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RECURRENT PREVALENCE OF COVID-19 SYMPTOMS AMONG INHABITANTS OF MADOBI TOWN, KANO-NIGERIA COINCIDES WITH THE PERIOD OF DISEASE OUTBREAK IN THE STATE: A TIMEFRAME FROM APRIL - MAY 2020

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ABSTRACT: *Ever since the outbreak of the novel coronavirus infection which emanated from Wuhan, a city in Hubei province of China and subsequently leads to the current global pandemic, the disease has been travelling and fast spreading across various nations of the world. As of 07 June 2020, there were 3,230,031 active cases and 406,343 deaths reported globally. Out of this, Nigeria current cases stood at 8,173 persons with 354 deaths, while specifically in Kano State; the total active cases hit 501 with 48 deaths respectively. Not much long after confirmation of the first positive index case of this villain virus in Kano city, on 11th April, 2020, there have been frequent reports of people across the state exhibiting symptoms (such as high fever, headache, cough, loss of smell, loss of taste, fatigue, loss of appetite, vomiting, diarrhea and shortness of breath) that are similar to COVID-19 infection as defined by the Nigerian Center for Diseases Control (NCDC), but however with subsequent high recoveries. Owing to this development, the present study entitled to assess the situation pertaining to occurrence of these cases, recoveries and the method of treatment applied in the study location. A semi-structured questionnaire was designed and administered to a total of fifty (50) respondents pulled out randomly from the study area. It was found out that 41(82%) of the respondents catches common cold/catarrh during the timeframe of the study against the remaining 09(18%) who did not. In general, out of the 50 samples interviewed, 96% representing 48 persons exhibited two or more of symptoms that are similar to COVID-19 infection, while 02 (4%) did not experience any of the signs. However, out of these 48 suspected persons, 32(66.7%) receive medical care either from hospital or pharmacy, while 16(33.3%) of them did not seek for any medical assistance. In terms of body conditions improvement, 42(87.5%) persons recovered fully from the symptoms and 06(12.5%) are still battling with one or two of the symptoms. Moreover, 10(20.8%) persons reported to have use herbal therapy during the course of the treatment while 38(79.2%) did not. Based on the outcome of this finding, it can be deduced that the possibility of communal COVID-19 transmission among the inhabitants of the study area during the timeframe cannot be totally overruled even though that no single COVID-19 confirmatory test was carried out. Hence, there is need for government and other concerned authorities to establish more testing facilities in remote areas and also review their protocols towards containment of this pandemic as this unending lockdown seem to be no longer sustainable.*

KEYWORDS: Madobi, COVID-19, Infection, Treatment, Recovery, Nigeria

INTRODUCTION

The novel coronavirus are a family of viruses that cause illnesses associated with the common cold. The first case of coronavirus infection was identified and reported as cold in 1960 (Kumar *et al*., 2020). Specifically, coronaviruses were known to cause respiratory and intestinal infections both in animal and human models (Cui *et al*., 2020). However, these viruses were not considered to be highly pathogenic to humans until the outbreak of the diseases namely; Severe Acute Respiratory Syndrome (SARS) in 2002-2003 in Guangdong province, China (Drosteen *et al.,* 2003; Zhong *et al*., 2003; Fouchier *et al.,* 2003; Ksiazek *et al.,* 2003) caused by a particular strain of the corona viruses. Meanwhile, the coronaviruses that circulated before that time in humans mostly caused mild infections in immuno-competent people. Ten years after SARS, another highly pathogenic coronavirus, Middle East Respiratory Syndrome Coronavirus (MERS CoV) emerged in Middle Eastern countries (Zaki *et al*., 2012).

December 2019 has been a tragedy to the entire world, more especially to the Chinese citizens due to the emergence of a series of pneumonia cases of unknown cause in Wuhan, a city in Hubei province of China (Rahman and Bahar, 2020). In early January 2020, after a series of deep sequencing analysis from lower respiratory tract samples of the infected peoples, scientists were able to identified a novel coronavirus, termed as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2; formerly called 2019-nCoV) as the causative agent for that observed pneumonia cluster (Huang *et al*., 2020). Additionally, on 11th February, 2020, the Director-General of World Health Organization (WHO), Dr. Tedros Adhanom Ghebreyesus, during a briefing pronounced the disease caused by the SARS-CoV-2 as Coronavirus Disease 2019 coded as "COVID-19" (Di Gennaro *et al*., 2020). Subsequently by March 11th, 2020 when the number of countries involved with the infection hit 114, with more than 118,000 cases and over 4000 deaths, the WHO then declared the disease a pandemic status (WHO, 2020).

Signs and symptoms of COVID-19 infection typically occur within 2-14 days after a person comes into contact with the virus. According to WHO, typical signs of infection include fever, cough, muscle pain, tiredness, and shortness of breath. In more severe cases, it can lead to pneumonia, multiple organ failure and even death. Most infected people show symptoms within 5-6 days after counteracting the virus. However, some infected patients can be asymptomatic, meaning they do not display any symptoms despite having the virus in their systems but have the potential of transmitting it to others. Generally, older people and those with underlying medical conditions (such as hypertension, heart disorders, diabetes, liver disorders, and respiratory disease) are expected to be at higher risk of developing severe symptoms.

Governments are warning people at high risk to be particularly stringent in observing social distancing measures and in some cases total or partial lockdown protocol of a province(s) were put in place as the COVID-19 pandemic accelerates globally. This is because if they become ill, they are more likely to need critical care including ventilation, and may even leads to death (Public Health England, 2020). Data on COVID-19 from China suggested that most confirmed cases have been classified as mild or moderate, 14% are severe and 5% critical (Wu and McGoogan, 2020). Case fatality rates (CFR) are difficult to assess with certainty but currently could be as high as 4-6% which is much greater than seasonal influenza that was about 0.1%.

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In view of the current ravaging pandemic situation, the present survey research seeks to assess the possible COVID-19 infection due to prevalence of its symptoms among the inhabitants of Madobi town in Kano state, Nigeria and to also proffer alternative approaches that are more bearable to the populace in curbing its transmission.

MATERIALS AND METHODS

Study Area

Madobi is found in Kano State, Northwestern Nigeria. It is located between Latitudes 11^0 42` N to $11^0$ 54` N and Longitudes $8^0$15` E to $8^0$ 33` E. It is bounded to the North by Tofa LGA, to the North-west by RiminGado and Kabo LGA, to the West by Kiru LGA, to the South-west by Bebeji LGA, to the South by Garun Malam LGA, to the East by Kura and Dawakin Kudu LGAs, and finally to the North-east by Kumbotso LGA (see fig 1). The estimated population of Madobi according to 2006 population census stood at 136,623 inhabitants with an estimated land mass of 273km^2. The area is predominantly populated by Hausa and moderate Fulani ethnic groups (Mukhtar *et al*., 2019). Madobi has mean annual temperature of about 26^{o}C, but mean monthly values range between 21^{o}C in the coolest months of December/January and 31^{o}C in the hottest months of April/May (Olofin, 2008).

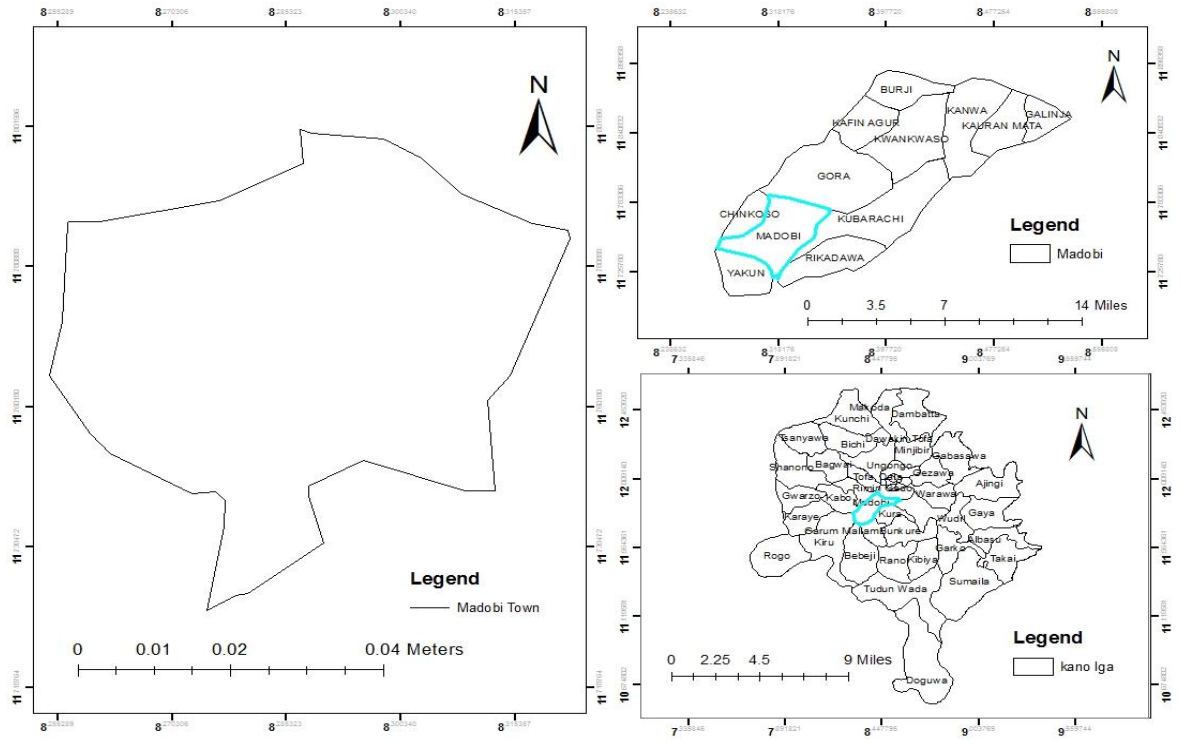

Figure 1: Map of the Study Area

Source: GIS Lab, Kano University of Science and Technology, Wudil, Kano

Data Collection

Data from the study area were obtained through oral interviews and administration of semi-structured questionnaires principally to the inhabitants of the study area. A total of fifty (50) participants were pulled out using stratified random sampling technique. In each case, the objective of the study was explained to them in Hausa which is the local language of the peoples in the study location. Questionnaires were designed to obtain data on the demographic information of the respondents, their awareness about the recent pandemic due to novel coronavirus and recurrent prevalence of COVID-19 infection related symptoms among the inhabitants in the study area respectively.

RESULTS

Demographic Characteristics of the Respondents

The demographic data collected from the inhabitants in the study area indicated that out of 50 respondents selected and interviewed, 37 were males (74%) while 13 were females (26%) (Table 1). The respondents were of different ages, where by 24% fall below 20years, 50% ages between 21-30 years, 8% were between 31-40 years, 12% were between 41-50 years, 2% were between 51-60 years, meanwhile 61years and above ages made up of 4% of the respondents. The educational status of the respondents was also promising as 20% of them possessed basic education, primary (12%), secondary (34%), and tertiary (34%) respectively. In terms of occupation, majority of the respondents were students (56%), housewives (14%), businessmen/women (6%) farmers (8%), civil servants (8%) while respondents belonging to other categories of occupation including Almajiris, tailor and laborers comprised of 8%.

Table 1: Demographic Data of the Respondents

Variables	Frequency	%Frequency
Sex		
Male	37	74.00
Female	13	26.00
Age		
Below 20	12	24.00
21-30	25	50.00
31-40	04	08.00
41-50	06	12.00
51-60	01	02.00
>61	02	04.00
Educational status		
Basic	10	20.00
Primary	06	12.00
Secondary	17	34.00
Tertiary	17	34.00

Occupation		
Students	28	56.00
Civil servants	04	08.00
Farmers	04	08.00
Businessman/woman	03	06.00
Housewives	07	14.00
Others	04	08.00

Source: Field survey, June 2020

Assessment of Prevalence of COVID-19 Symptoms

Suffering from Common Cold/Catarrh

The finding of the study shows that 41(82%) persons have suffered from common cold/catarrh during the period of April-May while 09(18%) did not. The result is presented on the pie chart below

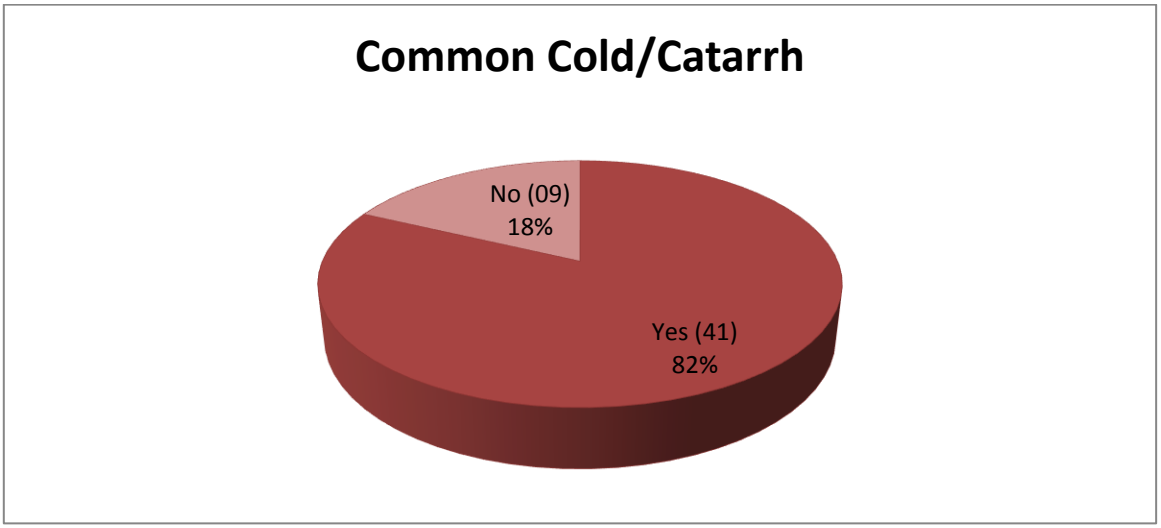

Figure 1: Number of Respondents that Suffered from Common Cold/Catarrh

Exhibition of Similar COVID-19 Symptoms

Only two (02) subjects among the persons interviewed did not experience any of the COVID-19 similar symptoms and this represent 4% of the total number of the respondents. The findings of the present survey also found out that a total of 48 (96%) respondents were able to suffer from one or more of symptoms that are similar to COVID-19 infection during the timeframe for the study. Out of these, 21 (42%) battle with fever, headache 35(70%), cough 18(36%), loss of smell 35(70%), loss of taste 18(36%), weakness 36(72%), loss of appetite 25(50%), vomiting 04(8%), diarrhea 06(12%), breathing difficulties 05(10%), while 01 (2%) person experienced all of the aforementioned symptoms. In general, each of the respondents suffered one or more symptoms related to the disease. The result is tabulated below.

Table 2: Number of People that Exhibits Various COVID-19 Symptoms

COVID-19 Symptoms	Frequency	%Frequency
Fever	21	42.00
Headache	35	70.00
Cough	18	36.00
Loss of smell	35	70.00
Loss of taste	14	28.00
Fatigue	36	72.00
Loss of appetite	25	50.00
Vomiting	04	08.00
Diarrhea	06	12.00
Breathing difficulties	05	10.00
All of the above	01	02.00
None of the above	02	04.00

Source: Field survey, June 2020
Note: Number of suspected respondents with COVID-19 symptoms is now 48, not 50!

Recovery

Out of 48 people that battled with one or more of symptoms similar to COVID-19 infection, 42(87.5%) were fully recuperated and only 06(12.5%) of them are still suffering from some of the symptoms as of the time of the data collection.

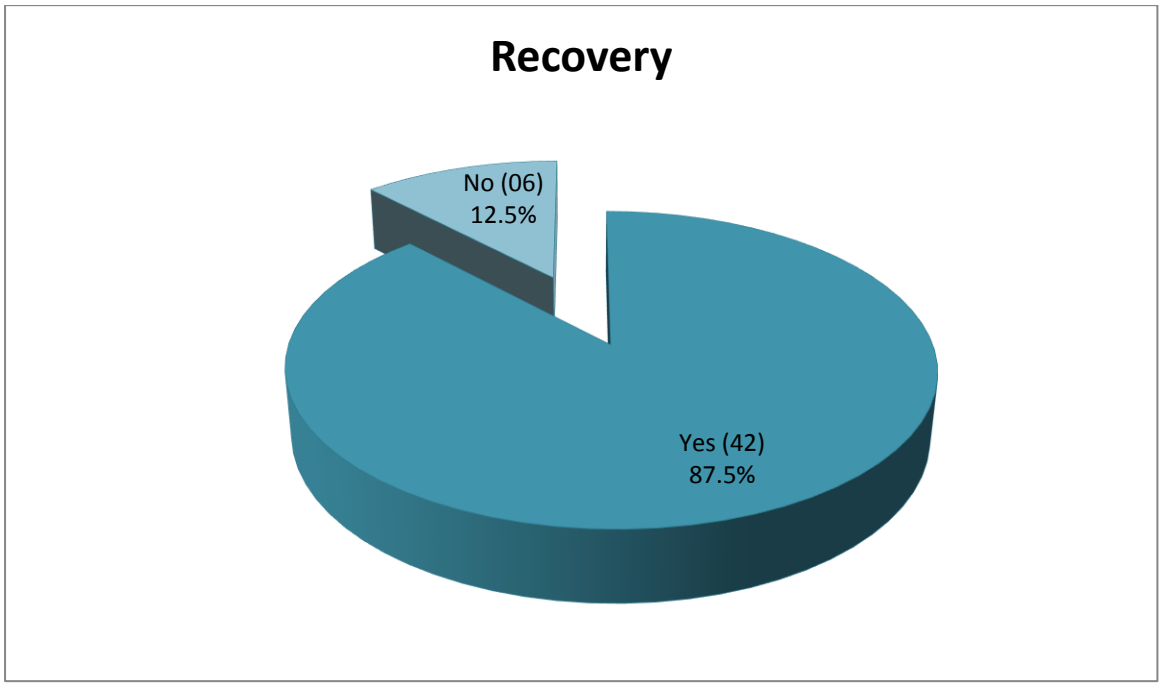

Figure 2: Recovery from COVID-19 Similar Symptoms

Application of Conventional Medicine

Out of 48 people that suffered from symptoms similar to COVID-19, only 32(66.7) seek for medical care either from hospital or chemist's shop before recovery, while 16(33.3%) did not enjoy any medical attention but also recovered fully on their own.

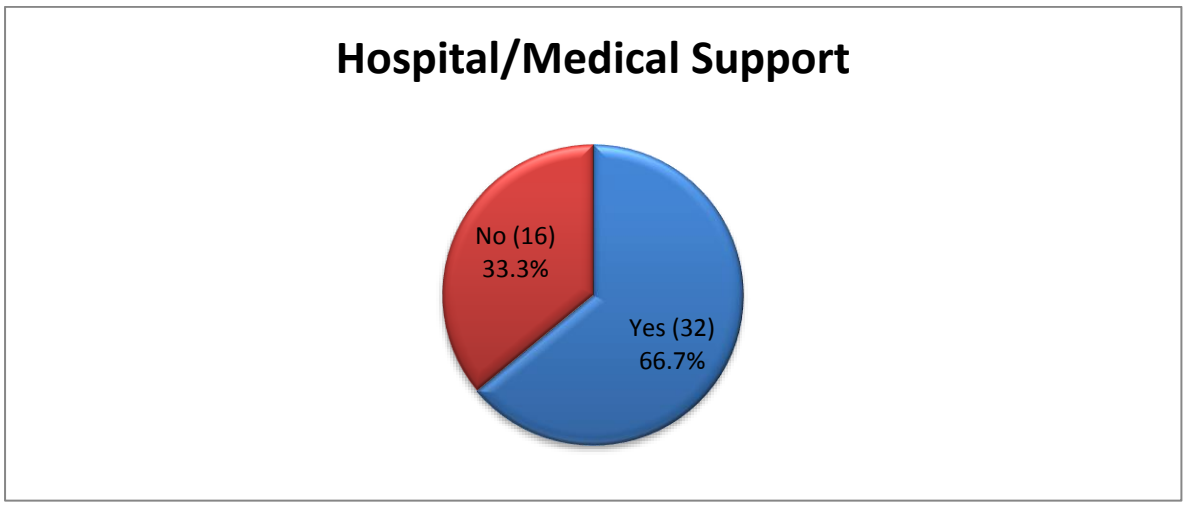

Figure 3: Medication Due to Similar COVID-19 Symptoms

Use of Traditional Medicine

The pie chart below indicated that 20.8% of the respondents used herbal treatment while greater portion of them i.e. 79.2% did not.

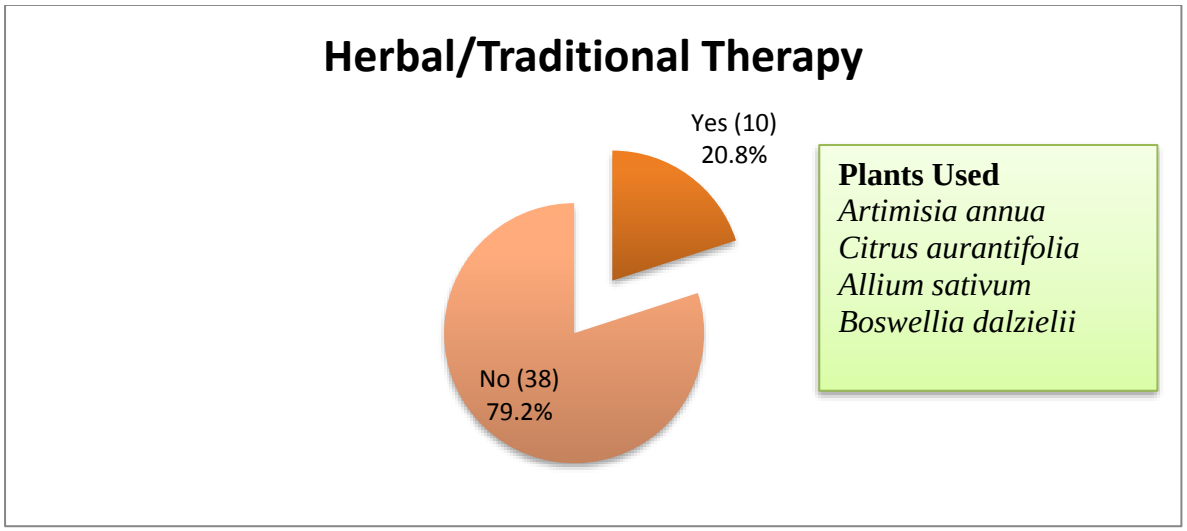

Figure 4: Application of Herbal/Traditional Therapy

DISCUSSION

Toward the end of 2019, there was outbreak of a novel virus, known as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), formally called coronavirus disease 2019 (COVID-19). The said virus causes severe acute respiratory syndrome which spread out globally from a related sea food market in Wuhan, China. This prompted the World Health Organization declared the SARS-CoV-2 virus a global pandemic status on 11th March, 2020. The family of novel coronaviruses were known to cause infection related to common cold and it was evident that the first case of coronavirus infection confirmed and reported in 1960 was identified as cold (Kumar *et al*., 2020). The finding of the present study has no doubt corroborated the above statement because 41 (82%) of the respondents interviewed have suffered from common cold/catarrh during April to May, 2020.

Evidence indicates that SARS-CoV-2 is transmitted from human to human by infectious droplets (Questions and Answer on COVID-19, 2020). A person who has symptoms from the virus including cough and sneezing can infect others through close contact. Generally, corona virus was spread via airborne zoonotic droplets. According to a report published on 24 January 2020, corona virus infected patient has many common features such as headache, fever, cough, fatigue, diarrhea and dyspnea (Di Gennaro *et al*., 2020). In addition to these aforementioned signs, the NCDC in its new definition of COVID-19 stated that; any person with characteristics of high fever, headache, continuous cough, loss of smell, loss of taste, tiredness, loss of appetite, vomiting, diarrhea, mild shock, and shortness of breath could be regarded as possible COVID-19 patient. This opinion is not surprising and has tallied with the outcome of the present survey, because it was revealed that 96% of the respondents have exhibited many of the said symptoms. The prevalence of these symptoms during the time frame for this study was excessively abnormal and was not frequent as when compared with the time before the outbreak of the disease in the state. Albeit, no laboratory test was conducted on any suspected case to confirm the infection of the novel virus in the study area, nevertheless, the possibility of COVID-19 infection cannot be completely disregarded especially when factors such as period of transmission/infection (i.e. immediately after the outbreak of the diseases in the state) and continuous prevalence of the symptoms among the inhabitants in the study area are given due consideration. The mean incubation period (the period between infection and onset of symptoms) is about 4-6 days with about 95% of individuals developing symptoms within 14 days from infection (Backer *et al*., 2020).

Currently there is no special vaccine for this virus yet and only supportive therapy is the treatment strategy followed by health professionals. This includes administration of antipyretic and analgesic, maintenance of hydration, mechanical ventilation as respiratory support and uses of antibiotics on the patients. In this study, out of 48 symptomatic respondents, 42 (87.5%) were able to fully recover from the symptoms after treatment. Interestingly, only 32 persons (66.7%) seek for medical care during the course of managing/treating the symptoms, while 16 persons (33.3%) recovered on their own without any medical support. This phenomenon vindicated the claims of researchers that; it is possible that some people can even counteract the virus thereby becoming infected and subsequently get recuperated automatically without any medical intervention as a result of their body's immune system. This remarkable development was also encountered in the present study and the plausible explanation could be that; the respondents developed most of the common symptoms of COVID-19 but their body immune system was such strong that it was able to make antibodies that fight against the virus before reaching a critical stage which

is characterized by possible organ failure and shortness of breath that subsequently requires admitting of the patient into intensive care unit (ICU) for placement on mechanical ventilators to aid respiration, thus they become recuperated (turn out negative to the virus). Some of the symptomatic respondents (20.8%) reported to have used herbal therapy during the course of the treatment. Plants that were used includes; a tea preparation of *Artimisia annua, Citrus aurantifolia* dissolved in hot water and drink as tea, *Allium sativum* (tea preparation), and *Boswellia dalzielii.* The use of Artmisia (called Tazargade in Hausa language) is also evident from Madagascar as they were able to develop a formulation from this renowned antimalarial plant officially called "COVID ORGANIC" which is believed to be very effective (but without clinical validation) in suppressing COVID-19 symptoms among the treated patients.

Data collected from this survey shows that male (74%) were more associated with these symptoms as against their counterpart females with 26%. According to a study from China CDC weekly report, males represented 51% of the confirmed cases (M:F ratio 1.06:1). Case fatality ratio (CFR) for men was 2.8% versus 1.7% for women. In the Lombardy (Italy) outbreak, a large retrospective case-series of 1591 COVID-19 patients admitted to ICU, 82% were male (Grasselli *et al*., 2020). In Zhou *et al*. study, 62% of the 191 hospitalized patients were males. All findings from the above studies regarding gender are in conformity with the present outcome of this research. However, male gender was not identified as a risk factor for in-hospital death for the disease (Zhou *et al*., 2020). Although younger people appear generally at lower risk, everyone must adhere to government restrictions to protect the millions of people at higher risk due to age or serious comorbidities (history of medical conditions such as diabetes, hypertension, heart diseases, cancer, kidney or liver diseases etc.). In order to minimize future social and economic disruption, high quality data at the population level are urgently needed—as soon as a reliable test for past infection becomes available.

CONCLUSION AND RECOMMENDATIONS

The outcome of the present study found out that greater percentage of the respondents have suffered from corresponding COVID-19 symptoms during the timeframe for the study and were subsequently able to recover later with or without any form of medication, possibly due to their stronger body immune system. The global fast spread of this virus is imposing new rules on our life, our relations and our activities. As a result of the ravaging coronavirus pandemic, most countries across the world were in total or partial lockdowns so as to prevent its transmission leading to the ban of religious gatherings, while markets, schools, restaurants, hotels, companies, malls and host of others were all closed. This lockdown protocol which is without reasonable success is inflicting countless damage on populace especially those in developing and undeveloped countries, because there has been halt on socio-economic, cultural and political activities. Unfortunately, upon all these measures put in place, the villain virus has keep on spreading with no sign of stoppage in a near future and it seem that the virus is going to be with us for the foreseeable future and nobody wants to continue having lockdowns as we have at the moment . It is recommended that government should prepare a COVID-Ready society in which people will learn to live with the virus instead of this unending lockdown as a preventive measure having produced no vaccine or cure for the virus. It is hope that the government as a matter of urgency will review its guidelines and

protocols towards containment of this pandemic so that the world can quickly regain back its peace and fitness. Lastly, more testing centers especially in remote areas should be established and mode of contact tracing be enhanced as this will greatly facilitate and expedite the fight against this devilish novel virus.

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Conflicting Interest

The authors declare no any form of competing interest.

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