

EDUCATIONAL RESEARCH: AN ESSENTIAL TOOL FOR MANAGING AND PREVENTING THE SPREAD OF COVID-19 PANDEMIC

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Abstract

The outbreak of corona virus (covid-19) which originated from the city of Wuhan, China has become a major challenge not only to public health, but in all sectors of the economy across the globe. The pandemic has led to partial lockdown of human activities in various part of the world. Coronavirus (covs) are known to be a large group of diseases such as common cold, middle east respiratory syndrome (MERS. COV) and severe acute respiratory syndrome (SARS-COV). SARS has much higher case mortality rate (10%) compared with covid-19 (between 20%-4% and a much lower case mortality rate than Avian flu (60%). The covid 19- has become a public health emergency of international concern. The aim of this paper therefore is to find out how educational research can seen collaboration with laboratory science to bring up ways and measures of controlling, preventing and managing covid-19 from further spread and to help control the epidemic situation in Nigeria. These include limiting droplet loads, frequent hand washing, PPE, determination of research workers, lockdown measures, early warnings, vaccination, amongst others.

Introduction

Literally, research means search again, but carefully for the truth, and accuracy. It is a careful search for the truth (knowledge). Etymologically (i.e from the roots or origin of words), research comes from the French word “recherché”, which means a careful search. Hence, etymologically, research refers to a systematic search for the solution to an identified problem. It is systematic because the steps follows laid down rules or due process. It is not done haphazardly or by impulse. By systematic, it also presuppose that research begins with problem identification. Hence, no problem, no research. Therefore, we can say that research is problem solving. It is the most important subject in the world because all subjects collapse after first

degree, but it is only research that remains. Masters and PhD are researches in different fields. While Bachelor degree holders are consumers of knowledge, masters and doctorate degree holders are producers of knowledge, and they do so through quality research.

To this end, Idika (2015), would defined research as the search for dependable solutions to problems using a scientific method that follows a clearly defined procedure which begins with a problem identification and definition, review of related literature, formulation of hypotheses, design of study, data collection and analysis, interpretation of results and conclusion, and necessary recommendations made. Ayang (2015), avers that research involves the collection, evaluation and organization of enough information on a particular problem area in order to arrive at valid conclusion.

In Nigeria as in other part of the world, research is primarily carried out at the tertiary level of education. Premise on this idika (2015), opined that the role of universities in providing environment for research, teaching and learning cannot be over emphasized. The environment includes the provision of the research inputs that will make the attainment of universities goal and national development possible. Countries like U.S.A, Germany, Britain, Rucia etc; play the role of maintaining research infrastructure in all existing academic disciplines and creating new discipline with the aim of resolving or attempting to resolve unending human problem like the current world greatest enemy “covid-19 pandemic”.

Tertiary education are centres of knowledge generation and their role aptly reflects in the national policy on education which states that goals of tertiary institution shall be pursued through teachings, research and development, generating and dissemination of knowledge (Federal Republic of Nigeria, 2004). It is worthy of note that the research involvement of tertiary institutions provide basis for discovery of new knowledge.

Origin of Covid-19 pandemic/research impact.

The coronavirus pandemic has triggered in unprecedented research worldwide. The impact of research in progress at the time of the pandemic, the important and challenges of real time pandemic research, research, the importance of medical sciences are all highlighted during and within the pandemic. The pandemic will have a long lasting impact on our today world, including research and bio-medical research enterprise. It is therefore important to recognise and address opportunities as strategies and challenges of research and strengthening research workforce.

The first case of what is known as SARS –COV-2 infection, termed COVID-19, were reported in wuhan region of China in December 2019 as cases of fatal Pneumonia. By February 26, 2020, COVID-19 had been reported on all continents of the world except Antarctica. As of May 4, 2020, 3.53 million cases and 248,169 deaths have been reported from 210 countries. (Paediatric Research, 2020).

On January 30, 2020, the world health organisation (WHO) announced that this outbreak had constituted a public health emergency of international concern (Mahase, 2020). The novel corona virus was initially named 2019-ncov and officially as severe acute respiratory syndrome corona virus 2 (SARSCOV-2). WHO also reported that as of February 26, covid-19 has been recognized in 34 countries, with a total of 80,239 laboratory-confirmed cases and 2,700 deaths (WHO 2020):

Recent research similar to SARS-COV and middle East respiratory syndrome corona virus (MERS-COV), SARSCOV-2 is zootoxic with Chinese horseshoe bats (*Rhinolophus Sinicus*) being the most probable origin. Relevant data from National Health Commission of

China (2020) avers that the proportion of severe cases among all patients with covid-19 in China was about 15%-25%. Majority of patients experienced fever and dry cough while some also had shortness of breath, fatigue and other atypical symptoms such as muscle pain, confusion, headache, sore throat, diarrhea and vomiting. Among the patients that underwent chest computed tomography (CT), most of them showed bilateral pneumonia with evidence of ground-glass opacity and bilateral patchy shadows being the most common methods. Among hospitalized patients in China (Wuhan) about one fourth to one-third developed serious complications, such as acute respiratory distress syndrome, arrhythmia, and shock, and were therefore transferred to the intensive care unit for resuscitation. In all and all older people and the existence of underlying co-morbidities such as diabetes hypertension, and cardiovascular disease were associated with poorer prognosis.

Man has always had to deal with disease through continual investigation into disease cases. He inhabits this planet with myriads of other living organisms some of which are invisible to the naked eyes. Most of these organisms (over 500,000 species) are beneficial to man but a relatively few hundred species of them afflict man and cause disease. Okon and Aniekan (2015). The environment that surround us harbours dangers and one of the most significant of these is communicable diseases of which corona virus is one of such. Researchers in the area of diseases control informed that diseases that affect the human race are lurk in the air, are present in the food and drinks we take, can result from bite of animals and from direct contact with each other.

The impact of covid-19 on human history

Okon and Aniekan (2015), in their corporate research reported that diseases have had a dramatic impact on human history for most of the thousands of years that man has existed on earth. To this end, the world health organization (WHO) estimated that over 13 million people worldwide die each year from infections and parasitic diseases. Of these, poor people, women, children and the elderly are the most vulnerable. This is a case in the 21st century where infectious diseases continue to reduce the human populace.

Man according to Okon and Aniekan (2015) has always sought to understand and explain the occurrence of diseases and death. Some of the early concept and theories and discoveries that led to the understanding of diseases, and their dynamics are worth giving explanation.

Supernatural causes of diseases.

In most of human history, people believed in the supernatural as the cause of illness. In most communities people who became sick were thought to have provoked the anger of the gods or spirits. The Bible believers also attribute illness to punishment by God for sinful act. The plagues in the Bible are readily called as evidence for this: if any man shall add unto these things, God shall add unto him the plagues that are written in this book (Rev 22:18). This theory collapse as researchers developed other credible theories of disease causation.

The Miasma Theory

This theory held that diseases were caused by a miasma, (a Greek word for pollution) noxious form of bad air. Miasma was regarded as a poisonous vapour or mist loaded with particles from decomposed matter (Miasmata), that caused diseases. Thus, the miasma idea was that disease were the product of environmental factors such as contaminated water, foul air and

poor hygienic conditions in the environment. The theory held that the resulting infection was not passed between individuals but would affect victims within the local from which such vapours emanated. It was identifiable by its full smell. This was one of the dominant theories of diseases causation before the 19th century.

The epidemiologic Triangle of diseases causation.

This theory holds that not all persons exposed to infectious agent contracts diseases. This implies that it is not only the causative agent that is responsible for diseases but there are other features related to the host, man or animal, as well as environment which contribute.

Mode of transmission of coronavirus.

Coronavirus can be transmitted like every other communicable diseases. Basically, it can be transmitted in two ways- directly and indirectly. In direct transmission, the disease agent is passed on directly from person to person while indirect transmissions a common vehicle or vector is required. Common vehicles could be contaminated water, air, food, etc. the virus is spread primarily by direct contact with a patient or Aerosols from nasal spray.

(See fig 1) **air born disease**

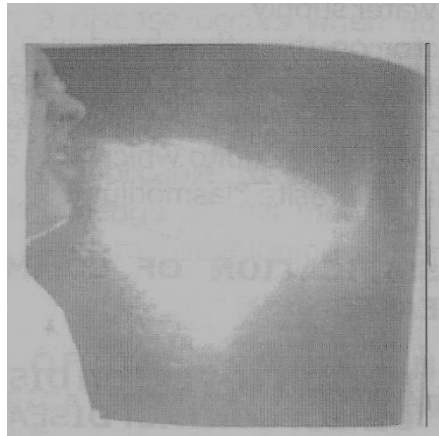


Fig 1: Aerosols from a nasal spray.

The spray is generated in a sneeze from affected person. Most respiratory diseases are spread almost exclusively by this common mode. It is worthy of note that micro- organisms found in the air are derived from people, animals, soil, water, plants and other sources. A good amount of droplets are also discharged during coughing and talking. In a single sneeze bacteria's are spread into the air. Common vehicle through which covid-19 virus can be transmitted include surfaces shared by people such as toilet seats, door knobs, bank and hospital rails, etc.

Strategies for managing/ controlling covid-19 pandemic

As pointed out earlier, a communicable disease occurs when the causative agent comes into contact with a susceptible host. The management, prevention and control measures are therefore directed at both individual and the public. The covid-19 can survive for days on surfaces like phones, door knobs, syringes etc. droplets that carries bacteria are also suspended in the air.

A. Individual measures:

- i On personal basis, individual can limit droplet load by covering the mouth with the elbow while coughing and using handkerchiefs or paper napkins to prevent Aerosol from sneeze.

Frequent hand washing with liquid soap should be a regular affair. The hands after a thorough wash should be dried with air dryer or towel. The recent outbreak of covid-19 has forced us to practice what ought to be a habit-hand washing

- ii For health workers, use of personal protective equipment (PPE) such as disposable plastic gloves and, in vulnerable areas, face masks should be practiced. Tables and counter tops must be wiped regularly with bleach solution

B. Institutional- public health measures:

i. Determination of research workers:

Determination of top research priority for covid-19 is still a major challenge for researchers both in the medical and educational Institutions. The research team response should include strategic steps towards an in-depth studies geared toward discovering antidotes to control virus through surveillance, diagnosis, prevention, vaccines development, risk management, collaboration across the research sectors. In view of public health care services, such guidance should include patient management, infection control, laboratory testing, environmental cleaning, worker safety or international travel.

Research works are to be conducted to response rapidly and effectively to such an emerging pathogen. A major issue for the researcher is to help policy makers understand the pathophysiological and historical pictures of the virus. The risks associated with the covid-19 infections are currently very high due to rapid disease transmission and its effect.

ii. Lockdown measures.

Lockdown measures, closure of schools, non-essential work places, travel restriction on social gathering, social distancing, border control, rapid and science based assessment, rapid testing and contact tracing, community transmission control measures, promotion of hand washing hygiene, medical preparedness, ICU and ventilator facilities, safeguarding health care professionals, government, public and private hospitals and public health experts are all management and control measures to prevent the spread of coronavirus by different countries.(health care 2021).

iii. Early warning to the public.

To be forewarned is to be forearmed. Early warning system is a measure necessary for covid-19 prevention. It is necessary to implement early warning systems that indicate possible outbreak and increased risks to raise preparedness. Community based intervention such as staying at home, social distance, working remotely and school dismissal can help slow down the pace of covid-19 spread. Researchers should encourage individuals to practice everyday prevention measures as mentioned above.

iv. Vaccination

Vaccination is often carried out for vaccine preventable diseases like coronavirus, whooping, cough, tetanus, polio, measles etc. the Federal Government of Nigeria is making move to vaccinate all civil servant across the nation through an aggressive national programme of immunization for the citizenry. This is one way of covid-19 management and control. The government and health workers deserve commendation for this.

v. Serologic tests: molecular biology techniques have made it possible to develop serologic test which have become a vital diagnostic test for many diseases. It is thus possible to screen people for a specific ailment. Such test have been useful in identifying persons infected with covid-19 placing them on treatment in order to prevent further spread.

vi. Surveillance: another method of possible management and prevention of covid-19 is to place people on surveillance. The oxford English dictionary defines surveillance as “watch” or “guard” kept over a person especially a person under investigation. With respect to study of disease Okon (2015) opined that surveillance initially referred to a close observation of persons exposed to a communicable disease to detect early symptoms and institute prompt isolation control measures. In an important sense, surveillance refers to systematic collection, analysis, interpretation of health information by means of reports. World Health Organization (WHO), the objective of surveillance is to use appropriate epidemiologic method to guide the control of diseases.

vii. International Travel Vaccination Requirements

The coronavirus is not a respecter of geographical boundaries. It can travel as fast as the person hosting the pathogen. With the coming of covid-19 countries now require international certificates of vaccination before entry. Apart from yellow fever vaccination, people travelling to other countries are expected to take covid-19 vaccines. The aim is to avoid further spread of the pandemic.

The roles of Research in the management of covid-19 pandemic

i. Institutional research management

A highly professionalized function that is related to conduct and funding of research globally. It requires establishment of research activities of institutions thus, research can serve the purpose of packaging proposals, contract and grant management, among others

ii. Multi-disciplinary research

Collaboration is one that has different experts from different disciplines working as a team to achieve common goals. Even though educational researchers work within the confines of their own field, in this era of pandemic, however, collaboration with medical sciences would be of more benefit in terms of exploits in the field of science.

iii. Peer review process

This method can be adopted by research workers to evaluate products and services to determine the extent of attainment of the objectives, provide feed back on how to improve management cases of the pandemic which are publishable on manuscripts.

iv. Research training

This is geared toward building research competence of staff by exposing them to research methodology to provide and encourage information sharing, networking and dissemination of research findings. Research indicates a very strong contribution to the threshold of knowledge. It is only scientific research that can be employed to fight against covid-19 virus

Conclusion

The outbreak of coronavirus has shaken the world of its strength in fact, looking at the trend of the pandemic, it seems that it is something we are going to live with for a long period of time. There is no doubt that we are going to experience setbacks in the development of educational, religious, and political system of Nigeria if the corona virus is not properly handle with research tools and adequate government policies to curb the pandemic. The paper highlights the role of research in the management of the pandemic of our time.

Recommendations

1. Researchers should respond rapidly and effectively to such an emerging pathogen. The research can help policy makers to understand the pathophysiology and historical picture of the virus.
2. Educational institutions and other research staff should provide the needed research infrastructure, insist on compliance with criteria and expectation in the process output.
3. There is need to bridge research gap to policy involvement of practitioners.
4. It is necessary to implement early warning systems that may cause possible outbreak of communicable disease or increased risk to raise preparedness.

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