

The Spread and Perception of People on COVID-19 Pandemic: A Case Study at Kaduna Metropolis

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Abstract- This study assessed the spread and perception of people on COVID-19 pandemic in Kaduna, Nigeria. Structured questionnaires were used to collect data from respondents within Kaduna metropolis. Simple random sampling method was used. Study data were analyzed using descriptive statistics. Approximately more than half (70.7%) of the respondents were male with high secondary level of education (46.7%). High number of the respondents (41.3%) opined that COVID-19 was “a biological weapon designed by the Chinese government.” Exactly (49.3%) of the respondents identified “contact with airborne droplets via 15 breathing, sneezing, or coughing” as the most common mode of transmission; most respondents associated COVID-19 with coughing (29.3%), shortness of breath (20.0%) and fever (9.3%). “Regular hand washing and social distancing” was selected by most respondents (30.0%) as a way of preventing infection. findings highlight implications as a reasonable percentage of Nigerians also opined that the COVID-19 is a plague caused by sins and unbelief of human beings. While this may be consistent with many religious beliefs, we believe that it may foster care free attitudes in Nigerians, making them relax and resort to only prayers and spiritual healings without adhering to the prescribed hygiene practices. We therefore urge clerics at all levels to also educate members of their faiths about the COVID-19.

I. INTRODUCTION

1.1. Background of the study.

COVID-19 which originated from China is genetically closely related to the SARS-CoV1 virus which caused thousands of deaths in the year 2002. The current COVID-19 pandemic caused so many reported cases

around the world. The mode of transmission of COVID 19 viruses are mainly through person-to-person contact and similar to seasonal influenza and may cause the same symptoms. There is vaccine and no specific treatment for this virus so far and because it is a new virus, nobody has prior immunity which in theory means that the entire human population is potentially susceptible to COVID-19 infection (Th Yang J, Zheng Y, Gou X, Pu K, Chen Z, et al. (2020)). There is not enough epidemiological information at this time to determine how easily and sustainably this virus spreads between people, but it is currently estimated that, on average, one infected person will infect between two and three more. The virus seems to be transmitted mainly via respiratory droplets that people sneeze, cough, or exhale. The virus can also survive for several hours on surfaces such as tables and door handles. The incubation period for COVID-19 is estimated to be between 2-14 days. At this stage, we know that the virus can be transmitted when people who are infected show flu like symptoms which ranges in clinical manifestation from a mild upper respiratory illness to rapidly progressive pneumonia and multi-organ failure. The symptoms are fever, cough, difficulty breathing, muscle pain and tiredness. More serious cases develop severe pneumonia, acute respiratory distress syndrome, sepsis and septic shock that can lead to death (Bailey SC, Wismer GA, Parker RM, Walton SM, Wood AJJ, et al. (2017)).

People who are at greater risk of developing severe symptoms are: elderly people and those with health disorders such as hypertension, diabetes, cardiovascular disease, chronic respiratory disease and cancer. Disease in children appears to be relatively rare and mild in other words, people with compromised immunity are greatly disadvantaged. There is no published evidence yet on the severity of illness among pregnant women after COVID-19

infection. NCDC will continue to monitor the emerging scientific literature on this question, and suggests that all pregnant women follow the same precautions for the prevention of COVID-19, including regular hand washing, avoiding individuals who are sick, and self-isolating in case of any symptoms, while consulting a healthcare provider by telephone for advice. There is no specific treatment for this disease, so healthcare providers treat the clinical symptoms (e.g. fever, difficulty breathing) of patients. Supportive care (e.g. fluid management, oxygen therapy, etc.) can be highly effective for patients with symptoms. Current advice for testing depends on the stage of the outbreak in the country or area where you live. Countries might be at different stages of the epidemic, and the approach to testing may differ according to country policy. This is adapted to the situation at local and national level (Crouse Quinn S, Jamison AM, Freimuth VS, Hancock GR (2017)).

The first confirmed incident of the COVID-19 in Nigeria was announced on February 27, 2020, when an Italian citizen arriving Nigeria through the Lagos international Airport tested positive to the virus (Nigeria Centre for Disease Control march 25, 2020). On March 9, 2020, a second case of the virus was reported in Ogun State, a Nigerian citizen in transit from Milan to Lagos who had contact with the Italian citizen. Afterwards, the Nigerian Health Minister announced that 60 persons who had contact with the index Italian patient were under isolation, 40 persons in Ogun State and 20 in Lagos State. However, there has been an increase in confirmed cases and consequent mortality.

As of May 16, 2020, according to report from Nigeria Centre for Disease Control (NCDC), there have been 5621 confirmed cases, 3973 active cases in 34 states including the FCT with 176 deaths and 1472 recoveries [9]. On March, 9, 2020, the Nigerian President in a proactive measure to curtail the spread of this virus declared national border closures, State of emergency in the health sector was ordered and cessation of all movements in the FCT, Lagos State and Ogun State for an initial period of 14 days. Relatedly, other states of the federation taking cue, initiated partial lock-downs with each closing their respective borders. During this period, businesses, markets, religious centers, schools and other public

institutions and spaces are to be on temporary shutdown. All forms of corporate, social and religious gatherings were prohibited, albeit; strict adherence to social distancing is expected in exclusive cases. Unfortunately, compliance with the directives has become a challenge as many fail in its adherence either due to ignorance or complete defiance. Several cases abound where there were partial or zero adherence. For instance, a typical scenario plays out in most public places such as banks where customers seeking to gain access into banking halls clustered outside. In more organized societies, in helping people maintain the required distance apart during this pandemic, standing boxes measuring 2-3 meters are drawn for queue in most public places (Nigeria Center for Disease Control. April 25, 2020).

In states with partial lock-down people are not cognizant of maintaining the required interpersonal distancing. Public buses and taxis are closely packed with passengers as in normal time. Although states where defaulters were found are subjected to stringent penalties, the degree of compliance is higher. Failure to abide by this breeds danger especially in Nigeria where the quality of our health care systems and our ever increasing population are a bad mix. Could some of these cases of defaulters be attributed to indifference and lackadaisical inclination of most Nigerians or is it a clear case of insubordination and tendency for civil disobedience in developing country where the citizens sense of ' patriotism and respect for government is poor? Such attitude may also be attributable to lack of responsibility by the government to her citizens. Recent local news that made rounds during the lock down involved celebrities and politicians hosting a house party in the city while under lock down. After being duly arraigned, it was also observed that the caution of physical distancing was also not respected at the court hearing as journalists and onlookers milled together. Another audacious show of defiance to the call for social distancing was on display on a national television, TVC during the funeral of the Chief of Staff to the President. Prior to his death he had tested positive to the COVID-19 virus after a return trip from Germany on March 24, 2020. Despite government's initial announcement that the burial would be conducted in private to show compliance with the guidelines against the spread of COVID-19, it was observed that a cross

section of the sympathizers in attendance were crowded with only very few observing physical distancing. The carelessness did not go without public criticism though the federal government has since apologized. Adherence to the rules and precepts is more important to safeguard lives. Negative feedback in the enforcement of socio-distancing: in restricting movement and encouraging social-cum-physical distancing, the lock-down having its positives also has its fair share of negative feedback. With cases of civil attacks resulting into deaths of people in the hands of law enforcers.

A Nigerian Television Station on April 9, 2020 reported the killing of about six people in Kaduna State by suspected law enforcement agents. Similar case was also reported in Delta State where there was an altercation between the natives and military personnels resulting in the death of a native. Instances of defaulting, defiance and violence brings to question whether the lockdown is really serving its purpose. The apparent psychological state of the people coupled with the harsh socio-economic situation in the country may have contributed to the unrest and resistance. Hence, in the face of provocation and rebellion, law enforcement agents should be humane with civilized sense of duty.

- Pathogenesis.

The severe symptoms of COVID-19 are associated with an increasing numbers and rate of fatalities especially in the epidemic region of China. On January 22, 2020, the China National Health Commission reported the details of the first 17 deaths and on January 25, 2020 the death cases increased to 56 deaths. The percentage of death among the reported 2684 cases of COVID-19 was approximately 2.84% as of Jan 25, 2020 and the median age of the deaths was 75 (range 48–89) years. Patients infected with COVID-19 showed higher leukocyte numbers, abnormal respiratory findings, and increased levels of plasma pro-inflammatory cytokines. One of the COVID-19 case reports showed a patient at 5 days of fever presented with a cough, coarse breathing sounds of both lungs, and a body temperature of 39.0 °C. The patient's sputum showed positive real-time polymerase chain reaction results that confirmed COVID-19 infection. The laboratory studies showed leucopenia with leukocyte counts of 2.91×10^9

cells/L of which 70.0% were neutrophils. Additionally, a value of 16.16 mg/L of blood C-reactive protein was noted which is above the normal range (0–10 mg/L). High erythrocyte sedimentation rate and D-dimer were also observed. The main pathogenesis of COVID-19 infection as a respiratory system targeting virus was severe pneumonia, RNAemia, combined with the incidence of ground-glass opacities, and acute cardiac injury. Significantly high blood levels of cytokines and chemokines were noted in patients with COVID-19 infection that included IL1- β , IL1RA, IL7, IL8, IL9, IL10, basic FGF2, GCSF, GMCSF, IFN γ , IP10, MCP1, MIP1 α , MIP1 β , PDGFB, TNF α , and VEGFA. Some of the severe cases that were admitted to the intensive care unit showed high levels of pro-inflammatory cytokines including IL2, IL7, IL10, GCSF, IP10, MCP1, MIP1 α , and TNF α that are reasoned to promote disease severity (C. Huang, Y. Wang, X. Li, L. Ren, J. Zhao, Y. Hu, et al.,2020).

- Transmission

Based on the large number of infected people that were exposed to the wet animal market in Wuhan City where live animals are routinely sold, it is suggested that this is the likely zoonotic origin of the COVID-19. Efforts have been made to search for a reservoir host or inter-mediate carriers from which the infection may have spread to humans. Initial reports identified two species of snakes that could be a possible reservoir of the COVID-19. However, to date, there has been no consistent evidence of corona virus reservoirs other than mammals and birds. Genomic sequence analysis of COVID-19 showed 88% identity with two bat-derived severe acute respiratory syndrome (SARS)-like corona viruses [19,20], indicating that mammals are the most likely link between COVID-19 and humans. Several reports have suggested that person-to-person transmission is a likely route for spreading COVID-19 infection. This is supported by cases that occurred within families and among people who did not visit the wet animal market in Wuhan. Person-to-person transmission occurs primarily via direct contact or through inhaling droplets spread by coughing or sneezing from an infected individual. In a small study conducted on women in their third trimester who were confirmed to be infected with the corona virus, there was no evidence that there is transmission from mother to child. However, all pregnant mothers

underwent cesarean sections, so it remains unclear whether transmission can occur during vaginal birth. This is important because pregnant mothers are relatively more susceptible to infection by respiratory pathogens and severe pneumonia (<https://www.thelancet.com>, DOI:[https://doi.org/10.1016/S0140-6736\(20\)30360-3](https://doi.org/10.1016/S0140-6736(20)30360-3)). The binding of a receptor expressed by host cells is the first step of viral infection followed by fusion with the cell membrane. It is reasoned that the lung epithelial cells are the primary target of the virus. Thus, it has been reported that human-to-human transmissions of SARS-CoV occurs by the binding between the receptor-binding domain of virus spikes and the cellular receptor which has been identified as angiotensin-converting enzyme 2 (ACE2) receptor. Importantly, the sequence of the receptor-binding domain of COVID-19 spikes is similar to that of SARS-CoV1. This data strongly suggests that entry into the host cells is most likely via the ACE2 receptor (Y. Wan, J. Shang, R. Graham, R.S. Baric, F. Li, 2020).

- Breakthrough/Stop press

It was announced in the middle of the research in November that, NEW YORK & MAINZ, Germany--(BUSINESS WIRE)-- Pfizer Inc. (NYSE: PFE) and BioNTech SE (Nasdaq: BNTX) today announced that, after conducting the final efficacy analysis in their ongoing Phase 3 study, their mRNA-based COVID-19 vaccine candidate, BNT162b2, met all of the study's primary efficacy endpoints. Analysis of the data indicates a vaccine efficacy rate of 95% ($p < 0.0001$) in participants without prior SARS-CoV-2 infection (first primary objective) and also in participants with and without prior SARS-CoV-2 infection (second primary objective), in each case measured from 7 days after the second dose. The first primary objective analysis is based on 170 cases of COVID-19, as specified in the study protocol, of which 162 cases of COVID-19 were observed in the placebo group versus 8 cases in the BNT162b2 group. Efficacy was consistent across age, gender, race and ethnicity demographics. The observed efficacy in adults over 65 years of age was over 94%.

- Therapeutics/treatment options.

The person-to-person transmission of COVID-19 infection led to the isolation of patients that were administered through a variety of treatments. The

treatment that have so far been attempted showed that 75 patients were administered existing antiviral drugs. The course of treatment included twice a day oral administration of 75 mg oseltamivir, 500 mg lopinavir, 500 mg ritonavir and the intravenous administration of 0.25 g ganciclovir for 3–14 days (D.S. Hui, E. IA, T.A. Madani, F. Ntoumi, R. Kock, O. Dar, et al.2020). Another report showed that the broad-spectrum antiviral remdesivir and chloroquine are highly effective in the control of 2019-nCoV infection in vitro. These antiviral compounds have been used in human patients with a safety track record. Thus, these therapeutic agents can be considered to treat COVID-19 infection. Furthermore, there are a number of other compounds that are in development. These include the clinical candidate EIDD-2801 compound that has shown high therapeutic potential against seasonal and pandemic influenza virus infections and this represents another potential drug to be considered for the treatment of COVID-19 infection. Along those lines, until more specific therapeutics become available, it is reasonable to consider more broad-spectrum antivirals that provide drug treatment options for COVID-19 infection include Lopinavir/Ritonavir, Neuraminidase inhibitors, peptide (EK1), RNA synthesis inhibitors. It is clear however, that more research is urgently needed to identify novel chemotherapeutic drugs for treating COVID-19 infections. In order to develop pre-and post-exposure prophylaxis against COVID-19, there is an urgent need to establish an animal model to replicate the severe disease currently observed in humans. Several groups of scientists are currently working hard to develop a nonhuman primate model to study COVID-19 infection to establish fast track novel therapeutics and for the testing of potential vaccines in addition to providing a better understanding of virus-host interactions (M. Toots, J.J. Yoon, R.M. Cox, M. Hart, Z.M. Sticher, N. Makhous, et al.2019).

Future directions to control the spread of the disease Extensive measures to reduce person-to-person transmission of COVID-19 are required to control the current outbreak. Special attention and efforts to protect or reduce transmission should be applied in susceptible populations including children, health care providers, and elderly people. A guideline was published for the medical staff, healthcare providers,

and, public health individuals and researchers who are interested in the 2019-nCoV. The early death cases as a result of COVID-19 outbreak occurred primarily in elderly people, possibly due to a weak immune system that permits faster progression of the viral infection. The public services and facilities should provide decontaminating reagents for cleaning hands on a routine basis. Physical contact with wet and contaminated objects should be considered in dealing with the virus, especially agents such as faecal and urine samples that can potentially serve as an alternative route of transmission. China and other countries including the US have implemented major prevention and control measures including travel screenings to control further spread of the virus (W.G. Carlos, C.S. Dela Cruz, B. Cao, S. Parnick, S. Jamil, Novel wuhan (2019-nCoV) coronavirus, *Am. J. Respir. Crit. Care Med.* 201 (4) (2020)

II. STATEMENT OF THE PROBLEM

Knowledge of infection pathways and relevant precautions to be taken is needed to control the pandemic. While the scientific community continues to research possible vaccines or drugs for the viral infection, it is expected that adequate knowledge will motivate individuals to make decisions which may prevent and curb the pandemics spread. Knowledge such as regular hand washing, using hand sanitizers, wearing face masks, respiratory etiquettes, social distancing and self- isolation when sick are vital to reducing widespread infection.

III. OBJECTIVES OF THE STUDY

The study titled ‘The spread and perceptions of people on COVID-19 pandemic. A case study of Kaduna, Kaduna state Nigeria’ will:

- i Access the knowledge of people on the spread of COVID-19 pandemic.
- ii Preventive measures taken by people to prevent the spread of COVID-19.
- iii Access the economic status of people as a result of the lockdown enforced to curb COVID-19.

IV. SIGNIFICANCE OF THE STUDY

The study titled ‘The spread and perceptions of people on COVID-19 pandemic. A case study of Kaduna,

Kaduna state Nigeria’ will help people of Kaduna know more about the causes, mode of transmission, incubation period, diagnosis, treatment and preventive measures of COVID-19 infection so as to be dedicated in preventing themselves and also to change the perception of some people towards the infection.

V. LIMITATION OF THE STUDY

The study was limited to tudun wada area Kaduna metropolis only due to financial constraint and time factor.

VI. METHODOLOGY

• Study area

The study covered Kaduna which is presently the administrative capital of Kaduna state, one of the 36 states of Nigeria. The metropolis is located between Longitude 70 21’and 70 30’ East of the Greenwich Meridian and Latitude 100 23’and 100 36’ North of the Equator. It was also the mid- point between Kano the commercial hub of Northern Nigeria and Abuja the Nation’s capital. The name Kaduna as the metropolis was called is derived from two perspectives, while others say the name originated from the Gbagi tradition whom were the early settlers mean river with water, other opined that it originated from the word Kaduna meaning crocodiles in Hausa because of the predominance of crocodiles in the river which is a major landmark in the metropolis.

• Research approach

A quantitative research approach was used. Quantitative research focuses on investigation of phenomena using precise measurement and quantification, and the research design is often controlled and rigorous (Polit & Beck 2008:763).

Quantitative research was regarded as the best research paradigm for this research because the researchers tried to achieve objectively by using a pre-designed structured questionnaire to collect information from the respondents.

• Research design

The research design adopted for this study was descriptive correlation. This enables the identification of many interrelationships in a situation over a short

period. The situation under investigation may already have occurred or is currently occurring and there is no manipulation or control of the situation (Burns & Grove 2009:246).

- Population of the study

A population is a collection of cases in which the individual cases are similar and are found in a defined place and at a given time, for example the population served by a health clinic (Griffiths 2009:196). The population for this study was people of Kaduna metropolis.

- Sample selection

The process of selecting a portion of the population to represent the entire population is called sampling (Polit and Beck 2008:765). A sample is a subset of a population of interest to the researcher. The results obtained by the researcher from the sample can then be used to make generalization about the entire population, if the sample is a true representation of the whole population (Leedy & Ormrod 2005:198).

The sample for this study was selected from the men and woman, simple random sampling was used, which ensures every person has an equal chance of being selected.

- Data collection

A structured questionnaire was used to collect data from the men and women (18 and above years). Data collection for quantitative studies is done according to a structured plan that indicates the type of information to be collected and how the information will be collected (Polit & Beck 2008:371).

- Data analysis

The analysis of the data was done with the assistance of a statistician and began with the description of the sample. Means, standard deviations and percentages were used for descriptions.

- Analysis and interpretation of findings

- Introduction

This chapter is divided into four sections. Section A describes the Socio-demographic characteristics of the respondents such as age, gender educational qualification, religion, marital status, and economic

status, ethnic. Section B, describes the knowledge of COVID-19. Section C, presents data on knowledge of the mode of transmission of COVID-19. Section D, describes the knowledge of the symptoms of COVID-19. While, Section E, presents the prevention measures taken against COVID-19.

SECTION A: Socio-demographic characteristics.

Table a1 Socio-demographic characteristics (n=150).

VARIABLES	CATEGORIES	FREQUENCY	PERCENTAGE (%)
Age	18 - 25	40	26.7
	26 - 40	81	54.0
	40 and above	29	19.3
Gender	Male	106	70.7
	Female	44	29.3
Educational qualification	Primary	62	41.3
	Secondary	70	46.7
	Tertiary	18	12.0
Economic status	Employed	53	35.3
	Not employed	60	40.0
	Self employed	37	24.7
Relationship status	Single	57	38.0
	Married	93	62.0
Ethnicity	Hausa	60	40.0
	Yoruba	32	21.3
	Igbo	25	16.7
	Others	33	22.0
Religion	Islam	96	64.0
	Christianity	44	29.3
	Others	10	6.7

4.2. Section B, description of the knowledge of COVID-19.

Table 4.2. Knowledge of covid-19 (N=150).

VARIABLES	FREQUENCY	PERCENTAGE (%)
A biological weapon to control population	62	41.3
A plaque caused by human sins	31	20.7
A manufactured virus designed to kill by pharmaceutical companies	15	10.0
a severe illness transmitted to people from wild animals	42	28.0

4.3. Section C, presentation of data on knowledge of the mode of transmission of COVID-19.

Table 4.3. knowledge of the mode of transmission of COVID-19.

VARIABLES	FREQUENCY	PERCENTAGE(%)
Airborne droplet through coughing or sneezing	7	49.3
Through kissing or sexual activities	2	13.3
Through eating contaminated food or water	1	6.7
Through touching contaminated surface or objects.	4	26.7

4.4. Section D, describes the knowledge of the symptoms of COVID-19

Table 4.4. knowledge of the symptoms of COVID-19

VARIABLES	FREQUENCY	PERCENTAGE(%)
Coughing	4	29.3
Sneezing	3	21.0
High fever	1	6.7
Shortness of breathing	3	21.0
Sore throat	2	13.3
I do not know	0	0.0

Table 4.5. the prevention measures taken against COVID-19.

VARIABLES	FREQUENCY	PERCENTAGE (%)
Fumigation of public places	2	13.3
Hand washing and social distancing	4	26.7
Disinfecting contaminated surfaces	4	26.7
Staying at home	3	20.0
Taking chloroquine and antibiotics	1	6.7

CONCLUSION

Findings from this study indicated that a large proportion of the study participants are aware and knowledgeable about the COVID-19 and its presence in Kaduna metropolis. Results obtained from the 150 research respondents' knowledge of the source of COVID-19, transmission of COVID-19, symptoms of COVID-19 and preventive measures taken toward COVID-19 by Kaduna state people were significantly high.

Specifically, this study found that a large percentage of Kaduna people hold the view that the COVID-19 is a biological weapon designed by the government of

China. This is evident of the diverse sources of information concerning the COVID-19 that is available to Nigerians. What this 25 means is that there may currently be no consensus among Nigerians as to what the real source of the virus is. This perception has implications for bilateral relations between the Nigeria and china.

Concerning the source of the COVID-19 also, our findings highlight implications as a reasonable percentage of Nigerians also opined that the COVID-19 is a plague caused by sins and unbelief of human beings. While this may be consistent with many religious beliefs, we believe that it may foster carefree attitudes in Nigerians, making them relax and resort to only prayers and spiritual healings without adhering to the prescribed hygiene practices. We therefore urge clerics at all levels to also educate members of their faiths about the COVID-19.

As expected, because Nigerians had relatively high knowledge of the COVID-19, even though laden with several misconceptions, their knowledge of precautionary behavior was also high. For instance, a good percentage agreed that a range of WHO approved and global practices such as hand washing and social distancing, disinfecting contaminated surfaces, staying at home and fumigation of public places were key to preventing the spread of the virus.

RECOMMENDATION

The following recommendation should be put into consideration by public and Kaduna state government:

1. Effective awareness on effects of covid-19 to general should be more emphasized.
2. Another researcher should study of covid-19 vaccine acceptance possibility.
3. Effective enforcement of abiding by preventive measures.
4. The government should also encourage more researchers to carryout experimental base research work to determine others measures to take on the control of covid 19.
5. The state government and other agencies should engage the services of more preventive officers in the health sector in order to carry out the job efficiently.

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