people. Covid-19 brought lock down which is one of the strategies to help stop the spread of the virus. Lockdown restrict movement of peoples and stoppage of work in an attempt to curtail the spread of the virus. Though this measure has helped in a little way, but community infection, in rural areas is still on the rise and capable of causing, serious devastation having seen the number of death in Italy, France Brazil, Britain, United State of America and the slow and steady rise of deaths rate in Nigeria. This is the essence of this article, which is quite timing for Nigeria and the African continent.

## LITERATURE REVIEW

### COVID-19

Historically, infectious diseases come with devastating human deaths. For instance, the bubonic plague of the 14<sup>th</sup> century that killed approximately 25% of the European population (Scott and Duncan, 2001). The Spanish Flu killed 50 million people in the world. Following the history of such pandemic that has killed many people often triggers fears among the people, which propel defensive mechanism. For Le Doux (2012), one of the cardinal emotional responses during pandemic is fear, human like other animals possess a set of defensive system for combating ecological threats. While negative emotions resulting from threat can be contagious and fear can make threats appear more imminent (Kramer et al, 2014). To further venture on the impact of Covid-19, Center for Disease Control and Prevention (2020), outlined that, the Covid-19 pandemic has brought significant changes in social behavioral norms to contain the spread of the virus. Numerous behavioral changes have been mandated, such as maintaining a specified distance from others in public, wearing facemask and limiting the numbers of people that can gather in public places, both indoors and outdoors. In curtailing the spread of contagious diseases, McKay, et al (2015) discovered that, research has constantly show that exposure is very effective when practiced in vivo with accompanying imagery. Despite the media campaign and means of dissemination of information against Covid-19, the spread has been consistent in Nigeria, not sparing the elites like state governors and executive ministers. If elites who reside in developed cities like Abuja, Lagos, Calabar, Ibadan, Illorin among others are infected by the virus with the high level of education, what then is the hope of those living in rural areas where ignorance and illiteracy are high, unhygienic and unplanned environment and overcrowding are common? This is the essence for this paper, whose interest is to fashion out ways behavioral scientists can proffer veritable solutions to the spread of the virus.

Covid-19 has really reshaped the society and the government at all levels are not relenting in maintaining the Covid-19 protocols. Though the virus was unknown to the public in spite of large number of person being affected in China which is the epicenter of the pandemic. It was on the 31<sup>st</sup> of December, 2019, that WHO China country office received notice of a cluster of pneumonia cases of unknown a etiology, in the Chinese city of Wuhan, Hubei Province. The incidence of coronavirus disease 2019 (Covid-19, caused by severe acute respiratory syndrome, coronavirus 2 (SARS – Cov - 2) has risen exponentially affecting all WHO regions (Joseph and Nathan, 2020). This was when the disease become known to the world, while Nigeria government delayed in closing down air and seaports, most Nigerians who travelled to prone areas already contacted the virus before coming down to Nigeria.

### RURAL AREAS

Rural area is key to the development of Nigeria. The area is the life wire to the economic development of Nigeria and the word at large, thus, the interest to deepen Covid-19 protocols in these areas is quite significant. Abasiokong (1982), emphasized on rural development as the comprehensive and coordinated approach, of all persons and agencies concerned, aimed at involving rural people in determining policies and planning and implementing programs that are designed to improve their economic, social and cultural conditions and enable them make positive contributions to national development. Mitigating the spread of Covid-19 is a benchmark for rural development in the sense that the people need to be healthy in order to continue in their productive capacity. The bulk of Nigeria population reside in rural areas, Ihejimaizu (2001) highlighted that, the 1999 Nigeria demographic and health survey recorded that about 64 percent of the population live in rural societies, thus less than 40 percent of the population could be identified as urban dwellers. Idode (1989), adumbrated the reasons why increase attention should

be given to rural areas; the majority and usually, the overwhelming majority of the people live and find their livelihoods in the rural areas. Secondly, it is the rural areas that most of the poorer and most disadvantaged people are found, finally, the cluster of new Orthodox economic arguments for giving priority to rural and particularly, agricultural development. These reasons also include the production of raw materials for industrial purposes, the feeding of growing population and the production capital.

Though the rural areas in Nigerian is rich in industrial raw materials, there is poverty in the area. According to Ekot (2002), rural areas in Nigeria is evidently poverty stricken, for they suffer from economic stagnation, cultural pattern that are unfavorable to development, agricultural underdevelopment and lack of alternative employment opportunities. The area is also characterized with poor quality of life because of the scarcity of essential goods, facilities and unplanned settlements. Rural areas in Nigeria are facing serious neglect on the part of the government. The reason why the Local Government Administration was established in 1976 was for the development of rural areas, unfortunately, state governors in Nigeria have turned local government area as extension of revenue agency, thereby under developing the rural communities. To buttress the poverty in the rural areas, Olayide et al (1981) talked about rural poverty, that the standard of living of the people is low, he further stated that the people are poor not in terms of what to eat or drink, but relatively in terms of all year round quantity and quality. The poor standard of living and lack of white-collar jobs are responsible for the massive movement of young people to urban towns in Nigeria in search of jobs and to have better standard of living. Despite the neglect of rural areas and other abnormalities, the people operates communal lifestyle. There is love in rural area, it is visible in church gatherings, age-grades, traditional meetings and neighborhood groups among others. The communal lifestyle coupled with clustered settlements called for massive intervention of Covid-19 protocols.

## **BEHAVIORAL SCIENTISTS**

Behavioral science is the vigorous application of science to properly understand human behavior and importantly what influence it ([www.forum.org](http://www.forum.org),2020), according to Devon (2018), behavioral science is the combination of knowledge base on sociology, psychology and anthropology with strong observation, research and communication skills. A behavioral scientist work with communities and individual examining behavior and decision-making. To further explain behavioral science, it is the study of human habits, actions and instructions; it spans the field of psychology, social work, human resources, economic, sociology and organizational behavior. The combat against the novel virus have been confined to medical doctors and other health personnel been at the forefront, even the government of Nigeria has limited the fight against Covid-19 to medical workers, yet the spread is on the rise in rural areas where illiteracy level is high. There is need to include behavioral scientists to help curtail the spread of Covid-19 in rural areas with serious social and empirical research. Yusuf (2020) posits that, behavioral scientists hold the key to understanding peoples' attitudes and perception, he expressed his dislike on how social scientists are ignored despite their in-depth knowledge in the study of human behavior in the society. It is on the basis of neglecting behavioral scientists in the fight against covid-19, that scholars and media consultants in Nigerian frowned at. While they are hundreds of Social Science Faculties and Social Science Academy existing in Nigeria, all you hear from the tertiary institutions is the production of hand sanitizer, ventilator and looking for cure, the universities failed to engage their social science resources in the fight, they failed to understand that the fight cannot succeed if the pandemic is not stated. That Nigerian universities have brilliant social scientists with the require knowledge and are willing to provide support in the combat against covid-19 (Daily Nigerian, May, 2020).

The fight against the covid-19 pandemic should not be limited to medical personnel alone, since its spread is caused by contacts with infected persons or surface, thus there is need for behavioral discipline to contend with the spread of the virus. The death rate all the over the world is still on the rise with countries like America, France, Brazil, Italy and Iran among others topping the death rate. This is the more reason why the government of Nigeria must act fast by involving behavioral scientists to be on the frontline using empirical research and behavioral skills to curtail the spread of covid-19 in rural areas in Nigeria.

## **THEORETICAL FRAMEWORK**

This paper is anchored on the behavioral theory, which seeks to explain human behavior by analyzing the past and consequences of the present individual environment. The theory explored the cognitive process within organism and the behavioral interactions between organism and the natural world. It deals with the systematic analysis and investigation of human behavior through naturalistic observation, controlled scientific experimentation and mathematical modeling. It tends towards, accomplishing legitimate objectives conclusions through vigorous formulation and observation. Klemke et al (1980), explains that generally, behavioral science attempt to deal with human action mostly seek to generalized on human behavior as it relates to the society ([www.merriam-webster.com](http://www.merriam-webster.com)).

The reason behavioral theory is used to explain the article is because medical personnel have dominated the treatment of the virus; meanwhile they are limited in treatment and care of infected persons, while their role in the prevention may not have any significant impact. It is evidently clear that government of Nigeria is using measures by other countries to curtail the spread. Yet the spread has been in the increase with less testing in rural communities, which is likely to cause devastating impact if behavioral scientists are not put forward to contend with the spread through the application of behavioral methodologies. Behavioral scientists are noted for the practical understanding of the attitudes and training of the people.

In rural communities, the people live in unplanned clustered settlements, communal lifestyle in sharing of food, burial ceremony, church gathering etc. It is on the basis that in Nigeria the people in the rural areas cannot cope with social distance, total lockdown and observing. Some covid-19 protocols, which are strange to them. According to Yusuf (2020) of the Geography Department, Bayero University, Kano, Nigeria, geographers with reliable data can map the distribution of the disease by location and can predict the risk and identify the environmental factors that influence the spread of the virus within any area. That geographers can show distribution of people by their perception and recommend the best approach to reaching and changing their beliefs and perception in order to help stop the spread. Sociologists and psychologists can help to understand the attitudes of people to different approaches by the government and advice government on the best measures to ensure people comply and identify the weaknesses of the present approach. Economists will help to quantify the economic impact of the pandemic and provide insight on how to help to weak and make arrangements in addressing such impacts. While the communication experts will, help in designing appropriate medium to communicate to the people in order to enlighten them the more on the virus. With this arrangement, behavioral scientists can help to curtail the spread of covid-19, while vaccines and drugs for treatment are being awaited. The world must not remain in lockdown if the spread rate is properly checked by behavioral scientists.

## **FACTORS RESPONSIBLE FOR THE SPREAD OF COVID-19 IN RURAL AREAS IN NIGERIA**

Despite the huge resources spent on the campaign and enlightenment against covid-19, the number of infected persons have been on the raise on daily basis, not only in Nigeria, all over the

world. There are factors that are responsible for the spread, which is the non-compliance of covid-19 protocols. Amidst the high level of awareness of the deadly virus in America, President Donald Trump and family member contacted the virus, also other prominent personalities. Myriads of deaths have been recorded globally. Though the concern of this article is curtailing the spread of Covid-19 in rural areas in Nigeria. If sophisticated countries like America, France, Italy, Spain etc., in terms of high level of education, state of the art medical facilities and good infrastructure, yet the virus has created negative impact. What would happen to Nigeria and other countries with weak medical system and non-compliance to covid-19 protocols? This is the crux of this paper, which is to really understand the factor responsible for the spread of covid-19 in rural areas in Nigeria.

- i. Clustered settlements: In rural communities the people reside in clustered settlement, usually unplanned by the authority concern. The settlement is characterized by family extension which spreads and probably caused them to live together over time. These settlements have the reflection of overpopulation without proper ventilation in their houses. This environment is a breeding ground for the spread of disease like cholera and other killer diseases; thus the spread of covid-19 is very possible in such settlements.
- ii. Community Association: In rural areas in Nigeria, the people live a communal lifestyle where group association is common. This community association was a practice carried out by their ancestors and handed over to the present generation. It is very notable to see paternal and maternal family association, age grades association, traditional meetings etc. They usually meet on specific days and when occasions demands. These gatherings are prone to the spread of covid-19 in rural areas. Fifty percent of the people attending these meetings are aged people who are susceptible to coronavirus.
- iii. Religious association: Despite the dissemination of information for people to desist from church activities or limit specified number of persons could attend church services or programme. This directive was not adhered to by people living in rural areas in Nigeria because enforcement hardly get to remote areas. This action contributed in the spike in Covid-19.
- iv. Traditional beliefs: In rural areas in Nigeria, traditional practice is always adhered to strictly with all alacrity. People meet in shrines and deity to conduct traditional rites, in the course of carrying out the rites, the people and the chief priests do not maintain social distance which tends to increase the rate of infection.
- v. Insincerity on the part of government: Over time the government has thrive on falsehood and has failed to meet up with the basic needs of the people. Every fiscal year the government makes budgetary allocation to addressing the plight of the masses. Whereas funds in the budget that would have aided in providing better condition of living to the people are siphoned into private pockets. Thus, the escalation of poverty and further disbelieve in government directives on any pertinent and urgent issues. This falsehood on to part of government has made the people not to believe to believe that covid-19 exists.
- vi. Ignorance: This is another reason why the spread of covid-19 is on the rise in rural areas. The people are ignorant of the virus. Some persons in rural areas do not have access to the media, if they have, their understanding of English Language which is the major means of communication is low. Therefore, the huge media campaign against covid-19 is useless to this set of people.

### **THE INVOLVEMENT OF BEHAVIORAL SCIENTISTS IN CURTAILING THE SPREAD OF COVID-19 IN RURAL AREAS**

Covid-19 is a novel virus that has caused serious devastation to the global economy and reshaped the lifestyle of the people. Government all over the world is preaching the covid-19 protocols

that include wearing of facemasks, maintaining social distance, handwashing or the use of hand sanitizer mostly when in contacts with the public, prohibition of friendly handshake and limited number of people in public gatherings. These rules are hardly adhered to in rural areas because of the communal lifestyle of the people occasioned by traditional beliefs and the level of underdevelopment in rural communities. The factors responsible for the spread of covid-19 has been stated, thereby the involvement of behavioral scientists is needed and key in curtailing the spread of the virus. According to Professor Grame Ackland (2020) of the Edinburgh University, warned that coronavirus could be with us forever, he further cautioned that horrific situation if survivors can get re-infected even though experts believe immunity will make the disease milder in future. He also stated that, the government have previously worked that covid-19 would be around forever because it may act like other seasonal viruses. The mysterious aspect is that some persons are asymptomatic yet are carriers of the virus, this alone is quite dangerous as it exposed the society to the spread of the virus.

The involvement of behavioral scientists in curtailing the spread of covid-19 cannot be over emphasized. Professor Yusuf of Bayero University, Kano, explained that with the different level of knowledge, awareness and most importantly perception of the whole pandemic, it will be extremely difficult for medical experts to get ahead of the matter. He further stated that much work has not been done because the government and the society thinks that it is an entirely a medical problem. That all the committees set up by the government of Nigeria to fight covid-19 are dominated by medical doctors and other health workers. The main role of medical personnel is limited to treatment, but behavioral scientists can play key role in prevention and curtailing the spread of Covid 19 (Daily Nigeria Newspaper, May, 22<sup>nd</sup>, 2020). Fields in behavioral sciences are sociology, psychology, geography, economics, public administration, political science, etc. these disciplines study human behavior and how the behavior influenced society. Behavioral scientists usually conduct empirical research with reliable data occasioned with solid base recommendations.

Since the factors that are responsible for the spread of covid-19 in rural areas are known which include living in unplanned clustered environment, community association, religious gatherings, traditional beliefs, insincerity on the part of government and ignorance. Only a solid base empirical research by behavioral scientists can proffer solution in curtailing the spread of covid-19.

Geographers with reliable data can map the distribution of the disease by location and even predict the risk and identify the environmental factor that influenced the spread of the disease in an area. While sociologists and psychologists can help the society to properly comprehend the activities of people in different approaches by the government. By so doing, the government can be advised in the best measures to ensure people adhered and identify the weaknesses of the present approaches that are not working. The economics can contribute heavily in economic impacts of the pandemic, the effects of lockdown on families and the economy, also provide solutions on how to help the weak and start making economic recommendations that will help to address the economic problems caused by the pandemic. The political scientists can play key role in developing policy documents to help the government mitigate the political impact of the pandemic and formulate people oriented public policy that would attract development in rural areas in Nigeria (Daily Nigeria News online, May, 22<sup>nd</sup>, 2020).

It is factual that non-compliance to covid-19 protocols are attitudes, perception and knowledge which have compounded the spread of the virus in rural areas. Only behavioral scientists can proffer solutions to curtailing the spread of covid-19 through empirical research by being in contacts with the people the of rural communities in Nigeria. Vetted scientists have posited that covid-19 has come to stay with us. What should be done now is the holistic involvement of

behavioral scientists to assist in the fight against the pandemic considering the fact that Nigerian has weak medical system, so preventing and awareness should be high in the people and ensuring the people observe covid-19 protocols in all ramifications.

## CONCLUSION

Covid-19 is a global pandemic and has come to stay pending when vaccines and drugs would be discovered. Close to one year that the virus was discovered in China and termed pandemic by World Health Organization, scientists all over the world are in various laboratories trying to develop vaccines that can help to prevent the virus and subsequently drugs for treatment. This is the more reason why the government of Nigeria should not only concern with the treatment and isolation of people infected with the virus, but prevention mechanism through behavioral approaches. Behavioral scientists are vested in the study of human behavior and the reason why people in the society act and its influenced in the society. Behavioral scientists have the capacity to work on peoples' behavior to respond, respect and adhered to covid-19 protocols in rural areas in Nigeria.

## RECOMMENDATIONS

The following recommendations are made as a panacea for curtailing the spread of covid-19.

1. The government of Nigeria should as a matter of urgency involved behavioral scientists from the Social Science Faculties in Nigerian Universities for them to conduct appropriate behavioral research within their various fields on how they can use their expertise to curtail the spread of covid-19 in urban and rural areas in Nigeria.
2. Since it is the government of Nigeria that is in-charge of managing the pandemic through the auspices of National Center for Disease Control. There should be an expansion on the people who are managing infected persons. While medical and health workers are involved in care and treatment, behavioral scientists should be in the streets playing the role of curtailing the spread of the virus and enlightenment with the required financial assistance from government and private organizations.
3. More attention on the part of the government should be given to the rural communities in the aspect of infrastructural development and officially planned settlements by government officials. This will motivate basic hygiene on the people which is a measure to prevent the spread of covid-19.

## REFERENCES

- Abasielking, E. M (1982) Integrated Rural Development in Third World: Its concepts, Problems and Prospects. Smithtown NY. Exposition Press IX PP 132.
- Bello Imam, I. B (1990), Rural Development in Nigeria: A Theoretical Explanation in Ogunna, A. E. C et al (eds), Social Mobilization and Community Development, Schools of Social Science, Alvan Ikoku College of Education, Owerri, Nigeria.
- Center for Disease control and Preventing, 2020. [www.woforum.org.2020](http://www.woforum.org.2020).
- Devon, D.(2018) What Does Behavioral Scientist Do? Behavioral Science Careers. Inner body Research. [www.innerbody.com>careers-in-health](http://www.innerbody.com>careers-in-health)
- Ekot, E. M (2002). Developing the Rural Sector in Nigeria, With Particular Reference to River Basin Authority, Seminar Paper, University of Calabar, Nigeria.
- Ihejiamaizu, E. C (2001) Population and Health Policies and Programs, Lecture Notes (unpublished), University of Calabar Nigeria.
- Idode, J.B. (1989) Rural Development and Bureaucracy in Nigeria, Longman, Lagos Press.
- Jay, J.V. B, Katherine, B. and Robb, W (2020) using social and behavioral science to support covid-19 pandemic response. *Nature of Huron Behavior* (4) 460 – 471



- Joseph,A.L.and Nathan, C.LO(2020),Scientific and ethical basis for social-distancing interventions against Covid19.The Lancet Infectious Disease.*Elsevier*,20(6) 631-632 .
- Klemke, E.D, Hollinger, R and Kline, A. D (1980) Introductory Reading in the Philosophy of Science Buffalo, New York Promethers, Book P.11-12.
- Kramer, A. D. I, Guilling, J. E. and Hancock, J. (2014) T. Experimental evidence of massive score emotional contagion through social network. *Proc Not I Acad. Sci. USA III*, 8878 – 8790.
- Mckay, D, Debbie, S, Fugen, N, Sambime, N, Dan, J.S, Michael K, Keith M and David V. (2015), Efficacy of cognitive-behavioral therapy for obsessive – compulsive disorder. *Psychiatry Research*. 225, PP 236 – 246.
- Mabogunje, A. L. (1981), The Development Process: A Spatial Perspective, Hutchinson University Press, London.
- Mabogunje, A. L (1987) Urbanization in Nigeria :University of London, Press, 3<sup>rd</sup> Edition London.
- LeDoux, J (2012) Rethinking the emotional brain, *Neuron* 73, 653 – 676.
- Olayide, S. O et al (eds) (1981) Elements of Rural Economics, Ibadan University Press, Ibadan, Nigeria.
- Scott,S and Duncan, C.J (2001) Biology of Plague: Evidence from Historical Populations. Cambridge University Press.
- Yusuf, M. A. (2020) Covid-19 in Nigeria: The Need for Social Science Approach. Daily Nigeria News (Online), May, 22<sup>nd</sup> 2020.
- Zhou, F. et al (2020) Clinical course Risk factors for mortality of adult inpatients with covid-19 in Wuhan, China: a retrospective cohort study. *Lancet* 395, 1054 – 1062.