Infection Prevention and Control: Knowledge, Attitude, and Practice of Community Members on Standard Protocols During COVID-19 Pandemic in Ikeja, Nigeria

Oluwaseun Damilola Fasanmi[1], Ebenezer Obi Daniel[1, *], Ahmed Mamuda Bello[1], Paul Olaiya Abiodun[1], Michael Avwerhota[2], Israel Olukayode Popoola[3], Christiana Asibi Ogben[1], Michael Olabode Tomori[1], Essien Grace Clement[1], Adebanke Adetutu Ogun[4], Friday Iyobosa Igbinovia[1], Sarah Obianuju Ukemenam[1], Azeezat Abimbola Oyewande[5], Oluwole Victor Oluwalomola[1]

[1]Department of Public Health, Texila American University, Georgetown, Guyana

[2]Department of Public Health, Atlantic International University, Hawaii, United States of American

[3]Department of Epidemiology and Community Health, University of Ilorin, Ilorin, Nigeria

[4]International Organization for Migration, Asokoro Extension, Abuja, Nigeria

[5]Department of Family Medicine, Lagos State Health Service, General Hospital Lagos, Lagos, Nigeria

Email address:
dsannypressy@yahoo.com (E. O. Daniel)
*Corresponding author

To cite this article:
Oluwaseun Damilola Fasanmi, Ebenezer Obi Daniel, Ahmed Mamuda Bello, Paul Olaiya Abiodun, Michael Avwerhota, Israel Olukayode Popoola, Christiana Asibi Ogben, Michael Olabode Tomori, Essien Grace Clement, Adebanke Adetutu Ogun, Friday Iyobosa Igbinovia, Sarah Obianuju Ukemenam, Azeezat Abimbola Oyewande, Oluwole Victor Oluwalomola. Infection Prevention and Control: Knowledge, Attitude, and Practice of Community Members on Standard Protocols During COVID-19 Pandemic in Ikeja, Nigeria. *World Journal of Public Health*. Vol. 7, No. 1, 2022, pp. 30-38. doi: 10.11648/j.wjph.20220701.15

Abstract: The novel Coronavirus disease 2019 (COVID-19), was first identified in Wuhan China in December 2019 and has rapidly spread to almost every region of the world. Also known as severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2), COVID-19 causes significant morbidity and mortality. The infection has no immediate treatment and vaccine, World Health Organization (WHO) declared it a public health emergency of international concern on January 30, 2020, and further went on to declare it a worldwide pandemic on the 22nd of March 2020. The coronavirus disease (COVID-19) pandemic is associated with increased morbidity and mortality globally. Human behaviour and knowledge assessment during the crisis are vital to containing the outbreak. Therefore, the level of knowledge, attitudes, and practices concerning infection prevention and control measures among community members is very important during this COVID-19 pandemic. The purpose of this research will evaluate the level of knowledge, attitudes, and practices regarding the infection prevention and control measures among community members in Ikeja, Lagos State, Nigeria. This study is a descriptive cross-sectional web-based survey. The study population comprised of community members who reside in Ikeja, Lagos state. Ikeja is the state capital and administrative centre of Lagos State in southwestern Nigeria. Participants are aged 18 years and above who would understand the content of the study and agree to participate in the study and those who are community members of Ikeja, Lagos state. The findings of this study suggest that community members in Ikeja, Lagos did not demonstrate good knowledge nor positive attitudes towards COVID-19, however, they demonstrated good safety practices regarding COVID-19. Also, the poor attitude was more prevalent among the older adolescent and youth and this can pose a serious risk to other members of the community.

Keywords: COVID-19, Knowledge, Attitude, Practice

1. Introduction

The novel Coronavirus disease 2019 (COVID-19), was first identified in Wuhan China in December 2019 and has rapidly spread to almost every region of the world. The disease is caused by a new and severe type of Coronavirus known as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) causing significant morbidity and mortality [1]. The infection has no immediate treatment and vaccine, World Health Organization (WHO) declared it a public health emergency of international concern on January 30, 2020, and further went on to declare it a worldwide pandemic on the 22nd of March 2020.

The origin of the outbreak was linked to a local Huanan South China Seafood Market in Wuhan, Hubei Province, China [2]. It was speculated that the outbreak of COVID-19 in Wuhan is associated with wild animals, but the specific animals associated with the virus have not been identified. There are also speculations that the Wuhan Huanan seafood market may not be the only source of SARS-CoV-2 spreading globally [2]. The disease has since rapidly spread to other countries of the world.

COVID-19 is from the family of Coronavirus belonging to the same family as SARS and MERS. It is a contagious respiratory illness transmitted through the eyes, nose, and mouth, via droplets from coughs and sneezes, close contact with an infected person, and contaminated surfaces. It has an incubation period of approximately one to fourteen days. The symptoms include cough, fever, and shortness of breath, and it is diagnosed through a laboratory test. The contagion could lead to severe respiratory problems or death, particularly among the elderly and persons with underlying chronic illnesses. Medical treatments rely on supportive measures aimed at relieving symptoms, use of research drugs and therapeutics. Lack of specific effective drugs or vaccines against the virus infection during the early period of the outbreak has caused difficulties in rescuing the severe cases which account for about 20% of the infections [3, 4].

Globally, various measures have been put in place to curtail the further spread of the virus. These measures include: enlightenment campaigns for good hygiene, social distancing, using hand sanitisers, regular hand washing, wearing face masks, respiratory hygiene, temperature screening at airports and those returning from countries with numerous confirmed cases of COVID-19 are to self-isolate, sick people are to stay at home and call designated phone numbers.

In Nigeria, On February 27, 2020, an Italian citizen became the index case for COVID-19. Since then the spread of novel Corona Virus Disease (COVID-19) in Nigeria has continued to rise rapidly. As of May 23, 2020, there were 7261 confirmed cases of COVID-19, 2,007 discharges, and 221 deaths in 34 states and Federal capital territory in Nigeria, with Lagos state, Nigeria commercial capital, as the epicentre of the infection in Nigeria with a record of 3,224 cases so far [5].

In a move to contain the virus, On March 18, 2020, the Lagos State government suspended all gatherings above fifty people for four weeks and ordered all lower and middle-level public officers to stay-at-home [6]. The NCDC in association with the State governments engages in tracing and tracking of possible victims and their contacts.

The coronavirus disease (COVID-19) pandemic is associated with increased morbidity and mortality globally. Human behaviour and knowledge assessment during the crisis are vital to containing the outbreak. Therefore, the level of knowledge, attitudes, and practices for infection prevention and control measures among community members is very important during this COVID-19 pandemic.

Taking personal responsibility and practising positive behaviours can help contain the spread. These practices include regular hand washing, using hand sanitisers, wearing face masks, respiratory etiquettes, social distancing, and self-isolation when sick [4]

Several studies have revealed that individuals' level of knowledge about an infectious disease can make them behave in ways that may prevent infection [7].

Knowledge and attitude of people should be directed towards strict preventive practices to develop effective control and halt the spread of the virus.

Several public health measures are being put in place in different countries to control the spread of the virus, much of them related to social distancing, hand washing, and city lockdown.

Some earlier studies carried out in Nigeria on previous outbreaks suggested the population's poor attitude towards infection preventive practices. For instance, studies revealed that residents had inadequate knowledge, a negative attitude, and poor preventive practices against the Lassa fever outbreak in Nigeria [8, 9].

However, despite the mandatory nature of public protective measures, the adherence to each of them is moderately poor/mixed among the population. The non-compliance and, to some extent the disinterest of certain human groups concerning these regulations is alarming. Low levels of participation and commitment to the imposed control measures have been reported during this COVID-19 pandemic [10].

Some have stated that lack of means of livelihood during the lockdown especially for those whose activities and businesses involve face-to-face contact, has been reported as some of the reasons why certain people have not complied with a stay at home order, some others don't believe in the existence or the reality of the COVID-19 seeing it as another political propaganda.

Others due to superstitions and ignorance of the science behind the infection prefer only to pray (even violating the social distancing rule by attending churches or mosques during the lockdown) and use anointing oils, herbs, or rituals [10] to prevent contracting and spreading the virus. Some also use social media platforms (e.g. WhatsApp, Twitter, Facebook, and Instagram) to spread fear, project fake news concerning the source of the virus, promote prejudice against China, incite panic buying, proffer fake cures and undermine medical advice, deliberately or ignorantly [11].

Some cross-sectional studies identify this phenomenon as an attitudinal problem attributable to the population [12, 13].

The lack of knowledge about the COVID-19 disease

would be a contributing factor to the increase of cases infected by the virus.

Similarly, In Nigeria, it was found that during the isolation stage to prevent contagion by the Ebola virus, the poor understanding of the disease and its airborne infection process contributed to the increase in case rates [14]. Knowledge of the infection process and its precautions may be linked to the determination of citizens to follow government guidelines regarding quarantine measures. This same perspective is supported by numerous analyses, where it is reported that the level of knowledge directly affects the perception of susceptibility to disease [14].

The knowledge and behaviour assessment of the public toward this kind of outbreak is essential, especially due to a large number of misconceptions and false information that are circulating on social media regarding the transmission of the disease and methods of acquisition [15] which can make matters worse.

Such assessments have proven useful as an important means in informing prevention, control, and mitigation measures in previous viral outbreaks including SARS, MERS, and Ebola [16, 17].

The purpose of this research is to evaluate the level of knowledge, attitudes, and practices regarding the infection prevention and control measures among community members in Ikeja, Lagos State, Nigeria.

2. Method

Research design is a descriptive cross-sectional web-based survey conducted among community members in Ikeja, Lagos state during COVID-19 pandemic. Ikeja is the state capital and administrative centre of Lagos State in southwestern Nigeria. Its population, as of 2015, is 861,300. It has a concentration of both medium and large-scale industries, a central business district, and Nigeria's biggest and busiest international airport (Murtala Mohammed airport).

The study participants are those aged 18 years and above who are community members of Ikeja, Lagos state and agree to participate in the study, with the exclusion of those below 18 years and are not community members of Ikeja, Lagos state.

The estimation of the sample size was determined by identifying the smallest acceptable size of a demographic subgroup with a ±5% margin of error and a confidence level of 95%. For this study, a questionnaire was adapted from those used in previous studies and materials on COVID-19 [18, 19] and it was evaluated by a public health professional and subsequently pilot tested to make room for changes to ensure better understanding and efficiency. It consisted of four sections. Section A comprises questions on the respondent's demographic data and section B questions elicited data on knowledge, section C elicited questions on attitude, and question D on the practice of community members on infection prevention during the COVID-19 pandemic. An online survey portal (Google form) was created, and participants were invited to complete and submit the questionnaire via social media (WhatsApp) and relying on the authors' networks with local people living in Lagos. This is due to the peculiarity of this period of the pandemic. A link was provided through which the participant will be able to view and answer the questions when they click on it. In addition, respondents were encouraged to kindly share the link to the online platforms of their contacts, family, and friends within the Ikeja community.

The cover page of the questionnaire included a short introduction regarding the objectives, the voluntary nature of participation, declarations of confidentiality, and anonymity. At the end of all the questions, clicking submit indicates approval of consent by each respondent. The data analysis was done using a statistical package for social science tool, SPSS version 23, data were presented using descriptive statistics of tables, pie, and bar charts. Respondents answered true or false questions on the knowledge of community members about COVID-19. Each right response was scored one, while each wrong response was scored 0. Summated scores were used to arrive at each respondent's knowledge with a possible score range of 0 to 14. Higher scores indicate a higher level of good attitude with the score of 14 as the highest score for good knowledge.

Equally, respondents answered yes or no to questions on the attitude of community members during COVID-19. Each right response was scored 1 while each wrong response was scored 0. Summated scores were used to arrive at each respondent's attitude with a possible score of 0 to 16. Higher scores indicate a higher level of good attitude with a score of 14 as the highest for a good attitude.

Respondents also answered yes or no to questions regarding practices of community members during the COVID-19 pandemic. Each right response was scored 1 and the wrong response was scored 0. Summated scores were used to determine respondents' practice with a possible score range of 0 to 8. Higher scores indicate a higher level of good practice with a score of 8 as the highest for good practice. Marked by the virulent nature of COVID-19 and a need for optimal knowledge and good behavioural practices to mitigate the spread, a cutoff score of 90% was set to indicate good knowledge, attitude, and practices during the COVID-19 pandemic.

Chi-square was used to test the association between various socio-demographic variables and the knowledge, attitude, and practice of the community members towards the prevention of COVID-19. The statistical level of significance was set at P-value ≤ 0.05.

Ethical approval for this study was obtained from the Medical and Ethics Committee of Lagos State University Teaching Hospital. The purpose of this research was explained to the participants and they were assured of confidentiality by the researcher.

3. Result

Four hundred and five persons completed the survey and fell within the inclusion criteria. 221 (54.6%) were males and 184 (45.4%) were females. 209 (51.6%) participants were aged 18 to 34 years, 139 (34.3%) were aged 35-54 years and

57 (14.1%) were 55 years and above. More than half of the participants (59.5%) were married, 38.8% single and 1.7% divorced/widowed. Most of the participants 95.8%) had at least tertiary education and 4.2% had at least a secondary education. 150 (37.0%) of the participants are government employees, 112 (27.7%) are private employees, 98 (24.2%) are self-employed and 45 (11.1%) are unemployed. The majority of the participants (90.9%) are Christians, 7.2% are Muslims, and 1.1% practice other religions. Most of the participants (88.1%) are Yoruba, 7.7% are Igbo.

Table 1. Socio-demographics characteristics of respondents.

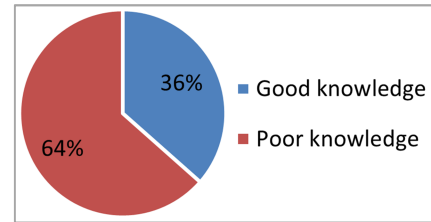| Characteristics N=405	Freq	Percent
Age groups (years)		
18-34	209	51.6
35-54	139	34.3
55+	57	14.1
Gender		
Male	221	54.6
Female	184	45.4
Marital status		
Married	241	59.5
Single	157	38.8
Divorced/widowed	7	1.7
Highest level of education		
Primary education	0	0
Secondary education	17	4.2
Tertiary education	388	95.8
Employment status		
Government employee	150	37
Private employee	112	27.7
Self employed	98	24.2
Unemployed	45	11.1
Religion		
Christianity	368	90.9
Islam	29	7.2
Others	8	1.9
Ethnic group		
Yoruba	357	88.1
Igbo	31	7.7
Others	23	4.2

Figure 1. Pie chart showing the percentage distribution of good and poor knowledge. The pie chart above shows that 36.5% 148) of the respondents have good knowledge while 63.5% (257) have poor knowledge about COVID-19.
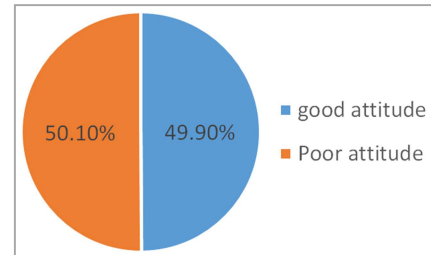

Figure 2. Pie chart showing the percentage distribution of good and poor attitudes. The pie chart above shows that 49.9% (202) of the respondents have a good attitude while 50.1% (203) have a poor attitude towards COVID-19.
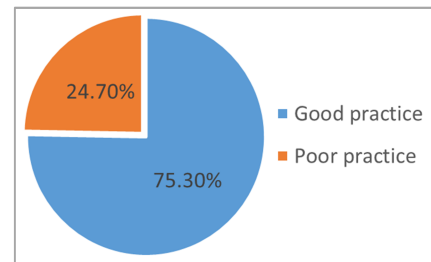

Figure 3. Pie chart showing the percentage distribution of good and poor practices. The pie chart above shows that 75.3% (305) of the respondents have good practices while 24.7% (100) have poor practices during COVID-19.

Table 2. Chi-square analysis showing an association between the knowledge of community members about COVID-19 and Socio-demographics characteristics of respondents.

	mean	Std	range	Min	Max
Knowledge score	12.06	0.92	5.00	9.00	14.00

Variables	Knowledge		X^2	P-value
	Good n(%)	Poor n(%)		
Age (years)				
18-34	85 (40.7)	124 (59.3)	7.434	0.024*
35-54	51 (36.7)	88 (63.3)		
55+	12 (21.1)	45 (78.9)		
Gender				
Male	74 (33.5)	147 (66.5)	1.963	0.161
Female	74 (40.2)	110 (59.8)		
Marital status				
Single	59 (37.6)	98 (62.4)	0.285	0.867
Married	87 (36.1)	154 (63.9)		
Divorced/widow	2 ((28.6)	5 (71.4)		
Highest level of education				
Secondary education	5 (29.4)	12 (70.6)	0.389	0.533
Tertiary education	143 (36.9)	245 (63.1)		
Employment status				

Variables	Knowledge		X^2	P-value
	Good n(%)	Poor n(%)		
Government employed	45 (30.0)	105 (70.0)	7.691	0.053
Private employed	52 (46.4)	60 (53.6)		
Self employed	36 (36.7)	62 (63.2)		
Unemployed	15 (33.3)	30 (66.7)		
Religion				
Christianity	132 (35.9)	236 (64.1)	0.933	0.627
Islam	13 (44.8)	16 (55.2)		
others	3 ((37.5)	5 (62.5)		
Ethnic group				
Yoruba	123 (34.5)	234 (65.5)	5.957	0.051
Igbo	17 (54.8)	14 (45.2)		
others	8 (47.1)	9 (52.9)		

Table 2 shows that among the respondents, across all age groups, less than 50% had good knowledge about COVID-19 with 18-34 years, 85 (40.7%), 35-54 years, 51 (36.7%), and 55+, 12 (21.2%). Also, less than 50% of males, 74 (33.5%), and females, 74 (40.2%) had good knowledge about COVID-19. Similarly, for the highest level of education, secondary, 5 (29.4%), tertiary, 14 (36.1%), employment status, government employed, 45 (30.0%), private employed, 52 (46.4%). Self-employed, 36 (36.7%), unemployed, 15 (33.3%), religion, Christianity 132 (35.9%), Islam, 13 (44.8%) and ethnic group, Yoruba, 123 (34.5%), Igbo, 17 (54.8%).

There was no significant association between gender, marital status, level of education, employment status, religion, ethnic group, and knowledge about COVID-19.

There was a statistically significant association between age and knowledge about COVID-19. (X^2=7.434, P = 0.024).

Table 3. *Chi-square analysis showing an association between the attitude of community members about COVID-19 and Socio-demographics characteristics of respondents.*

	mean	Std	range	Min	Max
Attitude score	14.10	1.76	10.00	6.00	16.00

Variables	Attitude		X^2	P-value
	Good n (%)	Poor n (%)		
Age (years)				
18-34	76 (36.4)	133 (63.6)	33.422	0.000*
35-54	85 (61.2)	54 (38.8)		
55+	41 (71.9)	16 (28.1)		
Gender				
Male	128 (57.9)	93 (42.1)	12.584	0.000*
Female	74 (40.2)	110 (59.8)		
Marital status				
Single	53 (33.8)	104 (66.2)	27.500	0.000*
Married	146 (60.6)	95 (39.4)		
Divorced/widow	3 (42.9)	4 (57.1)		
Highest level of education				
Secondary education	4 (23.5)	13 (76.5)	4.927	0.026*
Tertiary education	198 (51.0)	190 (49.0)		
Employment status				
Government employed	106 (70.7)	44 (29.3)	42.946	0.000*
Private employed	39 (34.8)	73 (65.2)		
Self employed	42 (42.9)	56 (57.1)		
Unemployed	15 (33.3)	30 (66.7)		
Religion				
Christianity	183 (49.7)	185 (50.3)	6.198	0.045*
Islam	18 (62.1)	11 (37.9)		
Others	1 (12.5)	7 (87.5)		
Ethnic group				
Yoruba	188 (52.7)	169 (47.3)	9.343	0.009*
Igbo	9 (29.0)	22 (71.0)		
Others	5 (29.4)	12 (70.6)		

Table 3 shows that among the respondents, less than 50% of those 18-34 years of age had a good attitude, 76 (36.4%), while 85 (61.2%) of those aged between 35-54 years have a good attitude and 41 (71.9%) of those aged 55+ have a good attitude. For gender, 53 (33.8%) males and 74 (40.2%) females have a good attitude. For marital status, 53 (33.8%) are single, 146 (60.6%) are married and 3 (42.9%) divorced/widowed have a good attitude towards COVID-19. Also, 4 (23.5%) of those with secondary education and 198 (51.0%) of those with tertiary education have a good attitude towards COVID-19. 106 (70.7%)

of government employees have a good attitude towards COVID-19 while less than 50% of the other groups have a good attitude. 183 (49.7%) of Christians and 18 (62.1%) of Muslims have a good attitude towards COVID-19. 188 (52.7%) of Yorubas and 9 (29.0%) of Igbos have a good attitude towards COVID-19.

There was a significant association between age, gender, marital status, level of education, employment status, religion, ethnic group, and attitude towards COVID-19.

Table 4. *Chi-square analysis showing an association between the practices of community members about COVID-19 and Socio-demographics characteristics of respondents.*

	mean	Std	range	Min	Max
Practice score	7.07	1.07	5.00	3.00	8.00

Variables	Practice		X^2	P-value
	Good n (%)	Poor n (%)		
Age (years)				
18-34	147 (70.3)	62 (29.7)	5.746	0.057
35-54	112 (80.6)	27 (19.4)		
55+	46 (80.7)	11 (19.3)		
Gender				
Male	168 (76.0)	53 (24.0)	0.132	0.717
Female	137 (74.5)	47 (25.5)		
Marital status				
Single	105 (66.9)	52 (33.1)	9.897	0.007*
Married	194 (80.5)	47 (19.5)		
Divorced/widow	6 (85.7)	1 (14.2)		
Highest level of education				
Secondary education	13 (76.5)	4 (23.5)	0.013	0.910
Tertiary education	292 (75.3)	96 (24.7)		
Employment status				
Government employed	118 (78.9)	32 (21.3)	7.416	0.060
Private employed	77 (68.8)	35 (31.2)		
Self-employed	80 (81.6)	18 (18.4)		
Unemployed	30 (66.7)	15 (33.3)		
Religion				
Christianity	274 (74.5)	94 (25.5)	7.838	0.020*
Islam	27 (93.1)	2 (6.9)		
Others	4 (50.0)	4 (50.0)		
Ethnic group				
Yoruba	272 (76.1)	85 (23.8)	2.655	0.265
Igbo	23 (74.2)	8 (25.8)		
Others	10 (58.8)	7 (41.2)		

Table 4 above reveals that 147 (70.3%) of those aged 18-34 years, 112 (80.6%) of those aged 35-54 years and 46 (80.7%) of those aged 55 years and above have good practices towards infection prevention during the COVID-19 pandemic. 168 (76.0%) of males and 137 (74.5%) females have a good practice. More than 50% of the single (66.5%), married (80.5%), divorced/widowed (85.7%) have good practice towards COVID-19 infection prevention. 13 (76.5%) of those with secondary education and 292 (75.3%) of those with tertiary education have a good practice. 274 (74.5%) of Christians and 27 (93.1%) of Muslims have good practices towards COVID-19 infection prevention.

There was no significant association between age, gender, level of education, employment status, ethnic group, and practices towards COVID-19 infection prevention.

However, there was a significant association between marital status (X^2=9.897, P=0.007), religion (X^2= 7.838, P= 0.020), and practices towards COVID-19 infection.

4. Discussion

In general, only about (36.50%) of the participants in this survey showed a high level of knowledge about COVID-19. This is similar to a study conducted by Azlan et al 2020, [19] who reported moderate knowledge among Malaysians.

On the contrary, several studies conducted in north-central Nigeria [20] and other countries have indicated a good and high level of COVID-19 knowledge among the general population [12, 18]. Differences in measurement and scoring systems do not make it possible for accurate comparisons of knowledge levels across these studies.

Respondents receive information about COVID-19 from multiple sources. Mass media (TV, newspaper, radio) (93.1%), internet (google, Wikipedia, etc.) (81.7%), and social media (WhatsApp, Facebook, Twitter, etc.) (85.4%) represents the most common sources of information by the respondents in this study. Although the internet and social media platforms provide easy and accessible ways of getting information, they can also be a source of misinformation. Also, the overload of information from different sources may have caused confusion and difficulty ascertaining correct information. Caution about the use of these platforms must be lauded, to avoid the spread of fabricated data and rumours. Also, a preliminary assessment by Olapegba et al., 2020 [4]

of novel Coronavirus (COVID-19) knowledge and perceptions in Nigeria among the general public during the initial week of the pandemic lockdown in the country, he observed that the traditional media (TV/Radio) are the most common source of health information about COVID-19 (93.5%) but stated the perception and misconception need to be addressed in line with evidence-based measure.

Although, NCDC started using different means of communication, including television and mobile messages, to educate the public about the disease, Government, health agencies, and community leaders need to liaise and intensify efforts in providing accurate and updated information to regularly enlighten community members about COVID-19.

Among our participants, there was a significant association between age and knowledge about COVID-19. The mean knowledge score of those aged 55 and above was lower compared to the other younger age groups. In a study carried out by Abdelhafiz et al., [18] among the Egyptian population, he also reported a significantly lower knowledge score among older participants.

This is important since they may denote that more efforts should be exerted to deliver the messages to these age groups especially as they are one of the high-risk groups for contracting COVID-19.

In general, only about an average (49.90%) of the respondents showed a good or positive attitude towards COVID-19. This is not in line with previous studies conducted in China and Malaysia, where a large majority of participants held positive attitudes toward COVID-19 [12, 19]. The authors attributed this positive attitude to the swift and drastic measures taken by the government in mitigating the spread of the virus. However, in this study, most of the respondents believe that Nigeria is not handling the COVID-19 crisis well. This lack of faith in the government to handle the situation might be due to the belief of some, that the COVID-19 is just propaganda by some leaders to pursue their selfish interests and this may also have contributed to the low rate at which the people exhibit good attitude towards COVID-19. Reuben et al., 2020 [20] also reported a similar finding in north-central Nigeria. Further encouragement and assurance from the government are needed to address these issues to encourage a positive attitude among her citizens towards the fight against COVID-19. Also, the attitude towards COVID-19 varied across different demographic groups. The majority of those between age 35 and above showed a good or positive attitude towards COVID-19 compared with those 18 and 34 years of age with the mean attitude score higher in those 55 years and above and lowest in those less than 35 years old. Also, those that were married showed a good attitude compared to the singles.

This is noteworthy and needs to be addressed, from what we know of the virus, older age is a high-risk factor for developing a severe case of the disease while younger age is mostly asymptomatic or mild symptoms [21]. However, the attitudes of these younger groups are very important not just to protect themselves but to protect other vulnerable groups,

as younger groups can go about without symptoms and yet still spread the virus. This is also supported by previous studies suggesting that men and late adolescents are more likely to engage in risk-taking behaviour [22]. There is a need to focus awareness among the younger age groups to quit nonchalance and take more responsibility to help in preventing the further spread of this virus.

While the health burden of COVID-19 is important, the economic burden should not be overlooked. We recognized a difference between the number of participants who thought that their salary will be continued if they are isolated (69.6%) and those who believed it should be continued (93.3%). A study by Abdelhafiz et al [18] on the attitude of COVID-19 among the Egyptian population also reflects a similar pattern. This is important because it reflects the financial fears of participants, which could also be reflected in their attitude e.g. in the form of underreporting of cases or prioritizing financial needs over positive health behaviour. The Nigerian government has dished out different palliative measures to help relieve its citizens of the financial burden imposed during this pandemic. However, these measures need to be channelled to support the most affected groups within the economy.

In this study, there was a significant association between age, gender, level of education, employment status, religion, ethnic group, and attitude towards COVID-19.

A similar study by Olapegba et al [4] showed an association between religious belief and carefree attitudes among Nigerians as a reasonable percentage of his study participants believed that COVID-19 was caused by sin and unbelief which may foster a carefree attitude and resort to only prayers and spiritual healings without adhering to the prescribed hygiene practice.

Regarding practice, in general, this study shows that the majority (75.3%) of the respondents has good COVID-19 prevention practices. This is similar to the study carried out among Iranians by Erfani et al., 2020 [23], Chinese residents by Zhong et al 2020, Olapegba et al 2020 [5, 12] revealed also that most of the participants took precautions to avoid contamination by COVID-19.

In this study, there was a significant association between marital status, religion, and COVID-19 preventive practices. Similarly, a study by Erfani et al 2020 [23] revealed that potentially unsafe practices were associated with marital being single.

However, this study reveals that community members show better practices towards COVID-19 infection prevention but less knowledge and a less positive attitude towards the virus. This pattern is different from what has been found in previous studies [12, 18, 23]. The reason for this could be that community members in Lagos are being forced to carry out preventive measures even though they lack adequate knowledge and a positive attitude towards the virus. They are still obliged to practice the preventive behaviour because the government-mandated it and attached penalty for defaulters as allowed under the State's Public Health Law and Federal Quarantine Act, Q2 LFN 2004 [24].

Hence, more awareness should be geared towards improving the knowledge of community members about COVID-19 and encouraging a positive attitude, knowing why they have to do what they are asked to do will facilitate more personal responsibility and voluntary positive response towards maintaining safety practices in the fight against COVID-19. Studies have reported that a higher level of knowledge is associated with a lower likelihood of negative attitudes and potentially dangerous practices [12]

5. Conclusion

To conclude, the findings of this study suggest that community members in Ikeja, Lagos did not demonstrate good knowledge nor positive attitudes towards COVID-19, however, they demonstrated good safety practices regarding COVID-19. Also, the poor attitude was more prevalent among the older adolescent and youth and this can pose a serious risk to other members of the community. Health education intervention would be more effective if it targets certain demographic groups, for example, the COVID-19 knowledge may be greatly increased if the health education programs are specifically designed for different age groups, younger age groups, people with a low level of education, people in religious settings.

6. Recommendation

Although the government has taken major steps to limit the spread of the disease, more effort is needed to support the most affected groups. For instance, Education programs targeted towards the younger community members to be aware that even though they are low risk, they are not immune to COVID-19, and their attitude towards infection prevention practices is not only for themselves but also to help keep other members of the community safe, especially the high-risk group. Health education programs should be channelled towards improving the knowledge and attitude of community members by disseminating to them the right information, so they are aware of the need to take voluntary and personal responsibility towards infection prevention and control during this pandemic to maintain safe practices among community members.

Interactions between government, health agencies, community leaders, and religious leaders should also be encouraged to facilitate a better outcome.

References

[1] Cucinotta, D., & Vanelli, M. (2020). WHO Declares COVID-19 a pandemic. *Acta bio-medica: Atenei Parmensis*, *91* (1), 157–160. https://doi.org/10.23750/abm.v91i1.9397

[2] Ge, H., Wang, X., Yuan, X., Xiao, G., Wang, C., Deng, T., Yuan, Q., & Xiao, X. (2020). The epidemiology and clinical information about COVID-19. *European journal of clinical microbiology & infectious diseases: official publication of the European Society of Clinical Microbiology*, *39* (6), 1011–

1019. https://doi.org/10.1007/s10096-020-03874-z

[3] Qian, X., Ren, R., Wang, Y., Guo, Y., Fang, J., Wu, Z. D., Liu, P. L., Han, T. R., & Members of Steering Committee, Society of Global Health, Chinese Preventive Medicine Association (2020). Fighting against the common enemy of COVID-19: a practice of building a community with a shared future for mankind. *Infectious diseases of poverty*, *9* (1), 34. https://doi.org/10.1186/s40249-020-00650-1

[4] Olapegba, P. O. & Ayandele, Olusola & Kolawole, Samson & Oguntayo, Rotimi & Gandi, Josua & Dangiwa, Abdullahi & Ottu, Iboro & Iorfa, Steven Kator. (2020). A Preliminary Assessment of Novel Coronavirus (COVID-19) Knowledge and Perceptions in Nigeria. *SSRN Electronic Journal*. 10.2139/ssrn.3584408.

[5] Nigeria Centre for Disease Control (2020): COVID-19 Nigeria: confirmed cases by states: https://COVID-19.ncdc.gov.ng

[6] Ewodage, R. (March 22, 2020). *COVID-19: How We Plan to Implement Social Distancing In Lagos Markets, Transport System – Sanwo-Olu.* Available online at https://www.channelstv.com/2020/03/22/COVID-19-how-we-plan-to-implement-socialdistancing-in-lagos-markets-transport-system-sanwo-olu/

[7] Hussain, Z. A., Hussain, S. A., & Hussain, F. A., (2012). Medical students' knowledge,

[8] perceptions, and behavioural intentions towards the H1N1 influenza, swine flu, in Pakistan: a brief report. *Am. J. Infect. Control 40* (3), e11–e13. doi: 10.1016/j.ajic.2011.12.004.

[9] Ogboghodo, E. O., Adam, V. Y., Omuemu, V. O., Okojie, O. H. (2019). Knowledge, Attitude and Preventive Practices Against Lassa Fever Among Residents in a Rural Community in Southern Nigeria. *West Afr J Med*, 36 (2), 165-171.

[10] Olowookere, S. A., Adegbenro, C. A., Idowu, A., Omisore, A. G., Shabi, O. M., Ikem, U. R., Ekwere, G. A., & Oderinde, I. F. (2017). Knowledge Attitude and Practices Toward Lassa Fever Control and Prevention Among Residents of Ile-Ife, Southwest Nigeria. *International quarterly of community health education*, *37* (2), 107–112. https://doi.org/10.1177/0272684X17701261

[11] Abati, R. (2020). Corona blues. Available online at http://Sahara reporters.com/2020/04/07/corona-blues-reuben-abati

[12] Hussain, Asraf & Garima, Tripathi & Singh, Bishnu & Ram, Ramji & Tripti, Raman. (2020). Knowledge, attitudes, and practices towards COVID-19 among Nepalese Residents: A quick online cross-sectional survey. *Asian Journal of Medical Sciences*. 11. 6-11. 10.3126/ajms.v11i3.28485.

[13] Zhong, B. L., Luo, W., Li. H. M., Zhang, Q. Q., Liu, X. G., Li, W. T., & Li, Y. (2020). Knowledge, attitudes, and practices towards COVID-19 among Chinese residents during the rapid rise period of the COVID-19 outbreak: a quick online cross-sectional survey. *International Journal of Biological Science,* 16 (10), 1745-1752. https://doi.org/10.7150/ijbs.45221

[14] Roy, D., Tripathy, S., Kar, S. K., Sharma, N., Verma, S. K., & Kaushal, V. (2020). Study of knowledge, attitude, anxiety & perceived mental healthcare need in Indian population during COVID-19 pandemic. *Asian journal of psychiatry*, *51*, 102083. Advance online publication. https://doi.org/10.1016/j.ajp.2020.102083

[15] Ilesanmi, O., & Alele, F. O. (2016). Knowledge, Attitude and Perception of Ebola Virus Disease among Secondary School Students in Ondo State, Nigeria, October 2014. *PLoS currents*, *8*, ecurrents.outbreaks.c04b88cd5cd03cccb99e125657eecd76. https://doi.org/10.1371/currents.outbreaks.c04b88cd5cd03ccc b99e125657eecd76

[16] Geldsetzer P. (2020). Knowledge and Perceptions of COVID-19 among the general public in the united states and the United Kingdom: a cross-sectional online survey. *Ann Intern Med.* M20-0912. doi: 10.7326/M20-0912.

[17] Blendon, R. J., Benson, J. M., DesRoches, C. M., Raleigh, E., & Taylor-Clark, K. (2004). The public's response to severe acute respiratory syndrome in Toronto and the United States. *Clinical infectious diseases: an official publication of the Infectious Diseases Society of America*, *38* (7), 925–931. https://doi.org/10.1086/382355

[18] Almutairi, K. M., Al Helih, E. M., Moussa, M., Boshaiqah, A. E., Saleh Alajilan, A., Vinluan, J. M., & Almutairi, A. (2015). Awareness, Attitudes, and Practices Related to Coronavirus Pandemic Among Public in Saudi Arabia. *Family & community health*, *38* (4), 332–340. https://doi.org/10.1097/FCH.0000000000000082

[19] Abdelhafiz, A. S., Mohammed, Z., Ibrahim, M. E., Ziady, H. H., Alorabi, M., Ayyad, M., & Sultan, E. A. (2020). Knowledge, Perceptions, and Attitude of Egyptians Towards the Novel Coronavirus Disease (COVID-19). *Journal of community health*, 1–10. Advance online publication. https://doi.org/10.1007/s10900-020-00827-7.

[20] Azlan, A. A., Hamzah, M. R., Sern, T. J., Ayub, S. H., & Mohamad, E. (2020). Public knowledge, attitudes and practices towards COVID-19: A cross-sectional study in Malaysia. *PloS one*, *15* (5), e0233668. https://doi.org/10.1371/journal.pone.0233668

[21] Reuben, R. C., Danladi, M. M. A., Saleh, D. A., Ejembi, P. E. (2020). Knowledge, Attitudes and Practices Towards COVID-19: An Epidemiological Survey in North-Central Nigeria. *J Community Health*. https://doi.org/10.1007/s10900-020-00881-1

[22] Chen, H., Guo, J., Wang, C., Luo, F., Yu, X., Zhang, W., Li, J., Zhao, D., Xu, D., Gong, Q., Liao, J., Yang, H., Hou, W., & Zhang, Y. (2020). Clinical characteristics and intrauterine vertical transmission potential of COVID-19 infection in nine pregnant women: a retrospective review of medical records. *Lancet (London, England)*, *395* (10226), 809–815. https://doi.org/10.1016/S0140-6736(20)30360-3

[23] Duell, N., Steinberg, L., Icenogle, G., Chein, J., Chaudhary, N., Di Giunta, L., Dodge, K. A., Fanti, K. A., Lansford, J. E., Oburu, P., Pastorelli, C., Skinner, A. T., Sorbring, E., Tapanya, S., Uribe Tirado, L. M., Alampay, L. P., Al-Hassan, S. M., Takash, H., Bacchini, D., & Chang, L. (2018). Age Patterns in Risk Taking Across the World. *Journal of youth and adolescence*, *47* (5), 1052–1072. https://doi.org/10.1007/s10964-017-0752-y

[24] Erfani A, Shahriarirad R, Ranjbar K, Mirahmadizadeh A & Moghadami M. (2020). Knowledge, Attitude and Practice toward the Novel Coronavirus (COVID-19) Outbreak: A Population-Based Survey in Iran. [Preprint]. Bull World Health Organ. *E-pub*: doi: http://dx.doi.org/10.2471/BLT.20.256651

[25] Joshua Bassey (2020, April 9): Lagos court sentences 2020 violators of COVID-19 stay at home directives: https://businessday.ng/coronavirus/article/joshua-bassey/: assessed on 30th July 2020. www.lagosstate.gov.ng/about-lagos: About Lagos: assessed on 15th June 2020.