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An Empirical Research on COVID-19 Pandemic as a Threat to Human Health: A Case Study of Science Teachers in Uyo Metropolis

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ABSTRACT

*The study was conducted to find out the threat of COVID-19 to human health as perceived by science teachers in Uyo Metropolis. Research questions and hypotheses were formulated to guide the study. The research design used for the study was an Expost-Facto type. 35 science teachers were selected using a simple random sampling technique for phone interview through contacts made available by the Akwa Ibom State Chapter Chairman of Science Teachers Association of Nigeria. To this effect, a structured questionnaire tagged; "COVID-19 THREAT AND HUMAN HEALTH QUESTIONNAIRE (CTHHQ). The research instrument was subjected to face and content validation. It was also tested for reliability and it produced 0.78 coefficient, proving the instrument justifiable enough to be used for the study. Descriptive statistics and simple regression analysis were used for statistical analysis of the data obtained. The result proved that the threat of COVID 19 on human health in Uyo Metropolis is of very high extent. The result also proved cough to be the most common short term effect of COVID 19 on human health. For the long term effect it was observed that acute respiratory distress was the most common impacts of COVID 19 pandemic. The findings also proved 'appropriate use of PPE' as the most preferred preventive measure against covid-19 pandemic in Uyo Metropolis. Finally, the result proved that there is significant extent of threat of COVID-19 on the health of people in Uyo Metropolis. One of the recommendations was that contacts with infected persons should be prevented by applying the preventive measures outlined by the government as people could easily contact the virus through sneezing, coughing and many more.*

**KEYWORDS:** Coronavirus, covid-19, human health, preventive measures, Uyo Metropolis

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**Introduction**

Coronaviruses are a family of viruses known to cause respiratory infections with such symptoms as pneumonia, fever, breathing difficulty, and lung infection (WMH, 2020). It was first identified in December 2019 at Wuhan in China, Hubei Province, China among people linked to a local seafood market (wet market) and has spread to about 196 countries and territories in every continent except Antarctica (Li et al, 2020). The information on the spread of the new virus was made public by (WHO 2020). The scale and severity of the COVID-19 pandemic had risen to the level of a public health threat that had caused significant cost to the global economy (UNTAD put the cost of the outbreak at about US\$2 trillion), restrictions on

certain rights, such as the imposition of quarantine or isolation and limiting freedom of movement. Transmission of the virus is believed to occur via respiratory droplets from coughing and sneezing, as with other respiratory pathogens, including influenza and rhinovirus. Virus released in respiratory secretions can infect other individuals via direct contact with mucous membranes. Droplets usually cannot travel more than 6 feet (Fehr, et al. 2017). The virus can also persist on surfaces to varying durations and degrees of infectivity. Contacts with other individuals in the population are made within the household, at school, in the workplace and in the wider community. Citing concerns with “the alarming levels of spread and severity, the WHO called for governments to take urgent and aggressive action to stop the spread of the virus.

An incubation period of 5.1 days was found (WHO, 2020; Arksey & O'Malley, 2005). Infectiousness also occur from 12 hours prior to the onset of symptoms for those that are symptomatic and from 4.6 days after infection in those that are asymptomatic with an infectiousness profile over time that results in a 6.5-day mean generation time. A recent study revealed that symptomatic individuals are 50% more infectious than asymptomatic individuals. Individual infectiousness is assumed to be variable, described by a gamma distribution with mean 1 and shape parameter  $\alpha = 0.25$ . This is the essence of this study to examine the health impact of COVID-19 on Akwa Ibom state residents. A case study of Uyo metropolis.

### **Statement of Problem**

Since the identification of the first case of COVID – 19 in Nigeria, several efforts have been put in place by the federal and states government to curb the prevalence and spread of the virus. As with many other countries around the world, Nigeria's prevention efforts are limited to screening international travelers at its airports while promoting hand washing and hygiene among the general populace. The country is relying on temperature screening at the airport, travelers' travel history and promotion of self-isolation for people visiting Nigeria from countries with numerous confirmed cases of COVID-19. The virus have spread very fast and has been identified in almost every state of the federation with the total of about 600 clinically confirmed and 10 death cases as at the time of this study. Some unprecedented measures have been put in place such as: closure of schools, shops, business, restriction of movement, enforcement of stay-at-home order and subsequent establishment of taskforce and court for handling of issues related to COVID – 19 offences. The citizens of Akwa Ibom state have been affected in so many aspects: psychologically, nutritionally, economically, socially, and in health wise. This study is as an exposé to outline few health impact of the pandemic on the residents.

### **Aim/Objectives of the Study**

The main aim of this study is to assess the health threats of COVID 19 on the residents of Uyo metropolis. The study specifically sought to:

- (i) Find out the extent of threat of COVID 19 on human health in Uyo Metropolis.
- (ii) Assess the short term effects of COVID 19 on human health in Uyo Metropolis.
- (iii) Examine the long term impacts COVID 19 on human health in Uyo Metropolis.
- (iv) Determine the Preventive Measures against Covid 19 pandemic in Uyo Metropolis.

## Research Questions

- (i) What is the extent of threat of COVID 19 on human health in Uyo Metropolis.
- (ii) What are the short term effects of COVID 19 on human health in Uyo Metropolis.
- (iii) What are the long term impacts COVID 19 on human health in Uyo Metropolis.
- (iv) What are the Preventive Measures against Covid 19 pandemic in Uyo Metropolis.

## Research Hypothesis

- (i) There is no significant extent of threat of COVID 19 on human health in Uyo Metropolis.

## Health Impacts of COVID 19

The COVID-19 pandemic have demonstrated a rippling effect on every sector of the economy with no exception of the health sector. The COVID-19 virus is capable of causing infection and severe disease in all people of all ages (Maria Van Kerkhove 2020). The data obtained from a number of countries is that the majority of children that are infected are experiencing mild disease, with a handful of childhood fatalities. Male are more prone to the virus infection than the female due to absence or low level of estrogen, but it is no use to take estrogen pills. While there's no question that the elderly and those with underlying conditions have been affected much more than other age group, younger people are not immune: 20% of deaths in Korea were people under the age of 60, and 15% of people in intensive care units in Italy were under 50 years of age.

The health challenges of Covid-19 for the continent of Africa, Nigeria and Akwa Ibom state are daunted with a serious loss of life on daily bases. This is because the nation's health system is weak and already overtaxed. Maternal and child health have declined significantly and still had not recovered well after the end of the epidemic. The high risk of malaria in sub-tropical regions of Africa have claimed so much lives and the prevalence of Covid-19 could derail progress on malaria treatment as well as other diseases, or to supply chains of critical medicines and medical supplies. The virus is said to have a more severe impact on people with underlying health conditions, it could therefore be hypothesized that more severe Covid-19 illness could be suspected from malnourished population. Additionally, people with medical condition may not be able to be treated due to hospital occupancies being reached, and people with any disease that causes coughing may not be able to reach a healthcare facility due to stigma of appearing to spread covid-19.

## Symptoms of Covid-19

Covid-19 is highly infectious, and its main clinical symptoms include fever, dry cough, fatigue, myalgia, and dyspnea. Presentations of COVID-19 have ranged from asymptomatic/mild symptoms to severe illness and mortality. Symptoms may develop 2 days to 14 days following exposure to the virus. A pooled analysis of 181 confirmed cases of COVID-19 outside Wuhan, China, found the mean incubation period to be 5.1 days and that 97.5% of individuals who developed symptoms did so within 11.5 days of infection.

In this study, the symptoms are grouped into mild symptoms, severe symptoms and critical symptoms.

Mild symptoms include the following:

- Fever
- Cough

- Myalgia
- Fatigue
- Pneumonia

Severe symptoms include the following:

- Headache
- Sputum production
- Diarrhea
- Malaise
- Shortness of breath/dyspnea
- Respiratory distress/failure
- Multiorgan dysfunction
- Shock

Critical symptoms that could lead to death include the following:

- Hypoxia
- Dyspnea
- Lung failure
- Acute respiratory distress
- Septic shock
- Difficult to tackle metabolic acidosis
- Bleeding and coagulation dysfunction

The above list is however not exhaustive but the most common serious manifestation of COVID-19 is the pneumonia. Patients with mild symptoms were reported to recover after 1 week while severe cases were reported to experience progressive respiratory failure due to alveolar damage from the virus, which may lead to death. Cases resulting in death were primarily middle-aged and elderly patients with pre-existing diseases (tumor surgery, cirrhosis, hypertension, coronary heart disease, diabetes, and Parkinson's disease) (Li et al., 2020).

### **The short term health consequences of Covid-19**

For a lot of people, the virus once contacted causes only mild symptoms and pass like a common cold. When the virus enter the body, it binds two cells in the lungs – goblet cells that produce mucus and cilia cells which have hairs on them and which normally prevents the lungs from filling up with debris and fluid such as virus and bacteria and particles of dust and pollen. The virus attacks these cells and starts to kill them, so the lungs begin to fill with fluid making it hard to breathe. This phase of the disease last about one week and if the immune system is not strong enough to kill the virus, the virus will kill healthy cells which if heightened can lead to organ failure and death (*the Telegraph*). The short term effects are the mild and few severe symptoms of the virus vis: pneumonia, fever, cough, sore throat, myalgia, fatigue, headache, sputum production, diarrhea, and malaise which can be cured in 1 week of treatment. Patients who exhibit these symptoms easily respond to treatment and get discharged in few days.

### **Long term health consequences of Covid-19**

As more people recover from Covid-19, some will find that their ordeal may not end when infection is over. With the disease emerging in China a few months ago, doctors are just

starting to get a better understanding of how the new coronavirus impacts long term health. Diminished Lungs Function - For now, it appears most patients who have had mild symptoms can expect no lasting harm. But survivors of the severe type of the illness may face a much more complicated picture, and not just when it comes to the lungs. Covid-19 seems to be more than a respiratory disorder, with people also experiencing a gastrointestinal version of the disease. Covid-19 patients who developed acute respiratory distress syndrome - a life threatening lung injury due to infection and had to be hospitalized in the intensive care unit are more likely to have long term consequences. Some people might be having scarring in their lungs from what has happened and that may not be completely reversible. These patients may have diminished lung function that's going to persist, including decreased exercise capacity that leaves them short of breathe. Some Covid-19 survivors had a 20 - 30% drop in lung function after recovery and gasp if they walk a bit more quickly - south China Morning post reports. In such case, cardiopulmonary rehab may help in rebuilding strength and capacity, though a person may not return completely all the way back to baseline.

Inflammation of the heart - A recent study on (News TODAY), found that about 20% of patients with covid-19 in China had heart damage during hospitalization. Another study from the American College of Cardiology (2020), discovered that about 16% of patients developed arrhythmia, while other reports indicated cases of acute onset heart failure, heart attack and cardiac arrest after coronavirus infection. Freeman also noted that, people with severe form of the illness can also develop myocarditis, an inflammation of the heart muscle, and sometimes do not fully recover by the time they are discharged from the hospital and its possible the condition would persist in some way. Whenever there is enormous demand placed on the heart - in cases when someone is severely sick and on life support, for example, or dealing with an intense inflammatory response, there can always be some element of cardiac injury. He also noted that any long - term lung disease can have effects on the heart, particularly its right side. The lungs and heart are coupled tightly. Sometimes when the lungs are ill, the pulmonary arteries - which are what leaves the right side of the heart can also develop inflammation, disease or a thickening. In addition, viral illnesses can destabilize plaque in the arteries, potentially resulting in a blockage and putting patients at risk of a heart attack (American Heart Association, 2020).

Kidney abnormalities - International Society of Nephrology submitted that there is no evidence that Covid-19 hurts the kidneys of people who have mild to moderate infection, but kidney abnormalities have been seen in 25 - 50% of patients who develop the severe type of the disease. Those patients have been observed to have more protein and red blood cells in their urine. About 15% of them also develop a decline in filtration function. The new coronavirus is an infectious organism and can lead to a cascade of immune changes that lead to sepsis, and sepsis is characterized by multiple organ systems being compromised. Some individuals with sepsis can get acute kidney injury.

Brain and mental health - The longer patients have to remain in Intensive Care Unit, the more likely they are to suffer long-term cognitive and emotional effects of being sedated. Doctors call it post-intensive care syndrome or post ICU delirium, and describe it as a type of post-traumatic stress. Dr. Amy confirmed that, often, when patients come out of the ICU, they really struggle to think as clearly as they did before. She estimated up to two-thirds of ventilated patients may be affected. Possible causes include not getting enough oxygen or blood to the brain, or the medications used to sedate a patient. On the Nervous system - Neurologic symptoms may be possible too. Dr. Kenneth Tyler reiterated that other coronaviruses that affect humans can invade the central nervous system, therefore, Covid-19 may have neurologic manifestations. Indeed, a recent study found that neurologic symptoms

were seen in 36% of 214 COVID-19 patients in China, including dizziness, headache and taste and smell impairment.

### Preventive Measures

On recovery from infection, individuals are to be immune to re-infection in the short term. Evidence from the Flu Watch cohort study suggests that re-infection with the same strain of seasonal circulating coronavirus is highly unlikely in the same or following season. It's not certain how long the virus that causes Coronavirus survives on surfaces, but it seems to behave like other coronaviruses," (World Health Organization). "Studies suggest that coronaviruses — including preliminary information on the COVID-19 virus — may persist on surfaces for a few hours or up to several days." Higher temperatures, based on earlier coronaviruses, are likely to degrade it. But experts caution that this novel coronavirus may not necessarily go away in warmer weather. It is from a different family of viruses than the flu, and it is highly contagious. Its life span may also vary, depending on the type of surface, temperature and/or humidity. Bathrooms are a welcoming environment for coronaviruses. A health expert added that "coronaviruses can remain viable in cold, moist surfaces up to nine days, hence bathrooms should be kept dry as much as possible".

The coronavirus is placing severe strains on Africa's health, economic, and security sectors. The tools that countries have adopted to try to mitigate the spread of the disease exact a high economic cost. The two primary tools against COVID-19 are mitigation and suppression. Mitigation seeks to slow the spread to reduce the demand on the health system and protect those at highest risk. Suppression uses lockdowns or other restrictions to try to reverse the growth of the epidemic. The Africa CDC, drawing on a modeling study by Imperial College in the United Kingdom, reports that a combination of mitigation measures could cut the number of deaths from the disease in half. These include: Case isolation (where confirmed cases are isolated from others); Home quarantine (where those who have been exposed and may be infected remain at home for 14 days to prevent infecting others); and social distancing, especially for those who are over 70 years old and others who are most vulnerable. The study also shows, however, that in order to reverse the rising numbers, broader suppression or lockdown measures are needed, including closing schools and universities, prohibiting gatherings, and "social distancing the entire population." Mitigation and suppression efforts will require a comprehensive government response built on clear communications and public trust and individual responsibilities.

Data have suggested that asymptomatic patients are still able to transmit infection. This raises concerns for the effectiveness of isolation. Zhang et al (2019), followed viral expression through infection via nasal and throat swabs in a small cohort of patients. They found increases in viral loads at the time that the patients became symptomatic. One patient never developed symptoms but was shedding virus beginning at day 7 after presumed infection. Many countries and states have restricted the size of gatherings to limit the spread of the disease. (for example in Akwa Ibom state, the number is restricted to 20 persons with particular emphasis on the use of face mask; thermometer and social distancing of 1 meter). The above conditions are considered necessary because scientists found that SARS-CoV-2, the virus that causes the new disease COVID-19, was detectable in the air for up to three to four hours on copper, up to 24 hours on cardboard, and up to two to three days on plastic and stainless steel. For those reasons, officials recommend washing hands, cleaning surfaces and "social distancing" in public spaces. The WHO also issued detailed guidelines on the use of face masks in the community, during care at home, and in the health care settings of COVID-19 (WHO, 2020). Health care workers are recommended to use particulate respirators such as

those certified N95 or FFP2 when performing aerosol-generating procedures and to use medical masks while providing any care to suspected or confirmed cases. According to the guideline, individuals with respiratory symptoms are advised to use medical masks both in health care and home care settings properly following the infection prevention guidelines. The guideline also provides that, an individual without respiratory symptoms is not required to wear a medical mask when in public. Proper use and disposal of masks is important to avoid any increase in risk of transmission (UNDP, 2020).

### **Empirical Review**

In a study conducted by Neil M Ferguson, Daniel Laydon, Gemma Nedjati-Gilani et al., (2020) on impact of non-pharmaceutical interventions (NPIs) to reduce COVID-19 mortality and healthcare demand, a case study of London and USA. They surmised that the global impact of COVID-19 has been profound, and the public health threat it represents is the most serious seen in a respiratory virus since the 1918 H1N1 influenza pandemic. The result of epidemiological modelling which has informed policymaking in the UK and other countries in recent weeks was presented. In the absence of a COVID-19 vaccine, the potential role of a number of public health measures – so-called non-pharmaceutical interventions (NPIs) – aimed at reducing contact rates in the population and thereby reducing transmission of the virus were assessed. In the results, they applied a previously published microsimulation model to two countries: the UK (Great Britain specifically) and the US and concluded that the effectiveness of any one intervention in isolation is likely to be limited, requiring multiple interventions to be combined to have a substantial impact on transmission.

In a 2020 study on the efficacy of facemasks in preventing acute respiratory infection, surgical masks worn by patients with such infections (rhinovirus, influenza, seasonal coronavirus [although not SARS-CoV-2 specifically]) were found to reduce the detection of viral RNA in exhaled breaths and coughs. Specifically, surgical facemasks were found to significantly decrease detection of coronavirus RNA in aerosols and influenza virus RNA in respiratory droplets. The detection of coronavirus RNA in respiratory droplets also trended downward. Based on this study, the authors concluded that surgical facemasks could prevent the transmission of human coronaviruses and influenza when worn by symptomatic persons and that this may have implications in controlling the spread of COVID-19 (Shen et al, 2020).

### **Method**

The design used for this study was an Expost-Facto. In this type of design, the researcher assessed the already existing threats of COVID-19 on human health. The research area for this study was Uyo Metropolis, Akwa Ibom State and the population of this study comprised all science teachers in Uyo Metropolis. A simple random sampling technique was used to select 35 respondents. The main instrument used in this study was an interview schedule titled "COVID-19 THREAT AND HUMAN HEALTH QUESTIONNAIRE (CTHHQ). The reason for using the interview schedule was on the ground that the researchers needed to adopt phone calls method where the respondents were called and interviewed over the phone due to lockdown in the state. The contacts of the respondents were made available by the Akwa Ibom State Chapter Chairman of Science Teachers Association of Nigeria. The instrument for the study passed through face and content validation by the experts in test and measurement in University of Uyo. Cronbach Alpha technique was used to determine the level of reliability of the instrument. In the trial test, a total of 5 respondents who did not form part of the main study were randomly selected and the questions in the interview schedule put before them on phone due to lockdown in the state. The reliability coefficient obtained was

0.78 and this was high enough to justify the use of the instrument. The exercise took about six days to complete it. The researcher subjected the data generated for this study to appropriate statistical techniques such as descriptive analysis and simple regression. The test for significance was done at 0.05 alpha levels.

### Research Question 1

The research question sought to find out the extent of threat of COVID 19 on human health in Uyo Metropolis. To answer the research percentage analysis was performed on the data. (see table 1).

**Table 1: Percentage analysis of extent of threat of COVID 19 on human health in Uyo Metropolis.**

EXTENTS	FREQUENCY	PERCENTAGE
VERY HIGH EXTENT	17	48.57**
HIGH EXTENT	12	34.29
LOW EXTENT	4	11.43
VERY LOW EXTENT	2	5.71*
<b>TOTAL</b>	<b>35</b>	<b>100%</b>

\*\* The highest percentage frequency

\* The least percentage frequency

SOURCE: Field survey

The above table 1 presents percentage analysis of the extent of threat of COVID 19 on human health in Uyo Metropolis. From the result of the data analysis, it was observed that the highest percentage (48.57%) of the respondents affirmed that the extent of the threat of COVID 19 on human health in Uyo Metropolis is very high. This was seconded by those who affirmed that the extent is high (34.29%). The third group of the respondents (11.43%) affirmed low extent while the least percentage (5.71%) of the respondents stated that the extent of the threat of COVID 19 on human health in Uyo Metropolis is very low.

### Research Question 2

The research question sought to find out the short term effects of COVID 19 on human health in Uyo Metropolis. To answer the research percentage analysis was performed on the data. (see table 2).

**Table 2: Percentage analysis of the short term effects of COVID 19 on human health in Uyo Metropolis.**

EFFECTS	FREQUENCY	PERCENTAGE
Pneumonia	6	17.14
Fever	6	17.14
Cough	7	20**
Sore throat	4	11.43
Myalgia	3	8.57
Fatigue	3	8.57
Headache	2	5.71
Sputum Production	2	5.71
Diarrhea	1	2.86*
Malaise	1	2.86*
<b>TOTAL</b>	<b>35</b>	<b>100%</b>

\*\* The highest percentage frequency

\* The least percentage frequency

SOURCE: Field survey

The above table 2 presents the percentage analysis of the short term effects of COVID 19 on human health in Uyo Metropolis. From the result of the data analysis, it was observed that cough 7(20%) was the highest short term effects of COVID 19 on human health. Seconded by fever and Pneumonia 6(17.14%). This was followed by sore throat 4(11.43%) while myalgia and fatigue with 3(8.57%) were fourth in the list. Headache and sputum production 2(5.71%) were fifth while diarrhea and malaise 1 (2.86%) were the least short term effect of COVID 19 on human health in Uyo Metropolis.

### Research Question 3

The research question sought to find out the long term impacts of COVID 19 on human health in Uyo Metropolis. To answer the research question percentage analysis was performed on the data, (see table 3).

**Table 3: Percentage analysis of the long term impacts of COVID 19 on human health in Uyo Metropolis.**

EFFECTS	FREQUENCY	PERCENTAGE
Hypoxia	4	11.43
Dyspnea	3	8.57
Lung failure	7	20
Acute respiratory distress	8	22.86**
Septic shock	5	14.29
Difficult to tackle metabolic acidosis	5	14.29
Bleeding and coagulation dysfunction	2	5.71
Kidney abnormalities	1	2.86*
<b>TOTAL</b>	<b>35</b>	<b>100%</b>

\*\* The highest percentage frequency

\* The least percentage frequency

SOURCE: Field survey

The above table 3 presents the percentage analysis of the long term impacts of COVID 19 on human health in Uyo Metropolis. From the result of the data analysis, it was observed that acute respiratory distress 8(22.86%) was the most common long term impacts COVID 19 on human health. Seconded by lung failure 7(20%) followed by septic shock and difficult to tackle metabolic acidosis 5(14.29%). This was also followed by hypoxia 4(11.43%). The fifth in the group was dyspnea rated 3(8.57%). This was followed by bleeding and coagulation dysfunction 2(5.71%) while Kidney abnormalities 1(2.86%) was rated the least percentage of the long term impacts of COVID 19 on human health in Uyo Metropolis.

#### Research Question 4

The research question sought to find out the Preventive Measures against Covid 19 pandemic in Uyo Metropolis. To answer the research question percentage analysis was performed on the data, (see table 4).

**Table 4: Percentage analysis of the Preventive Measures against Covid 19 pandemic in Uyo Metropolis.**

PREVENTION	FREQUENCY	PERCENTAGE
Appropriate use of PPE	11	31.43**
Performing hand hygiene frequently with the use of sanitizers or soap and water	8	22.86
Avoid touching of eyes, nose and mouth	6	17.14
Practicing respiratory hygiene by coughing or sneezing into a bent elbow or tissue and immediate disposing of the tissue	5	14.29
Use of medicated mask	2	5.71*
Maintaining social distance	3	8.57
<b>TOTAL</b>	<b>35</b>	<b>100%</b>

\*\* The highest percentage frequency

\* The least percentage frequency

SOURCE: Field survey

The above table 4 presents the percentage analysis of the preventive measures against covid-19 pandemic in Uyo Metropolis. From the result of the data analysis, it was observed that Appropriate use of PPE 11(31.43%) was rated the highest preventive measures against covid-19 pandemic while Use of medicated mask 2(5.71%) was rated the least preventive measures against covid-19 pandemic in Uyo Metropolis.

#### Research Hypothesis

The null hypothesis states that there is no significant extent of threat of COVID 19 on human health in Uyo Metropolis. In order to test the hypothesis simple regression was used to analyse the data, (see table 5).

**Table 5: Simple regression of the extent of threat of COVID 19 on human health in Uyo Metropolis.**

Model	R	R Square	Adjusted R Square	Std. error of the Estimate	R Square Change
1	0.83a	0.68	0.67	2.41	0.68

\*Significant at 0.05 level; df = 33; N = 35; critical r-value = 0.361

The table 5 shows that the calculated R-value 0.83 was greater than the critical R-value of 0.361 at 0.5 alpha level with 33 degree of freedom. The R-square value of 0.68 predicts 68% of the extent of threat of COVID 19 on human health in Uyo Metropolis. This rate is highly positive and therefore means that there is significant extent of threat of COVID 19 on human health in Uyo Metropolis. It was also deemed necessary to find out the extent of the variance of each class of independent variable as responded by each respondent (see table 6).

**Table 6: Analysis of variance of the extent of threat of COVID 19 on human health in Uyo Metropolis.**

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	410.31	1	410.31	70.38	.000b
Residual	192.38	33	5.83		
Total	602.67	34			

- a. Dependent Variable: Human Health
- b. Predictors: (Constant), COVID-19

The above table presents the calculated F-value as (70.38) and the generated probability value as (000<sup>b</sup>). Being that the generated probability (000<sup>b</sup>) is below the standardized probability level of 0.05, the result therefore means that there is significant extent of effect exerted by the independent variables (human health) on the dependent variable which is COVID-19. The result of the data analysis in table 5 was significant due to the fact that the calculated R-value 0.83 was greater than the critical R-value of 0.361 at 0.05 level with 33 degree of freedom. The result implies that there is significant extent of threat of COVID 19 on human health in Uyo Metropolis. The result therefore is in agreement with the research findings of Zhang et. al (2019) who asserted that viral expression through infection via nasal and throat swabs in a small cohort of patients. They found increases in viral loads at the time that the patients became symptomatic. One patient never developed symptoms but was shedding virus beginning at day 7 after presumed infection. The significance of the result caused the null hypotheses to be rejected while the alternative was accepted.

**Conclusion**

While the lockdown will not stop the virus, it is a welcomed act of balancing non pharmaceutical interventions as recommended by experts to reflect the local realities. But such balanced lockdowns will become increasingly expensive in time – particularly in the face of a dwindling fiscal space – as the number of those requiring economic packages increases. The study revealed that there is high extent of threat imposed on human health by covid-19 pandemic in Uyo metropolis.

## Recommendations

From the findings of the study, it was recommended that:

1. Since the study revealed that there are health effects of the coronavirus on residents and people could easily contact it through sneezing, it is recommended that contacts with infected persons should be prevented by applying the preventive measures outlined by the government as people could easily contact the virus through sneezing, coughing and many more.
2. Government and private organizations should sensitize the people on the short and long term effects of the Covid-19 pandemic on the health of the residents as the effect could resurge after a brief recovery.
3. People should endeavour to practice general habit of environmental cleanliness so as to attain safety and good health and as well limit the extent of spread of the virus.
4. Individuals in every country should take the steps recommended by the WHO, Africa CDC, U.S. CDC, and others to avoid infection and help protect those most at risk by regularly and thoroughly washing of hands with an alcohol-based hand rub (sanitizers) or with soap and water; maintaining social distancing of at least 1 meter from anyone who is coughing or sneezing; avoid touching the eyes, nose, and mouth as the virus is believed to survive on these body parts; practicing respiratory hygiene. This means covering ones' mouth and nose with bent elbow or tissue when coughing or sneezing, then the used tissue is disposed of immediately; and in case of fever, cough and difficulty breathing, medical care should be sought for early.

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