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ASSESSMENT OF KNOWLEDGE, ATTITUDE AND PRACTICE TOWARDS COVID-19 IN KADUNA NORTH, NIGERIA

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Abstract

The pandemic of coronavirus disease 2019 (COVID-19) emerged and affected most of the world claiming thousands of lives. The need to combat the virus using preventive measures is one of the cheapest and safest option, however, it is highly dependent on the knowledge, attitude and practice of individuals of the virus. Therefore, this paper assessed the knowledge, attitude towards and practice of COVID-19 in Kaduna North Senatorial zone. A total of 384 copies of questionnaire were randomly administered in the Local Government Areas selected for the study. The data obtained were analyzed using frequency tables, mean scores and Relative Importance Index (RII) and the results were presented in the form of tables. The results revealed that respondents have knowledge about the symptoms of COVID-19, with 93% of the respondents reporting fever, fatigue, dry cough and muscle pain as symptoms of the disease. Feeling good when alcohol gel is applied with mean score of 3.08, and making Corona virus vaccines compulsory for all people (3.05) ranked highest regarding the attitudes towards COVID-19. It was found that cleaning of the house more frequently and caring more about personal hygiene than usual were the common practices toward preventing COVID-19 among the respondents with RII of 0.637 and 0.627 respectively. The study recommends that routine public education on personal hygiene by the health personnel and provision of free face mask and hand sanitizers should be made by the state government.

Keywords: Attitude, COVID-19, Corona virus, Knowledge, Practice

1. Introduction

Coronaviruses (CoV) are a large family of viruses that cause illness ranging from the common cold to more severe diseases such as Middle East Respiratory Syndrome (MERS-CoV) and Severe Respiratory Syndrome (SARS-CoV). The novel coronavirus is a new strain that has not been previously identified in humans. Coronaviruses are zoonotic, meaning they are transmitted between animals and humans. Detailed investigations found that SARS-CoV was transmitted from cats to humans and MERS-CoV from camels to humans. Several known coronaviruses however are circulating in animals that have not yet infected humans (World Health Organization [WHO], 2020).

The coronavirus disease 2019 abbreviated (COVID-19) is a highly transmittable and pathogenic viral infection caused by severe acute respiratory syndrome Coronavirus 2 (SARS-CoV-2), which originated from the Hunan seafood wholesale market, Wuhan, Hubei State, China in late December 2019 (Rahman and Sahti, 2020). Genomic analysis revealed that SARS-CoV-2 is related to severe acute respiratory syndrome-like (SARS-like) bat viruses, therefore bats could be the possible primary reservoir. The intermediate source of origin and transfer to humans is not known, however, the rapid human to human transfer has been confirmed widely (Shereen, et al., 2020).

The infection has no immediate treatment and vaccine, and it has according to WHO

(2020) become a worldwide pandemic causing significant morbidity and mortality. There were 1,603,428 confirmed cases, 356,440 recoveries from the illness and 95,714 deaths worldwide as of April 9, 2020 (Worldometers, 2020). On February 27, 2020, an Italian citizen became the index case for COVID-19 in Nigeria and as at April 9, 2020, there were 288 laboratory-confirmed cases of COVID-19 in Nigeria with 51 discharges and 7 deaths. As at 26th July, 2020, there were 40,532 cases, 17,374 discharged, 858 deaths. In Kaduna State, there were 87 active cases as at 10th May, 2020. But by 23rd July, 2020, there were 1,365 cases, 1,032 recovery and 12 deaths (Nigeria Centre for Disease Control {NCDC}, 2020).

According to Mohajan (2016), knowledge is information and understanding about a subject which a person has, or which all people have. It is also considered as a collection of experience, appropriate information and skilled insight which offers a structure for estimating and integrating new experiences and information thereby greatly influencing one's attitude and decision making. In public health concerns, the importance of the knowledge of a disease cannot be overemphasized as it is a potent tool in the prevention and management of pandemics (Rolison and Hanoch, 2015). In order to introduce and install effective control measures, having knowledge about basic hygiene principles and modes of disease transmission, and measures in such an environment is, therefore, of vital importance (Richards, 2017).

Perception can be defined as the recognition and interpretation of sensory information. Perception also includes how individuals respond to information. Perception can be said to be a process where sensory information from the environment is taken in and used in order to interact with the same environment. Perception hence allows individuals to take sensory information in and make it into something meaningful. Perceptions of disease are the cognitive representations or beliefs that individuals have about illnesses and medical conditions. As such, they are an important predictor of the attitudes and practices towards prevention (Hussain, et al., 2012).

Attitude is a predisposition or a tendency to respond positively or negatively towards a certain idea, object, person, or situation. Attitude influences an individual's choice of action and responses to challenges, incentives and rewards (Choi and Yang, 2010). Attitude also refers to a set of emotions, beliefs, and behaviors toward a particular object, person, thing, or event which are often the result of experience or upbringing and can have a powerful influence over behavior (Cherry, 2020). The attitude of the public towards COVID-19 will largely predict the success or failure of the war on the pandemic; specifically, adherence to preventive measures established by the government is of prime importance to prevent the spread of the disease. Adherence is likely to be influenced by the public's knowledge and attitudes toward COVID-19 (Alhanawi *et al*, 2020).

Kaduna State recorded its index case of COVID 19 on May 2nd, 2020 (Igomu, 2020). The numbers have risen steadily since then, up to the time of this research. No doubt the lockdown of the State and other strict measures put in place by the State Government helped to control its spread. With the restrictions eased up in the State, the knowledge, attitudes towards and practice of the residents of Kaduna North Senatorial zone would play a fundamental role in curbing the spread of the virus.

The spread of COVID-19 over all the countries of the world, reaching a pandemic situation and claiming thousands of lives, the need to combat the virus using preventive measures happened to be the cheapest and safest option. This method is highly dependent on the knowledge, perception and attitude of individuals to the virus. There are still many people being infected on a daily basis, some cases ending up in fatalities (Abati, 2020). In Africa and Nigeria specifically, the knowledge, perception and attitude towards COVID-19 plays a fundamental role in curbing the spread of the virus. Although a lot has and still is being invested into public enlightenment on COVID-19, the perception of the disease itself and the attitude of individuals differ (Olapegba *et al*., 2020). There have been rising numbers of cases with various attendant beliefs concerning the virus ranging from skepticism to paranoia. A positive attitude will however contribute immensely in managing the scourge. With the strain of the corona virus being a novel one, there is a paucity of studies on it owing that few researches have been carried out.

The aim of this study is to assess the knowledge, attitude and practices towards COVID-19 in Kaduna North Nigeria. This was achieved through specific objectives which were to:

i. examine the knowledge of COVID-19 among respondents in Kaduna North
ii. examine the attitude of respondents towards COVID-19 in the study area and
iii. assess the practice of respondents towards COVID-19 in the study area.

The study assessed the knowledge, attitude and practices towards COVID-19 in Kaduna North, Nigeria. The study focused on knowledge, attitude and practices towards COVID-19. The study was carried out as at 2021.

2. Study Area and Methodology

Kaduna State is located between Latitudes 9^{o} 00' N and 11^{o} 32' N North of the Equator and between Longitudes 6^{o} 15' E and 8^{o} 50' East of Prime Meridian (See Figure 1). The State is bounded in the north by Kano, Katsina, Zamfara States in the west by Niger State, to the east by Bauchi State and in the south by Nasarawa and Plateau States. The State occupies an area of approximately 48,473.2 square kilometers.

Kaduna State experiences a tropical continental climate with two distinct seasonal climates, dry and wet seasons. The wet season begins in May and extends to October with peak in August while the dry season extends from mid-October to April (Abaje, Sawa, Iguisi, and Ibrahim, 2015). The average annual rainfall and humidity are 1,273mm and 56.6%; respectively while the average daily minimum and maximum temperatures are 15.1^{o}C and 35.2^{o}C (Kaduna State Development Plan {KSDP}, 2013). The area is influenced by two distinct air masses that have tremendous effect on the climate of the State. The northeasterly trade winds, which are usually dry and dusty, are pronounced between November and March. This period is usually referred to as the harmattan period. The second type is the moisture-laden tropical maritime air masses that originates from the Atlantic Ocean and brings rain with it. The variations in the on-set of rainfall are attributed to the fluctuation of the boundary between these two air masses (Bako, 2014). There is the tendency for the spread of COVID-19 to increase during the harmattan season due to the decrease in temperatures from November to February.

The population of the State according to the 2006 census stands at 6,113,503 (National Population Commission {NPC}, 2009). Using the exponential method with 3.18% inter-census growth rate of Kaduna state, the 2019 projected population stood at 9,243,309. Many of the people in the state live in urban and semi urban towns like Kaduna, Zaria, Kafanchan, Kagoro, Zonkwa, Birnin Gwari, Makarfi and Zangon Kataf. This makes these areas more prone to the spread of COVID-19 due to overcrowding.

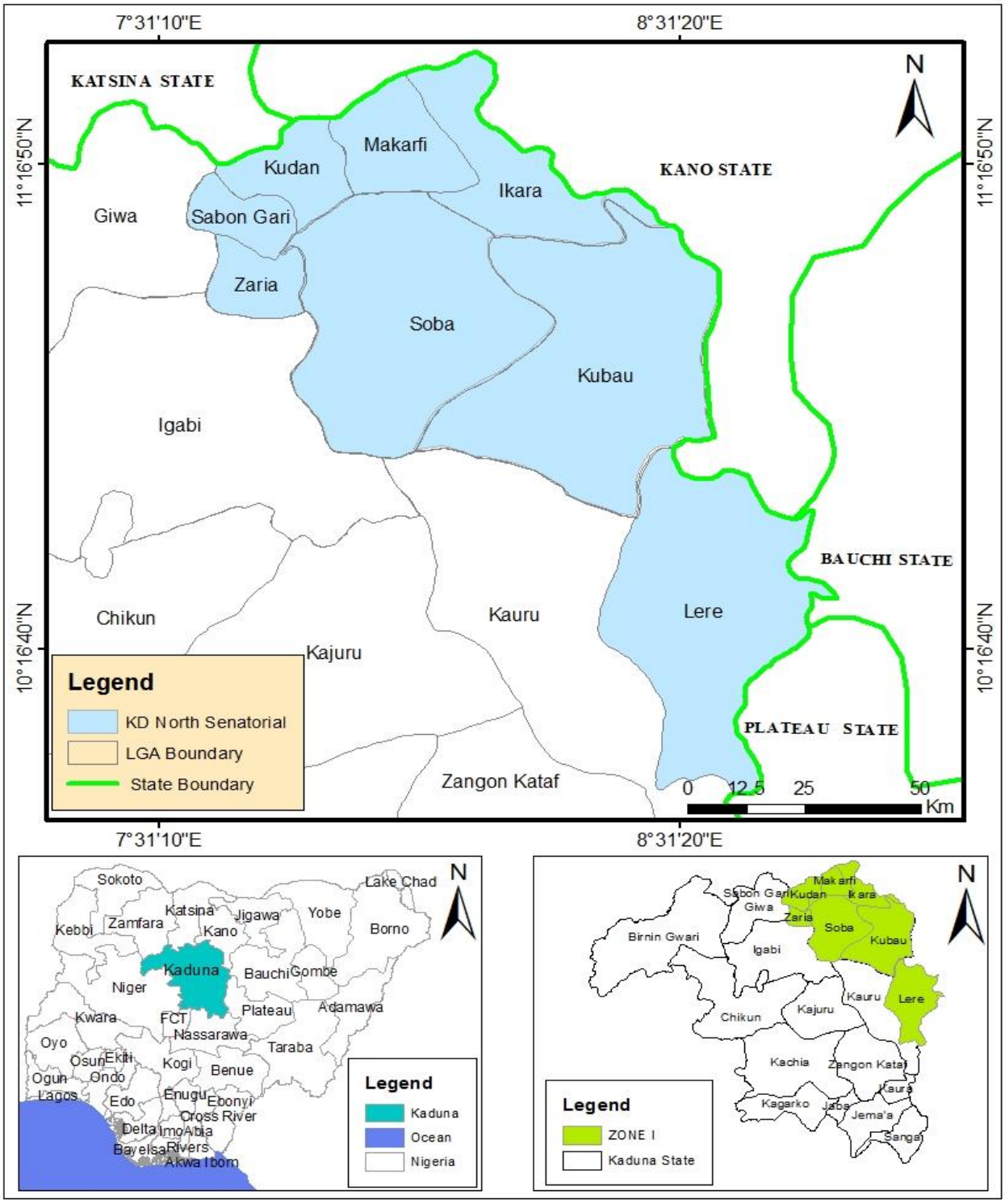

Figure 1: The Study Area
Source: Adapted from the Administrative map of Kaduna State

The State has 23 hospitals and 3 dental centres, in 21 LGAs except Sabon-Gari and Kubau. The Federal Government of Nigeria also has specialized tertiary health institutions in the State. These are the Ahmadu Bello University Teaching Hospital, Psychiatric, Eye and Ear Hospitals among others. In addition to these, there are 608 Local Government health facilities which include Primary Health Centres (PHCs) and Health Clinics (HCs) and 656 private health facilities which include private and faith-based hospitals, clinics, laboratories and pharmacies, which are spread across the 23 LGAs of the State (KSDP, 2013). This suggests that there are health centres to cater for the spread of the pandemic.

The State has twelve (12) water works for the supply of potable water to nine (9) urban centres in the State. The current supply capacity of the water works is 380.80mld of water, while the requirement for the urban centre is 540.25 million litres per day. The actual production from the 12 water works has dropped to about 171mld from the 380mld available capacity due to erratic power supply and worn out equipment. The low production level coupled with inadequate capacity has resulted in service coverage of only 32% for the cities. This implies that only 32% of the urban population is receiving potable water from the municipal water supply system daily. The Semi-Urban Water Supply Programme provides potable water to all Local Government Council Headquarters while the Rural Water Supply is catered for through the sinking of boreholes, concrete and hand-dug wells (KSDP, 2013). The limited access to water especially during the dry season will likely hamper frequent hand washing and other hygiene measures in the home, hospital and work place.

To be well acquainted with the study area, a reconnaissance survey was undertaken using precautionary measures by visiting some selected LGAs. The researchers obtained secondary data on the prevalence of COVID-19 in Kaduna State from NCDC. Findings from the reconnaissance survey suggests that people were hit hard by the lockdown imposed by government in a bid to curtail its spread. The researchers also observed people's response to the spread of the pandemic in Kaduna State.

The major instrument used for the collection of data is a structured questionnaire. The copies of questionnaire were self-administered to the respondents. The questionnaire was presented in form of a 5-point Likert scale. The prevalence rate of COVID-19 was obtained from NCDC. The population of Kaduna North senatorial zone was obtained from the National Population Commission. However, materials that were used for literature review includes text books, journal, articles, conference papers, published and unpublished projects, newspapers, magazines and relevant websites.

In 2006, the total population of the three selected LGAs in Kaduna North senatorial zone was 1,038,088 people (National Population Commission [NPC], 2009). Using the Extrapolation method of population projection, population in target year (Pn)= population in base year (Po) *[1+ (R/100*n)]
Where:
Po= number of people in Kaduna North senatorial zone for the base year (1,038,088)
R= inter-census growth rate of Kaduna state (2.89)
Pn= number of people in Kaduna state for the current year (?)
n=14 years

Using the 2006 inter-census growth rate of 2.89, the projected population of the three selected LGAs in Kaduna North senatorial zone for the year 2020 is 1,555,785. Using the Krejcie and Morgan (1970) table for determining sample size for finite population, the sample size for a population of one million and above is 384. As such a total of 384 copies of questionnaire were administered based on the sample sizes of each LGA.

Three LGAs with the highest population in Kaduna North senatorial zone were purposively selected. The selected LGAs were Lere, Sabon-Gari and Zaria (Table 1). This is because these LGAs may likely have higher prevalence of COVID-19 due to high population densities. To determine the proportion of sample size for each LGA, the percentage of each LGA over the total population of the selected LGAs was used to calculate it as shown in Table 1.

Table 1: Population of selected LGAs in Kaduna North Senatorial Zone

S/No	LGA	2006 Population	2020 Projected Population	% Population Distribution	Sample Size
1	Ikara	194,723			
2	Kubau	280,704			
3	Kudan	138,956			
4	Lere*	339,740	509169	32.7	126
5	Makarfi	146,574			
6	Sabon-Gari*	291,358	436659	28.1	108
7	Soba	291,173			
8	Zaria*	406,990	609957	39.2	150
Total selected		**1,038,088**	**1555785**	**100**	**384**

Source: Authors Computation (2021), from National Population Commission (2010)
*Selected LGAs

After arranging the wards in each of the selected LGA in alphabetical order, every 3rd numbered ward was chosen as indicated in Table 2.

Table 2: Selected Wards in each LGA

S/No	Zaria	Sabon Gari	Lere
1	Anguwan Fatika	Angwan Gabas	Abadawa
2	Anguwan Juma	Bassawa	Dan Alhaji
3	Dembo*	Bomo *	Garu Mariri*
4	Dutsen Aba	Chikaji	Gure Kahugu
5	Gyellesu	Dogarawa	Kayarda
6	Kaura*	Hanwa *	Kudaru*
7	Kufena	Jama'a	Lazuru Tuddai
8	Kwarbai A	Jushin Waje	Lere
9	Kwarbai B*	Muchia*	Ramin Kura*
10	Limancin Kona	Samaru	Sabon Birni
11	Tudun Wada	Zabi	Saminaka
12	Tukur-Tukur*		
13	Wuciciri		

Source: Authors Compilation, 2021 *Selected wards in each LGA

Thus, the copies of questionnaire were administered to the selected wards from each LGA since populations for these wards are not available according to the 2006 census results. The data obtained were analyzed using various statistical measures with Statistical Package for Social Science (SPSS) version 22 and Microsoft Excel and presented in the form of tables. Each objective was analyzed as such:

i. examine the knowledge of COVID-19 among respondents in Kaduna North senatorial zone. This was analysed using descriptive which include frequencies and percentages.
ii. examine the attitude of respondents towards COVID-19 in the study area. Descriptive statistics in the form of mean and standard deviation was used to analyse this objective.
iii. assess the practice of respondents on COVID-19 in the study area. The Relative Importance Index (RII) was used to analyse this objective.

3. Results and Discussions

3.1 Knowledge on COVID-19

Table 3 revealed that respondents were most knowledgeable about the symptoms of COVID-19 as 93% reported the symptoms of COVID-19 as fever, fatigue, dry cough, and muscle pain. This was closely followed by 89.3% who agreed that individuals must wash their hands regularly and avoid going to crowded places to prevent the spread of the disease. This disagrees with the findings of Habib et al., (2021) in which 33.5% said there were curative treatments through prayer, vaccine and isolation. Furthermore, a high proportion (85.9%) of the respondents were of the view that people who have contact with persons infected must be immediately isolated and 85.2% reported that COVID-19 is transmitted when droplets expelled from the mouth or nose of infected person while speaking, coughing or sneezing touches another person.

Table 3: Knowledge of COVID-19

Knowledge	True		False		Not Sure	
	Freq	%	Freq	%	Freq	%
COVID-19 is transmitted when droplets expelled from the mouth or nose of infected person while speaking, coughing or sneezing touches another person	327	85.2	15	3.9	42	10.9
Occur when contaminated hands after contact with surfaces containing viral particles touch the mouth, eyes, or nose	325	84.6	26	6.8	33	8.6
COVID-19 virus multiplies in the individual's airways	269	70.1	24	6.3	91	23.7
People who have contact with persons infected must be immediately isolated	330	85.9	24	6.3	30	7.8
Human contact with pet and wild animals increases the chance of being infected	176	45.8	98	25.5	110	28.7
Not all persons with COVID-19 develop severe symptoms.	245	63.8	75	19.5	64	16.7
Symptoms of COVID-19 are fever, fatigue, dry cough, and muscle pain	356	92.7	10	2.6	18	4.7

Individuals must wash their hands regularly and avoid going to crowded places to prevent the spread of COVID-19	343	89.3	27	7.0	14	3.6
There is no effective cure for COVID-19 but early detection and treatment can help the infected to recover	309	80.5	53	13.8	22	5.7
The children and the elderly with chronic illnesses are more likely to have severe infection of COVID-19	296	77.1	50	13.0	38	9.9
COVID-19 disease results in death in all cases	152	39.6	188	49.0	44	11.5
COVID-19 is on the increase	101	26.3	198	51.6	85	22.1

Source: Field Survey, 2021

Similarly, 84.6% said it is true that when contaminated hands after contact with infected surfaces touch the mouth, eyes, or nose could lead to the spread of COVID-19 (Table 3). This is an indication of the good knowledge people have about the disease. A study conducted by Roy, et al., (2020) in India showed that 29.5% of the respondents reported that the virus spreads through multiple modes like touching, kissing, sneezing, and food, 43% of them regarded COVID-19 as a highly contagious disease, 97% of them acknowledged that washing hands frequently could stop the spread of infection. This agrees with the findings of Habib, et al., (2021) which revealed that other modes of transmissions include breathing infected air (77.4%), animal-to-human (52%), animal to animal (20.4%), human to human (88.6%), environment to human (71.4%), contact with infected surfaces or objects (85%), contact with saliva, nasal secretions, excreta, feces, vomit of an infected person (75.4%) and contact with live animal markets (34.3%). On the other hand, Corona disease results in death in all cases (39.6%) and COVID-19 is on the rise with 26.3% were perceived to be false. In the Philippines, a study by Lau et al., (2020) showed that 89.5% of the respondents were able to identify coughing and sneezing as a transmission route, 72.6% recognized a transmission route as indirect hand contact, 82.2% recognized hand washing, 32.4% identified social distancing, and 40.6% recognized avoiding crowds as potential preventive measure.

3.2 Attitudes towards COVID-19

As shown in Table 4, feeling good when alcohol gel is applied on the hand and taking compulsory vaccination for all people with mean scores 3.08 and 3.05 respectively ranked highest. This is closely followed by the view that travel restriction to and from Corona disease areas to prevent spread is not needed (2.96) and government preventive measures are counterproductive (2.85). Conversely, the mean scores of 2.27 and 2.42 representing nonchalant attitude in sharing personal objects and the dislike of washing hands regularly with soap and water were the least ranked. This does not agree with the findings of Amar (2021) in which the respondents in his study lacked the knowledge and wherewithal to carry out regular hand washing with soap.

Table 4: Attitude of Respondents towards COVID-19

Attitude	Mean score	Std. Deviation
It feels good applying alcohol gel on my hand	3.08	1.192
Taking of Corona vaccines should be made compulsory for all people	3.05	1.381
Travel restriction to and from Corona disease areas to prevent spread is not needed	2.96	1.292
All government preventive measures are counterproductive	2.85	1.389
Corona disease has been before now, so do not see anything special about it	2.79	1.280
Taking of Corona vaccine is not good	2.78	1.377
I do not believe in avoiding crowds of people	2.67	1.119
Isolation and treatment of infected persons are not effective ways to reduce the spread of the virus	2.62	1.225
Whether you wear face mask or not, it does not change anything	2.57	1.131
I dislike washing hands regularly with soap and water	2.42	1.074
I do not care about sharing personal objects	2.27	1.058

Source: Field Survey, 2021

3.3 Practices towards COVID-19

The result in Table 5 revealed that cleaning of the house more frequently and caring more about personal hygiene than usual were identified as the common practices toward COVID-19 among the respondents with RII of 0.637 and 0.627 respectively.

Table 5: Practices of Respondents towards COVID-19

Practice	RII	Ranking
I clean my house more frequently	0.637	1
I care more about my personal hygiene than usual	0.627	2
I wear face mask	0.563	3
I eat fruits and vegetables	0.552	4
I wash my hands with soap at interval	0.523	5
I use hand sanitizer	0.508	6
I use disinfectant and solutions	0.504	7
Usually change my cloth often unlike before	0.503	8
I practice physical distance in public places	0.497	9
Take enough rest	0.483	10
Undertake routine exercise	0.471	11
Tell others on how to prevent the spread of Corona	0.461	12
Do not go to work all the time	0.456	13
Take vitamins and supplements	0.451	14
I avoid handshaking, hugging and kissing	0.447	15
I avoid taking public transport	0.446	16
Take preventive herbal products and traditional medicine	0.406	17

Source: Field Survey, 2022

This was closely followed by wearing face and nose mask (0.563) as well as eating of fruits and vegetables (0.552) practices. However, the result further illustrates that not taking public transport and taking of preventive herbal products and traditional medicine ranked the least practiced among the respondents as they account for RII of 0.446 and 0.406.

In a study by Le An et al., (2021), there was a high rate of good practices (92.8%), with over 90% of respondents answering all questions correctly, including washing hands, wearing masks, social distancing, and following the guidelines of the Ministry of Health if suspected of having the COVID-19 infection. According to the research conducted by Reuben, et al., (2020) in Nigeria, 90.2% of the respondents reported social distancing/avoiding crowd, 78.8% reported avoiding handshakes, and 74.4% reported avoiding face kissing as some of the practices to reduce community spread of COVID-19

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4. Conclusion

Conclusively, the study revealed that majority of the respondents had a good knowledge of COVID-19, as about 93% of the respondents correctly identified fever, fatigue, dry cough, and muscle pain as the symptoms of the disease. The attitude of the respondents to the disease is positive with a thought of compulsory vaccinations and travel restrictions to be imposed by the Government to limit the spread of the disease. The respondents had a positive practice towards COVID-19, with frequent house cleaning, improved personal hygiene and wearing of face mask ranking first, second and third.

5. Recommendations

Based on the findings of the study, the following recommendations have been suggested:

i. Health personnel should continuously carry out more public education on COVID 19, to maintain the high knowledge of the disease the respondents already have.
ii. The general public should be encouraged by the Government through the media and every other effective method, to maintain a highly positive attitude towards the disease as this has helped contain the spread.
iii. There should be continuous enlightenment carried out by the Ministry of Health, to maintain a good practice as displayed by many of the respondents and eradicate discrimination against those affected by the disease.

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