

A Cross-sectional Analysis of Kogi State Residents' Knowledge and Perceptions on COVID-19 Pandemic

Taiye Babatunde Mofolorunsho (✉ taiyemof@gmail.com)

Federal University Lokoja

Kehinde Charles Mofolorunsho

Kogi State University, Anyigba

Julius Olugbenga Owoyemi

Kogi State University, Anyigba

Olowonibi Olabisi Oloruntoba

Kogi State University, Anyigba

Joseph Ajogwu Onoja

Federal Collage of Education, Okene

Research Article

Keywords: Covid-19, Knowledge, Public Health, Risk Perception, Skepticism

Posted Date: June 18th, 2021

DOI: <https://doi.org/10.21203/rs.3.rs-603308/v2>

License:  This work is licensed under a Creative Commons Attribution 4.0 International License.

[Read Full License](#)

Abstract

Coupled with the outbreak of Covid-19 in Nigeria, there has been a controversial trailing of the Covid-19 incidence in Kogi State involving the state authorities and the Nigeria Centre for Disease Control (NCDC). Giving the importance of appropriate awareness and the perceptions to curbing the spread of the disease, this study aimed at assessing the knowledge, perception and precautionary measures of Kogi state residents in response to the outbreak of Covid-19. An online cross-sectional survey was conducted among 401 residents in Kogi State Nigeria, with a structured questionnaire. Data collected were analyzed using descriptive statistics of frequencies and Simple percentage in tables. Findings revealed that all the participants were aware of and had basic knowledge about Covid-19. The study participants had ample knowledge about the required preventive measures and how to protect themselves from Covid-19. It was also revealed that 45.2% of the respondents were conversant with the practice of three to more of the precautionary guidelines for preventing Covid-19. The study also found that a significant number of the respondents held a very low risk perception of Covid-19 by expressing an unlikely probability of getting infected by the virus. As regards skepticism and belief on coronavirus, 45.9% believed that Covid-19 is a hoax which was invented by interest groups for financial gains; 46.1% opined that the number of people reported by the NCDC as infected by the coronavirus in Nigeria is exaggerated. Again, 33.7% of the respondents believed that the second wave of the Covid-19 in Nigeria was a scam. The main source of Covid-19 information utilized by majority of the respondents was from Television programmes (34.2%) and Whatsapp (31.9%) platforms. The study concluded that while there was a high level of awareness of Covid-19 among residents of Kogi State and a remarkable level of precautionary practices against the spread of the Covid-19 virus, there are however, indications of misconceptions and misinformation that breeds skepticism and belief that may be detrimental to curbing effectively, the spread of the Covid-19 virus within the state.

Introduction

Nigeria like other countries of the world has not been spared by the outbreak of the Coronavirus Disease (COVID-19) and the challenges which it has brought to bear (Valeriani, Vukovic, & Mollica, 2020; Mazzoleni, Turchetti, & Ambrosino, 2020; Ajisegiri, Odusanya, & Joshi, 2020). The number of cases recorded in the country has continued to be on the increase, spreading across several states and suggestively by an ongoing community transmission (Ajisegiri et al., 2020; Ogundokun, Lukman, Kibria, Awotunde, & Aladeitan, 2020; Ohia, Bakarey, & Ahmad, 2020). As it is widely publicized, Covid-19 is an infectious respiratory disease caused by a new coronavirus called SAR-CoV-2 with signs and symptoms that include sore throat, cough, runny nose, tiredness, aches, fever and shortness of breath (Velavan & Meyer, 2020; World Health Organization [WHO], 2020). In some cases, infected persons could be asymptomatic (Lee, 2020). Studies have also shown that the incubation period of Covid-19 from publicly reported confirmed cases is estimated to develop symptoms after 14 days (Lauer, Grantz, Bi, Jones, & Lessler, 2020). Covid-19 has also proved very deadly as it has claimed over 2,009,781 deaths worldwide and 1435 deaths in Nigeria. (NCDC, 2021)

While the origin and the cause of Covid-19 is riddled with a lot of debates, controversies and misconceptions from socio-economic, political and religious perspectives (Ndinojuo, 2020; Gharib, 2020; Tariq, et al., 2020; Catalin & Umbres, 2020), the World Health Organization seems to be clear in establishing that the transmission of the disease is primarily from person-to-person via respiratory droplets bred by talking, coughing, sneezing or also by contact with contaminated surfaces (WHO, 2021). Unfortunately, since there is no definite established cure for the virus, basic measures are geared towards its prevention (Tingbo, et al., 2020; Cirrincione, et al., 2020). To prevent the spread of the virus requires public health and personal respiratory hygiene (Kakemam, et al., 2020). The Nigeria Center for Disease Control and Prevention (NCDC) maintains that the way to prevent the illness is to avoid the virus by ensuring washing of hands often with soap and water for at least 20 seconds; avoid touching eyes, nose or mouth, especial with unwashed hands; maintaining social distance; use of disinfectants; use of facial mask in public places or avoiding public gatherings (NCDC, 2020). Isolation and treatment of people who are infected with Covid-19 virus has also been proved to be an effective way to reduce the spread of the virus (Lima, 2020; CDC, 2021).

The role of the individual and the public in the prevention and control of the spread of diseases as suggested by some health behavior literatures are anchored on how much knowledge they have regarding the disease, its perceived susceptibility and severity (Radley, 2004; Tripathi, et al., 2020). This detail often determines the level of individual responses and provides information that can be used for appropriate interventions. Hochbaum and Rosenstock developed the Health Belief Model (HBM) in the early 1950s - a theoretical guideline to explain how four basic constructs namely; Perceived susceptibility, Perceived severity, Perceived benefits and perceived barriers can be used to influence behavioral change in the control and prevention of diseases (Baum, Newman, Weinman, West, & McManus, 1997). This theory was later updated to include the influence of cues to action and self-efficacy to help identify specific actions to trigger appropriate responses and improve the belief among individuals to persistently undertake the appropriate responses (Glanz, Rimer, & Viswanath, 2008) towards the control and prevention of a disease. Regrettably, since the outbreak and increasing number of recorded cases of COVID-19 in Nigeria by the Nigeria Center for Disease Control (NCDC), there has been a controversial trailing of the COVID-19 incidence in Kogi State involving the state authorities and the NCDC coupled with the political, religious and economic points of views which has seemingly promote misconceptions about COVID-19 and affect perceptions (Onwughalu, 2020; Afoke, 2020; Onyeji, 2020; Abu, 2020)

Giving the importance of appropriate awareness and the perceptions in the Health Belief Model, this study was therefore carried out with the aim of assessing the knowledge, perception and precautionary measures of Kogi State residents in response to the outbreak of Covid-19. The results extracted from this study could be of great importance at providing information that can help in appropriate interventions as regard covid-19 in Kogi State.

Methods

Study Design and Population.

The design of this study was basically an online cross-sectional survey conducted from 28th December, 2020 to 28th January, 2021 with the intent of obtaining responses regarding the Knowledge, Perception, belief and Precautionary Practices towards covid-19 among residents of Kogi State, Nigeria. The study population comprised of individuals who basically had access to phones, laptops and the internet services; that were at least 15 years old and had at least a basic school education. Respondents were sort from across the three senatorial districts of the state and participation in the survey was voluntary.

Sample Size

Using the Raosoft sample size calculator (<http://www.raosoft.com/samplesize.html>), a minimum of 385 participants was the estimated sample size for this study. The calculation was done using the projected population size of 4,473,490 given by the National Bureau of Statistics (NBS, 2018) with a response distribution of 50%, 5% margin of error and 95% confidence level.

Measures

The survey questionnaire used in this study was designed using some recommendations while adopting questions from the WHO Survey Tool and Guidelines on rapid, simple, flexible behavioral insight on Covid-19 (WHO, 2020) and also NCDC guidelines for awareness and prevention of COVID-19 (NCDC, 2020). The study questions included six socio-demographic related questions. Other domains of the questionnaire included awareness and risk perception of coronavirus; Knowledge about the causes, symptoms and prevention of coronavirus; precautionary practices toward coronavirus, Skepticism and belief regarding coronavirus and finally community preparedness and susceptibility to coronavirus.

Method of Data Collection.

A structured online questionnaire designed using Google forms was sent through social media platforms to prospective respondents residing within Kogi state. Whatsapp and Facebook groups were mainly used to disseminate the link. However, due to the inability to meet the required minimum sample size within the time frame for conducting the survey online, a number of the structured questionnaire was printed and administered to individuals directly using the convenience sampling technique also across the three senatorial districts of the state. The introductory note to the questionnaire stated that participation is voluntary and responses of in the survey will be recorded anonymously. The questionnaire copies were administered and collected between 28th December, 2020 and 28th January, 2021

Data Analysis

All data collected from the questionnaire of this study were collated on Microsoft-excel spreadsheet, transferred into and analyzed using IBM SPSS V.18 software. Descriptive statistics using frequencies and simple percentages in tables were generated for the analysis.

Ethical Considerations.

Basic ethical principles were adhered to. A statement of informed consent and voluntary participation was made clear at the introductory note of the questionnaire. Data were recorded anonymously and treated confidentially.

Results

3.1. Sociodemographic profile of the study participants.

A total of 401 persons responded to the survey questionnaire. As shown in Table 1, the study sample consisted largely of 272 Male (67.8%). Most of the respondents were between the ages of 24-44 (61.4%). Fifty-six point 9 percent were married, 87.5% had at least a tertiary education and 61.1% were mostly Christians. 143(35.7%) of respondents are from Kogi west senatorial district, 129 (32.2%) from Kogi central and 129 (33.2%) from Kogi east.

Table 1. Socio demographic Characteristics of Respondents (n=401)

Characteristics	N	Percent +
Sex	Female	129 (32.2)
	Male	272 (67.8)
Age	24	78 (19.5)
	25-34	121 (30.2)
	35-44	125 (31.2)
	45-55	59 (14.7)
	56	18 (4.5)
Marital Status	Single	162 (40.4)
	Married	228 (56.9)
	Divorced	2 (0.5)
	Widowed	9 (2.2)
Education Level	Primary	2 (0.5)
	Secondary	48 (12.0)
	Tertiary	351 (87.5)
Religion	Christian	245 (61.1)
	Muslim	156 (38.9)
	Others	0 (0.0)
District	Kogi Central	129 (32.2)
	Kogi East	129 (32.2)
	Kogi West	143 (35.7)

3.2 Awareness and Risk perception of Coronavirus

The awareness and risk perceptions domain scores are provided in Table 2. All respondents (100%) agreed that have heard of Coronavirus. 97% ascertain to their knowledge not to have been infected with Covid-19. Only 12.5% knew people who have been infected with Covid-19. Most of the respondents (74.1%) reported that they know how to protect themselves from coronavirus. 91.5% of the respondents were aware that currently there is no effective cure for the Covid-19 disease but early symptomatic and supportive treatment can help most patients recover from the infection. 84% perceived themselves unlikely of getting infected with coronavirus, and 97% perceive that their immediate community is not susceptible to the spread of coronavirus.

Table 2 Awareness and Risk Perception of Covid-19 (n=401)

Questions addressing awareness and Risk perception	Responses	N	%
I have heard of Covid-19	Yes	401	100
	No	0	0
To your knowledge, are you, or have you been, infected with Covid-19	Yes	12	3.0
	No	389	97.0
I know people who have been infected with Covid-19	Yes	50	12.5
	No	351	87.5
I know how to protect myself from Covid-19	Yes	297	74.1
	No	47	11.7
	Am not Sure	57	14.2
There currently is no effective cure for Covid-19, but early symptomatic and supportive treatment can help most patients recover from the infection.	Yes	367	91.5
	No	3	0.7
	I don't Know	31	7.7
What do you consider to be your own probability of getting infected with covid-19	Likely	64	16.0
	Unlikely	337	84.0
How Susceptible is your community to the spread of Covid-19 infections in your Community	High	12	3.0
	Low	202	50.4
	Very Low	187	46.6

3.3 Knowledge about causes, symptoms and prevention of Coronavirus

Based on the survey responses, the basic knowledge about the causes, symptoms and prevention of coronavirus from the respondents had a minimum of 71.6% correct response rate. 82% indicated that covid-19 is caused by Virus. 89.5% ascertain to be true that the main clinical symptoms of covid-19 are fever, fatigue, dry cough. 71.6% knows that malaria is similar to Covid-19. 86.3% knew that the agreed incubation period for coronavirus was 1-14 days. 95.5% knows that Covid-19 Virus could be spreads via respiratory droplets of infected individuals. 95 % knew Ordinary resident can wear general medical masks to prevent infection by Covid-19 virus. Moreover, nearly all the respondent (95%) knows and agrees that Isolation and the treatment of people who are infected with the Covid-19 virus are effective ways to reduce the spread of the virus. (Knowledge about causes, symptoms and prevention of Coronavirus domain scores are provided in table 3)

Table 3: Knowledge about Coronavirus Causes, Symptoms and Prevention (n=401)

Questions on Knowledge about covid-19, causes, symptoms and prevention	Indicator	N	%	Correct Answer	No. of Responses (%)	
					Correct	Incorrect
What causes Covid-19	Bacteria	11	2.7	Virus	82.0	2.7
	Fungi	0	0			
	Virus	329	82.0			
	I don't Know	61	15.2			
The main Clinical symptoms of Covid-19 are fever, fatigue, and dry cough	True	359	89.5	True	89.5	2.2
	False	9	2.2			
	I Don't Know	33	8.2			
Which of the following disease(s) is similar to Covid-19	Typhoid	6	1.5	Malaria	71.6	10.0
	Malaria	287	71.6			
	Ebola	40	10.0			
	All of the Above	31	7.7			
	None of the above	37	9.2			
How long does it take from contracting the disease till showing symptoms (incubation period)	Less than 7 days	26	6.5	1-14days	86.3	13.7
	1-14 days	346	86.3			
	2-21 days	8	2.0			
	1-3 days	4	1.0			
	1-3 months	17	4.2			
	I don't Know	0	0.0			
Covid-19 Virus spreads via respiratory droplets of infected individuals.	True	383	95.5	True	95.5	3.7
	False	15	3.7			
	I don't Know	3	0.7			
Residents can wear general medical masks to prevent infection	True	381	95.0			

by Covid-19 virus.	False	16	4.0	True	95.0	5.0
	I don't Know	4	1.0			
Isolation and the treatment of people who are infected with the Covid-19 virus are effective ways to reduce the spread of the virus.	True	381	95.0	True	95.0	5.0
	False	4	1.0			
	I don't Know	16	4.0			

Table 4: Precautionary measures and practices (n=401)

Question relating to precautionary measures and practices	Precautionary measures	N	%
In the last 7 days, which of the following measures have you taken to prevent infection from covid-19	Frequently washed my hands with soap and water for at least 20 seconds	75	18.7
	Avoid social events and crowded places	10	2.5
	Avoid touching my eyes, nose and mouth with unwashed hands	57	14.2
	Stayed at home from work/school	14	3.5
	Used antibiotics to prevent or treat Covid-19	11	2.7
	Wore a mask in Public places	120	30.0
	Use disinfectants or hand sanitizers	52	13.0
	None of the above	62	15.5

3.4 Self-Precautionary measures and practices

Data presented from table 4, shows that the most common precautionary measure practiced from the sample study is wearing of face mask in public places. This constituted 120 (30%) of the respondents. Other information gathered from this table indicated that at least 33984.5% of the entire sampled population engaged a measure as a precautionary means of avoiding Covid-19 infection. 62 (15.5%) indicated not to have engaged in any of the stated practices to preventing Covid-19 infections. For a highly infectious disease like covid-19 and 15.5% of a population not adhering to it preventive measures puts the entire population at high risk.

Consequently upon the above data, it was necessary to find out exclusively the percentages of the combinations of the stated precautionary measures often practiced by respondents in avoidance of the Covid-19 infection. Table 5 below shows that among the 339 that indicated they practice the precautionary measures 141 (35.2%) respondents used only one of the measures, 55 (13.7%) used at least 3 measures, followed by 17 (4.1%) which represented for each category of those who used all the measures and those who used only 2 of the measures.

Table 5: Precautionary measures and practices (n=339)

Number of Precautionary Measure Practiced	Precautionary Measure							N	%
	A	B	C	D	E	F	G		
1 of 7	28	5	28	10	2	48	20	141	35.2
2 of 7	-	-	-	-	7	-	10	17	4.1
3 of 7	19	-	12	-	-	24	-	55	13.7
4 of 7	16	-	10	-	-	25	9	60	15
5 of 7	7	2	4	-	-	15	8	36	9
6 of 7	2	1	1	2	-	4	3	13	3.4
7 of 7	3	2	2	2	2	4	2	17	4.1
Total	75	10	57	14	11	120	52	339	100

A: Frequently washed my hands with soap and water for at least 20 seconds, **B:** Avoid social events and crowded places, **C:** Avoid touching my eyes, nose and mouth with unwashed hands, **D:** Stayed at home from work/school, **E:** Used antibiotics to prevent or treat Covid-19, **F:** Wore a mask in Public places **G:** Use disinfectants or hand sanitizers

3.5 Skepticism and Belief regarding Coronavirus

Results for the assessment of skepticism and beliefs about coronavirus by the respondents shown in table 6 revealed that 65.3% of the respondents believed to be true that they are no hard evidence that corona virus exist. 45.9% believed that Coronavirus is a hoax invented by interest groups for financial gains, 46.1% also believe that the number of people reported as infected by coronavirus in Nigeria are exaggerated by the authorities. Lastly in this domain, 42.1% don't know if the reported second wave of Covid-19 in Nigeria is a scam, while 33.7% thinks it is a scam.

Table 6 Skepticism and Belief regarding Coronavirus (n=401)

Questions on popular skepticism and belief about Coronavirus	Responses	N	%
There is no hard evidence that corona virus really exist	True	262	65.3
	False	139	34.7
Covid-19 is a hoax invented by interest groups for financial gains	True	184	45.9
	False	97	24.2
	I Don't know	120	29.9
The number of people reported as infected by coronavirus in Nigeria is exaggerated by the authorities	True	185	46.1
	False	70	17.5
	I don't know	146	36.4
The reported second wave of Covid-19 in Nigeria is a scam	True	135	33.7
	False	97	24.2
	I don't know	169	42.1

3.6 Main source of knowledge about Coronavirus.

As shown in Table 7, the main source of knowledge about coronavirus for the respondents is via Television news which constitutes 34.2% of the respondents, followed by Whatsapp chats which had 31.9%. Newspaper was the least with 1.0%.

Table 7 Main source of knowledge about coronavirus (n=401)

Question relating to source of knowledge about coronavirus	Options	N	%
The main source of my knowledge about coronavirus comes from.	Newspaper	4	1.0
	Television news	137	34.2
	Radio	31	7.7
	Whatsapp	128	31.9
	Other online platforms	83	20.7
	Friends and Family	18	4.5

Discussion Of Findings

This study aimed at assessing the knowledge, perception and precautionary measures of Kogi State residents' in response to the outbreak of Covid-19 pandemic. It also highlighted the perceived susceptibility of contracting the coronavirus and the popular skepticism concerning the virus.

From the result of the study we observed that the awareness of the existence of Covid-19 and the knowledge about the causes, clinical symptoms and incubations period from contracting the disease till showing symptoms were reasonably very high among the respondents. So also was their knowledge about the required preventive measures and how to protect them from Covid-19 was also very high. This finding is consistent with similar studies done in Iran and India where majority of the respondents showed high awareness to Covid-19 (Kakeman et al., 2020; and (Sai, et al., 2020)

Likewise, as demonstrated from the result 45.2% of the respondents were conversant with the practice of three to more of the precautionary guidelines for preventing Covid-19. Among the most combined precautionary measures were (1) frequent washing of the hands with soap at least for 20 seconds (2) avoidance of social events and crowd (3) avoidance of touching one's eyes, nose and mouth with unwashed hands (4) the use of face mask (5) the use of disinfectants or hand sanitizers. The single most practice precautionary measure by the respondents was the use of facial mask.

The study also found that a significant number of the respondents held a very low risk perception of Covid-19 by expressing an unlikely probability of getting infected by the virus and also ranked their community susceptibility level to be very low to spread the virus. Although, while we hold that the tendency that the perceived risk perception as acknowledged by respondent may not reflect the reality of the situation it may also account for why the day to day activities of residents seems to be carried out with some level of confidence.

An area for concern as revealed by the study is on the skepticism and beliefs held by respondents regarding Covid-19. Among such skepticism was that there is no hard evidence that coronavirus really exist, this view was held by 65.3% of the respondents. In spite of the remarkable responses as to providing accurate answers that were used to test respondents general knowledge about Covid-19 a significant number of the respondents amounting to 45.9% believed that Covid-19 is a hoax invented by interest groups for financial gains. 46.1% also believed that the number of people reported by the NCDC as infected by the coronavirus in Nigeria is exaggerated. Again, 33.7% of the respondents believed the said second wave of the Covid-19 in Nigeria is a scam. The result as shown calls for concern as it can be deduced that the reasons for the low perceived risk perceptions may not be farfetched from the skepticism and beliefs most respondents hold about the coronavirus and its effects. To buttress this Catalin and Radu (2020) in their study confirms that in the onset of the COVID19 crisis, local media featured extensively the opinions of various pundits, politicians, and 'experts' who either minimized the pandemic or deemed it a hoax

The main source of information about Covid-19 for most of the respondents was first, via Television programs and secondly from WhatsApp platforms. While it can be deduced that Television and WhatsApp seems to be the most reliable means of gaining information by the respondents, we posit that as much as respondents may have gained valuable information as regards the awareness and general knowledge about Covid-19 via the aforementioned means it also suggestively account for the propagated

misconceptions and misinformation that account for their existing beliefs and Skepticism held by respondents concerning Covid-19.

Strength and limitation

As at the time of conducting this studies, there has been no serious research conducted to provide an insight into the knowledge and risk-perception of Kogi state residents about covid-19 so much as to explore their awareness and perceived susceptibility, we however consider that since this study was a cross-sectional survey mostly conducted online, it may aptly represent people of the average class with access to network and computer gadgets thus it may not be suitable to generalize this findings to the entire Kogi State.

Conclusion And Recommendation

This study has presented valuable information regarding the assessment of KOGI state residents' knowledge, risk perception, prevention practices and Skepticism about the Covid-19. The study concluded that while there is a high level of awareness of Covid-19 among residents and a remarkable level of precautionary practices against the spread of the Covid-19 virus, there are also indications of misconceptions and misinformation that breeds Skepticism and belief that may be detrimental to curbing effectively the spread of the Covid-19 virus within the state

In the light of the above we wish to make the following recommendations;

First, public health authorities and all stakeholders involved in curbing the spread of the Covid-19 virus within and outside the state should strive to provide reliable and up-to-date information on the disease and as well make attempt to condemn wide spread ideas and notions that may instigate misinformation and misconceptions capable of promoting beliefs and Skepticism that are detrimental to downplay effective and expected responses from the general public.

Secondly, all public health authorities and stakeholders involved in curbing the spread of the virus should take more advantage of Television programmes and whatapps platforms to provide accurate, precise and timely information to the public. They should also watch out within these communication platforms to discourage contradicting information and provide counter information to discourage Skepticism concerning covid-19.

Finally, we suggest that the NCDC needs to develop strategies that provide evidence in their reports as a means of restoring confidence in the mind of the general public especially residents of Kogi state to believing that Covid-19 is real.

Declarations

AUTHOR CONTRIBUTIONS

TBM, KCM, LIM and JOO; ideas, designed, prepare questionnaire and Data analysis: OOO, SSB, JAO data collection and proofread. All authors drafted manuscript and approve final draft for publication.

References

- Abu, D. (2020, may 28). *Kogi State News: We no dey aware of any Covid-19 case*. Retrieved from BBC News- Pidgin: <https://www.bbc.com/pidgin/tori-52817352>
- Afoke, L. N.-A.-O. (2020). Coronavirus (COVID-19) Pandemic in Nigeria: Preventive and Control Challenges within the Frist Two moths of Outbreak. *African Journal of Reproductive Health* , 89-97.
- Ajisehiri, W. S., Odusanya, O. O., & Joshi, R. (2020). Covid-19 Outbreak Situation in Nigeria and the need for Community Engagement of Community Health Workers for Epidemic Response. *Global Biosecurity* , 1-4.
- Baum, A., Newman, S., Weinman, J., West, R., & McManus, C. (1997). *Cambridge Handbook of Psychology, Health and Medicine*. Cambridge : Cambridge University Press.
- Catalin, A. S., & Umbres, R. (2020). Suspicious minds in times of crisis: determinants of Romanians' beliefs in Covid-19 conspiracy theories. *European Societies* , 1-16.
- CDC. (2021, January 16). *Caring for Somone sick at home advice for caregivers in non-healthcare settings*. Retrieved from <https://www.cdc.gov/coronavirus/2019-ncov/if-you-are-sick/care-for-someone.html>
- Chau, H. k., Choi, O. T., & Lai, T. S. (2003). Asymptomatic Severe Acute Respiratory Syndrome-Associated Coronavirus infection. *Emerging Infectious Diseases*.
- Chindhiha S, F. S., & Divya S, S. K. (2020). Corona Virus Disease-19: The Myths and Facts. *Journal of Emerging Technologies and Innovative Research*, 38-41.
- Cirincione, L., Plescia, F., Ledda, C., Rapisarda, V., Martoran, D., Moldovan, R. E., et al. (2020). COVID-19 Pandemic: Prevention and Protection Measures to be Adopted at Workplace. *MDPI*, 2-18.
- Gharib, M. (2020, Febuary 21). Fake Facts are Flying about Coronavirus. Now there's a plan to debunk them. *Stories of life in a Changing world*.
- Glanz, K., Rimer, B. K., & Viswanath, K. (2008). *Health Behavior and Health Education: Theory, Research and Practice*. San Franscisco: Joseey-Bass A Wiley imprint.
- Kakemam, E., Ghoddoosi-Nejad, D., Chegini, Z., Momeni, K., Salehiniya, H., Hassanipour, S., et al. (2020). Knowledge, Attitudes, and Practices Among the General Population During Covid-19 Outbreak in Iran: A National Cross-sectional Online Survey. *Frontiers in Public Health* , 1-8.

- Lauer, S. A., Grantz, K. H., Bi, Q., Jones, F. K., & Lessler, Q. Z. (2020). The Incubation Period of Coronavirus Disease 2019 (COVID-19) From Publicly Reported Confirmed Cases: Estimation and Application. *Annals of Internal Medicine*.
- Lee, A. A. (2020, December 18). Infectivity of asymptomatic versus symptomatic COVID-19. *The Lancet*, pp. 93-94.
- Lima, C. M. (2020, January 2012). *Information about the new coronavirus disease (COVID-19)*. Retrieved from <https://doi.org/10.1590/0100-3984.2020.53.2e1>
- Mazzoleni, S., Turchetti, G., & Ambrosino, N. (2020). The COVID-19 Outbreak: From "black swan" to global challenges and opportunities. *Pulmonology Journal*, 117-118.
- NBS. (2018). *2017 Demographic Statistics Bulletin*. Abuja: National Bureau of Statistics.
- NCDC. (2020). Infection Prevention and Control: Recommendations during health care provision for suspected and confirmed cases of COVID-19. *NCDC Interim Guidance (Version 2)*.
- NCDC. (2021, January 17). *COVID-19 NIGERIA*. Retrieved from <https://covid19.ncdc.gov.ng/>
- Ndinojuo, B.-C. E. (2020). 5G, Religion, and Misconceptions in Communication during Covid-19 in Nigeria. *Journal The Messenger*.
- Ogundokun, R. O., Lukman, A. F., Kibria, G. B., Awotunde, J. B., & Aladeitan, B. b. (2020). Predictive modelling of COVID-19 confirmed cases in Nigeria. *Infectious Disease Modelling*, 543-548.
- Ohia, C., Bakarey, A. S., & Ahmad, T. (2020). COVID-19 and Nigeria: putting the realities in context. *International Journal of Infectious Diseases*, 279-281.
- Onwughalu, V. C. (2020). Containing the COVID-19 Pandemic in Nigeria: A Reflection on Government Actions and Citizen Reaction. *International Journal of Trends in Scientific Research and Development*, 1453-1460.
- Onyeji, E. (2020, October 29). *COVID-19: Controversial Kogi Goes 120 Days Without Infection, Death*. Retrieved from Premium Times: <https://www.premiumtimesng.com/news/headlines/423628-covid-19-controversial-kogi-goes-120-days-without-infection-death.html>
- Radley, A. (2004). *Making Sense of Illness: The Social Psychology of Health and Disease*. London. Thousand Oaks. New Delhi: Sage Publications.
- Sai, i. K., Chhabra, M., Krishna, U., Rajesh, V., Udey Venkat, M., Koma Krishna, T., et al. (2020). Knowledge and Beliefs towards universal safety precautions during the coronavirus disease (COVID-19) Pandemic among the Indian public: a web-based cross-sectional survey. *Drugs and Therapy Perspectives*, 413-420.

Tariq, R., Hamid, H., Mashood, S., Tariq, Y., Tariq, S., Asiri, F. Y., et al. (2020). Common misconceptions regarding COVID-19 among health care professionals: an online global cross-sectional survey. *Journal of Oral Research*, 37-45.

Tingbo, L., Hongliu, C., Y, C., C. Z., Qian, F., Weili, H., et al. (2020). *Handbook of COVID-19 Prevention and Treatment*. Zhejiang: The First Affiliated Hospital, Zhejiang University School of Medicine.

Tripathi, R., Alqahtani, S. S., Albarraq, A. A., Meraya, A. M., Tripathi, P., Banji, D., et al. (2020). COVID-19 Outbreak Among Healthcare workers and other Residents of South -west Saudi Arabia: A Cross-sectional Survey. *Frontiers in Public Health*, 1-13.

Valeriani, G., Vukovic, I. S., & Mollica, R. (2020). Unconventional Answers to Unprecedented Challenges: The Swedish Experience During the COVID-19 Outbreak. *Journal of Preventive Medicine and Public Health* , 233-235.

Velavan, T. P., & Meyer, C. G. (2020). The COVID-19 epidemic. *Tropical Medicine and International Health*, 278-280.

WHO. (2012, January 17). *WHO Coronavirus Disease (COVID-19) Dashboard*. Retrieved from https://covid19.who.int/?gclid=Cj0KCQiA3Y-ABhCnARIsAKYDH7ti0W1-5TWBNUffTh213rnW8ptfmHnSCBoWIWpC7WZkozHeehCrA04aAlnGEALw_wcB

WHO. (2020). *Coronavirus Disease 2019 (COVID-19) Situation Report-94*. World Health Organization .

WHO. (2020). *Survey Tool and Guidance Rapid, Simple, Flexible behavioural insights on COVID-19*. Europe: World Health Organization.

WHO. (2021, January 16). Infection prevention and control during health care when COVID-19 is suspected. *Interim guidance*.