



# Knowledge, Attitude and Perception of COVID 19 Pandemic among Residents of Gwagwalada Area Council, Abuja, Nigeria

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**Sources of financial support:** From the Authors

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## Summary

### BACKGROUND

The global spread of coronavirus disease 2019 with its high mortality is particularly worrisome. The objective of this study was to assess knowledge, attitude and perception of this disease among the urban and rural communities in Abuja, Nigeria.

### MATERIALS AND METHODS

A cross sectional community-based study was conducted among adults in Gwagwalada Area Council in Abuja, Nigeria during the pandemic. Face to face interviews applying the use of face mask and face shield were conducted during the period of intra-state lockdown lifting in Abuja from 1<sup>st</sup> to 30<sup>th</sup> June 2020.

### RESULTS

Awareness of the disease was high (94.8.7%) among the 1,740 respondents interviewed and so was knowledge on the mode of transmission and prevention. There was a strong positive relationship with sex, educational level and place of residence with mode of transmission, OR: 0.682, p=0.007, CI 0.517-0.901 for sex, OR: 6.591, p=0.000, CI 4.457-9.746 for level of education, and OR: 3.139, p=0.000, CI 2.328-4.234 for place of residence.

Same was also seen with educational level and place of residence for prevention of infection, OR: 7.81, p=0.000, CI 5.20-11.74) for level of education, and (OR: 1.63, p=0.000, CI 1.24-2.15) for place of residence. Majority (1402; 80.6%) had neither seen nor known anybody with the disease, and there was still a lot of stigma, misinformation/misconception about the disease.

### CONCLUSION

Awareness, knowledge on mode of transmission, and prevention of COVID-19 was high and strongly associated with level of education and place of residence. Debunking misinformation is required for effective fight against COVID-19.



**Keywords:** *Coronavirus Disease 2019, Knowledge, Attitude, Perception, Pandemic, Residents.*

*[Afr. J. Health Sci. 2021 34(1):117-133]*

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## Introduction

The ongoing global pandemic is caused by a highly contagious virus called severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), that causes coronavirus disease 2019 (COVID-19).<sup>1</sup> This virus was traced back to a wild life and seafood market in the Huanan, Wuhan, in China in 2019.<sup>2</sup> It is similar to other coronaviruses (CoVs) that previously caused severe acute respiratory syndrome coronavirus (SARS-CoV) epidemic in 2002, and Middle East respiratory syndrome coronavirus (MERS-CoV) of 2012.<sup>1,2</sup>

Although SARS-CoV-2 belongs to the same *Betacoronavirus* genus as SARS-CoV, and MERS-CoV, this virus is more widely transmitted in the community with greater risk of wider spread than the other two.<sup>2,3</sup> Primarily transmission is through respiratory droplets, and contact routes from touching the mucosae of the nose, mouth, and eyes.<sup>4</sup> The rapid spread of the infection with a short incubation period of 2-14 days causes immense burden on the health care system with high case fatality rates.<sup>5</sup> Symptoms include fever, cough, sore throat, fatigue and/or shortness of breath, diarrhea, nausea, and vomiting with risk of death in individuals above 50 years, and those with comorbidities such as hypertension, diabetes etc.<sup>6</sup>

The World Health Organization (WHO) declared the outbreak a public health emergency of international concern on 30<sup>th</sup> January 2020, and a pandemic on 11<sup>th</sup> of March 2020.<sup>7</sup> As of the month September 2020, more than 26,475,758 million cases of COVID-19 had been reported across the globe resulting in more

than 873,289 deaths, and over 18,666,139 million recoveries.<sup>7</sup>

In Nigeria in the same period, the Nigerian Center for Disease Control (NCDC) reported 54,587 confirmed cases, 1,048 deaths, and 42,627 recoveries.<sup>8</sup> The majority of the cases were from Lagos (7319 cases, 82 deaths), Federal Capital Territory (FCT), Abuja (1264 cases, 26 deaths) and Kano (1158 cases, 50 deaths).<sup>8</sup> The continent confirmed its first case in Egypt on 14<sup>th</sup> February, 2020, and sub-Saharan Africa had her first case in Nigeria on 27<sup>th</sup> February, 2020 from an Italian patient.<sup>9</sup> The continent's weak health care system with large immunocompromised population from malnutrition, anemia, malaria, HIV/AIDs, tuberculosis and poor economic discipline, made the situation particularly worrisome<sup>10</sup>.

The-CoV diseases are not common to African countries. With the rising number of confirmed cases to COVID 19 in the country, there was need to identify the knowledge and behavioral responses of the population during epidemics as such information was limited in the country.<sup>10</sup> Low awareness, and perception of diseases among the population is known to have a negative impact on preventive measures which may influence early detection and acceptability of the test for SARS-CoV-19.<sup>11-14</sup>

The government took a proactive step to curtail the spread of the virus based on the recommendation by WHO which included early disease surveillance, case detection/ isolation, voluntary home quarantine, social distancing, frequent hand washing, wearing of face mask, and restriction of movements<sup>15,16</sup>.



Current evidence suggests that the implementation of such responses can limit disease outbreak.<sup>17</sup> A recent study in Hubei, China, concluded that attitudes towards government measures to contain the epidemic were highly associated with the level of education level and degree of information.<sup>18</sup> This was similar to findings in Ghana<sup>19</sup> and India.<sup>20</sup> Knowledge of an infection process, its precautions, and perceived severity may be linked to the determination of citizens to follow government guidelines regarding quarantine measures.<sup>21</sup> It is, therefore, critical to educate affected populations to broaden their understanding of the disease cycle; and thus facilitate the adoption of measures to prevent the spread of the disease<sup>22</sup>.

There is limited information on knowledge, attitude and perception of the population about the COVID 19 pandemic in Nigeria. Most available information on COVID-19 are from online surveys which may provide some form of bias to the results.<sup>11-13,16-19,21</sup> This study is therefore aimed at getting information on knowledge, attitude and perception of the adult populace on COVID-19 in both rural and urban communities in Abuja, Nigeria using a paper based, face to face survey so that information among rural population at the grass root level with limited access to electricity, good road network, and internet services can also be employed. This would assist in identifying those psychological and social components that may play important roles in hindering the desired effect of the public health protocols that are aimed at curbing the spread of the COVID 19 disease.

## Materials and Methods

The study was a descriptive, cross sectional community-based survey involving the use of semi-structured questionnaires

administered on a face to face basis to the respondents while observing social distancing, use of face mask, and face shield by the research assistants.

The study period was 4 weeks from 1<sup>st</sup> to 30<sup>th</sup> of June 2020 in the 8 of the 10 wards of the GAC of FCT, Abuja during lifting of intra state lock down. The area council is one of the 6 area councils in the FCT, Abuja comprising 10 wards: four (4) urban, and 6 semi-urban and rural. Over one million people reside in the area council, which has class populated society with urban, semi-urban, and rural settlements. The area council is inhabited mainly by farmers, and other occupations such as employees in civil service, traders, business men, skilled and unskilled artisans. It is also the home of many institutions like University of Abuja Teaching Hospital, School of Nursing and Midwifery, University of Abuja, some governmental and private establishments, branches of the major banks, and tertiary and secondary schools, etc in its urban wards.

All the respondents consented to provide information for the research, and responses treated with confidentiality. The inclusion criteria were willingness to participate, residing in GCA, and 18 years and above. The questionnaires were administered to residents in households, business premises, and workplaces who consented to be interviewed. They were prepared in English and translated into the local languages of Gwari, Gbagi, Hausa and Pidgin for the respondents, with translators where necessary.

The demographic characteristics, knowledge, attitude, practices of respondents to COVID-19 was from the modification of questionnaire by Zegarra- Valdevia *et al*<sup>13</sup> with his consent. It consisted of 14 questions on mode of transmission, 18 on common symptoms, 21 on prevention and 11 on



perception of COVID 19. It also consisted of knowledge of people at risk of contracting COVID-19, likely place (s) of contracting the disease, stigma associated with the disease and associated fears/ beliefs concerning COVID-19. This was pretested and validated using a cohort of 20 respondents to ensure its suitability in Nigeria. The mean scores for mode of transmission and prevention was obtained and categorized as good when average was  $\geq$  half, or poor when  $\leq$  half the total score for each.

The study was a cross-sectional survey using a single population proportion formula of  $n = Z^2pq/d^2$  by Araoye<sup>23</sup>. A proportion of 50% was used since there was no published study on the above title in the country/continent when the study was carried out. An attrition of 10% was added, thus 250 respondents were interviewed per eight wards of the area council. A total of 2,000 questionnaires were administered, two wards were not interviewed because of logistic issues.

Ethics Clearance was obtained from the UATH Ethics Committee, and permission from the ward Heads.

Data analysis was using the statistical package for Social Sciences (SPSS) version 26. A frequency table was calculated and chi-square used to compare categorical variables. Univariate and multivariate linear regression were used to examine the associated demographic variables. Logistic regression was used to test the covariates with significant values. P value of  $<0.05$  was considered statistically significant.

## Results

Table 1 presented in the appendix depicts the demographic characteristics of the respondents. A total of 1740 questionnaires were analyzed. There were more males 886(50.9%), more (680; 74.2%) between the ages of 18 to 39

years, and more married people (963; 55.3%). Majority had tertiary level education (599; 34.4%), many (446; 25.6%) were businessmen, and students (431; 24.8%), and most participants (1078; 62.0%) were living in rural wards.

Table 2 shows respondents knowledge of COVID-19. While many (720; 41.4%) knew COVID-19 as a viral infection, a few still believed it was a political propaganda 33 (1.9%) or developed from the laboratory 76(4.4%). A greater percentage 1454 (83.6%) acknowledged the origin of the disease from China, 621(35.7%) knew the first case in Nigeria was in February 2020.

While 94.8% were aware of the disease 1452 (83.5%) heard of it through media (radio, television, and newspaper), and 67.3% from the internet. Fourteen days' incubation period was acknowledged by 1413 (81.2%) respondents, while 1489 (85.7%) knew the disease can be contracted from a crowded environment. Majority (1233; 71.2%) and 1222 (70.3%) were aware of the increased risk of the disease to persons with co-morbidities and aged 60 years  $\geq$ .

Majority (75.7%) were knowledgeable of the mode of transmission (table 2), with mean knowledge score of  $9.79 \pm 4.3$  Vs  $5.88 \pm 4.0$  for those with higher education, and no education, ( $p < 0.001$ ). Mean score was  $12.56 \pm 5.3$  Vs  $5.72 \pm 4.6$  for high and no education for prevention,  $p < 0.001$ , (Fig 1a). The mean knowledge score for urban and rural settlers was also  $10.11 \pm 3.6$  Vs  $7.67 \pm 4.6$  for mode of transmission,  $p < 0.001$ , and  $11.59 \pm 5.5$  Vs  $7.37 \pm 4.9$  for prevention,  $p < 0.001$  (Fig 1b). The respondents were equally knowledgeable on the symptoms and signs of the disease (Fig 2).

Table 3 shows the relationship between demographic characteristics and mode of transmission and prevention of COVID-19. Statistically significant association was seen



between mode of transmission and sex ( $\chi^2=7.97$ ,  $p=0.005$ ), level of education ( $\chi^2=198.4$ ,  $p=0.000$ ), marital status ( $\chi^2=8.59$ ,  $p=0.01$ ), and place of residence ( $\chi^2=192.9$ ,  $p=0.000$ ). For prevention, significant association was also seen with level of education, and place of residence ( $\chi^2=147.3$ ,  $p=0.000$ ), and ( $\chi^2=95.06$ ,  $p=0.000$ ) respectively.

Multiple logistics regression for mode of transmission and prevention of COVID-19 with demographic variables was shown in table 4. A strong relationship was seen between sex, level of education, and place of residence with mode of transmission: (OR: 0.682,  $p=0.007$ , CI 0.517-0.901) for sex, (OR: 6.591,  $p=0.000$ , CI 4.457-9.746) for tertiary education, and (OR: 3.139,  $p=0.000$ , CI 2.328-4.234) for place of residence.

A strong relationship was also documented for prevention of COVID-19 with level of education and place of residence: (OR: 7.81,  $p=0.000$ , CI 5.20-11.74) for tertiary education, and (OR: 1.63,  $p=0.000$ , CI 1.24-2.15) for place of residence.

Table 5 depicts respondents' perception of COVID-19. Though 1384(79.5%) knew COVID-19 was real, majority 1402 (80.6%) had neither seen nor known anybody with the disease, majority 1485 (85.6%) also associated the disease with stigma. Important stigma increases risk of infecting others 1340 (77.0%). Some 695 (40.0%) still thought somebody recovered from COVID-19 to still be infectious, and only a handful 35 (2.0%) knew that asymptomatic people could be infectious.

The greatest fear of the respondents was being in contact with people with flu-like symptoms, (1552; 87.8%) and fear of people returning from abroad (1380; 79.4%); while their least fear was running out of face mask and hand sanitizer (880; 50.6%).

Most 1402 (80.6%) did not seek medical help when ill during pandemic because 821(47.2%) felt the illness was not serious enough for medical assistance, 102(5.9%) thought people might be thinking they have COVID-19, while 62 (3.7%) thought they will be put in isolation ward.

## Discussion

SARS-CoV-2 is not only the current ongoing global pandemic, but also the most widely discussed topic in every facet of life, hence the aim of this study being to assess the level of knowledge, attitude and perception of this disease by the residents in the GAC of Abuja, Nigeria.

As of 20<sup>th</sup> September 2020 Nigeria ranked the 3<sup>rd</sup> in Africa with a cumulative number of COVID-19 cases of 57,145.<sup>24</sup> The government in the preceding months relaxed some of the mandatory protective measures, while adherence to these measures was still limited.<sup>18</sup> Previous reports of psychological adherence to protective guidelines of this pandemic displayed level of information and education to have positive attitude toward COVID-19 preventive practices.<sup>23</sup> This was also documented in the present study where the respondents showed a high level of awareness (94.8%), through the mass media (radio, television, newspaper) and internet in 83.5%, and 67.3% respectively, thus indicating the effort of the government and relevant authorities in ensuring mass media coverage of the disease. This is similar to findings in Africa<sup>11,12,17,19</sup> and other parts of the world<sup>12,15,16,18</sup>.

The high level of awareness in this study might also be related to age of majority (94.7%) of the respondents who were  $\leq 49$  years old, indicating a Nigerian demographic where most of the populace are young.<sup>25</sup> Because the youth are considered to be the most informed, and up-



to-date with current trends,<sup>26,27</sup> COVID-19 inclusive<sup>26</sup>. Their views are usually very crucial. Only 5.3% were reported not to be aware of COVID-19 in this study, and these are mostly  $\geq$  50 years old. These are people having challenges of age discrimination, maltreatment and neglect with barriers related to literacy level, language; visual and hearing impairments and that may be amplified during the COVID-19 crisis<sup>28</sup>. Many of the aged living in rural areas do not have access to digital technology<sup>28</sup> and may rely on family and community information which may be incorrect, incomplete or inappropriate.

The good awareness of COVID-19 pandemic in this study could also be due to the level of education of respondents, majority (76.9%) having either secondary or tertiary or post tertiary education. Similar findings from other studies<sup>11, 13, 17, 29-31</sup> showed knowledge to be a critical modifier to positive attitudes toward COVID-19 preventive practices. Well-educated people have a better understanding of control measures and preventive strategies related to COVID-19.<sup>13</sup>

This study also indicated high knowledge on mode of transmission, prevention, and clinical symptom of COVID-19 by the respondents. A statistically significant difference on the above parameters was seen between the educated, and the non-educated, and between those living in urban and rural areas. Their mean knowledge score for mode of transmission was  $9.79 \pm 4.3$  Vs  $5.88 \pm 4.0$  for high and no education, ( $p < 0.001$ ), and  $12.56 \pm 5.3$  Vs  $5.72 \pm 4.6$  for same for prevention,  $p < 0.001$ . Same statistically significant difference was also observed for mode of transmission, and prevention for those living in rural and urban areas.

A strong relationship was seen between level of education and place of residence with mode of transmission: (OR: 6.591,  $p = 0.000$ , CI

4.457-9.746) for tertiary level of education, and (OR: 3.139,  $p = 0.000$ , CI 2.328-4.234) for place of residence. Strong relationship was also documented for prevention of COVID-19 with level of education and place of residence: (OR: 7.81,  $p = 0.000$ , CI 5.20-11.74) for tertiary level of education, and (OR: 1.63,  $p = 0.000$ , CI 1.24-2.15) for place of residence.

Similar studies in Nigeria,<sup>11</sup> other Africa countries<sup>17,29,30</sup> and beyond<sup>13,18,29-31</sup> also showed good COVID-19 knowledge on mode of transmission and preventive measures. This they attributed to extensive media coverage of the disease by their governments. However, one area of concern which was also documented by Isah *et al*<sup>11</sup> in the present study was the very low level of knowledge on COVID-19 transmission (2.0%) by asymptomatic infected persons which will have a negative implication on the fight against the disease.<sup>32</sup>

Regarding the common symptoms of COVID-19, majority (50%-92%) were aware of common symptoms such as fever, sneezing, dry cough, shortness of breath, loss of smell, nasal congestion, runny nose, and loss of taste. This was also documented in other studies<sup>11,13,18-20,22,29-31</sup> and was attributed to level of education of their study population. The incubation period of 14 days of the disease was well recognized by 81.2% respondents in this study signifying adequate knowledge, however majority were still equating these symptoms to malaria probably from its endemicity in the region, and the surrounding use of chloroquine in the treatment of COVID-19. It is, therefore, important to emphasize on the kinds of information given to people by the media as many people depend on them as major sources of information.

One of the reasons relevant authorities in the country did not release names/ pictures of infected people was because of stigma and



discrimination that would have had a negative impact on care, and outcomes of infected person.<sup>33</sup> Our study showed the major stigma/discrimination as being fear of getting infected (85.6%) by treated/recovered person(s) or somebody returning from isolation centers.

Medical circumstances were also identified, relating to increased perception of vulnerability to specific medical situations. For example, 45.3% respondents believed COVID-19 spread was related to people who work in the hospital or emergency room and 70.4% believed that going into hospitals aided in the transmission of the disease. This affirmation could promote stigma to hospital personnel. Additionally, 40.8% of respondents mentioned blood transfusion as a means of contacting COVID-19.

According to some respondents, since both HIV and COVID-19 are viral both infections, and HIV can be contracted via blood transfusion, why not COVID-19. This type of misconception of HIV and COVID-19 demonstrates inaccurate and misguided information source which might be very damaging in the management and control of the pandemic, and could undermine efforts for immediate and long-term control measures, especially vaccine development.<sup>34</sup>

In the study as well, only 50.6% of respondents were afraid of running out of face masks and hand sanitizers, showing the level of negligence and lack of cooperation with laid down rules and regulations.

The study also shows that 80.6% of people who took ill during the peak of the coronavirus pandemic did not seek medical help, because of fear of either being infected in the hospital (17.3%), or people thinking they had the disease (5.9%), however majority (47.2%) admitted the non-seriousness of their ill-health for not seeking medical attention. It is, therefore,

important for local stations to include campaigns to debunk misinformation that is very critical for fighting against COVID-19, considering the previous skepticisms in some regions in the country regarding childhood vaccination.

The attitude of individuals influences the effectiveness of containment measures which would eventually affect their own health status and that of their close relatives.<sup>35</sup> Understanding the people's perception of risk is critical to ensure efficient health protection practices during virus outbreaks. What is interesting to consider is that, people make judgments based on their own perception of risk, but not on the real risk.<sup>13</sup> While 79.5% respondents believe that COVID-19 is real, majority (80.6%) however claimed they had neither seen nor know anyone with the disease, supporting the general belief that the disease is the disease of the rich affluent people leaving in air-conditioned places and those returning from overseas.

## Conclusion

Awareness, knowledge on mode of transmission, prevention, and common symptoms of COVID-19 was high in this study. However, knowledge on the infectiousness of an asymptomatic person was not enough to elicit desired behavioral change. There is still a lot of misunderstanding and perception of risk about COVID-19 that requires local stations to campaign and debunk for fighting against the disease.

## Acknowledgements

We wish to acknowledge the Ward Heads of the Gwagwalada Area Council for their permission to interview their people.

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## Appendix

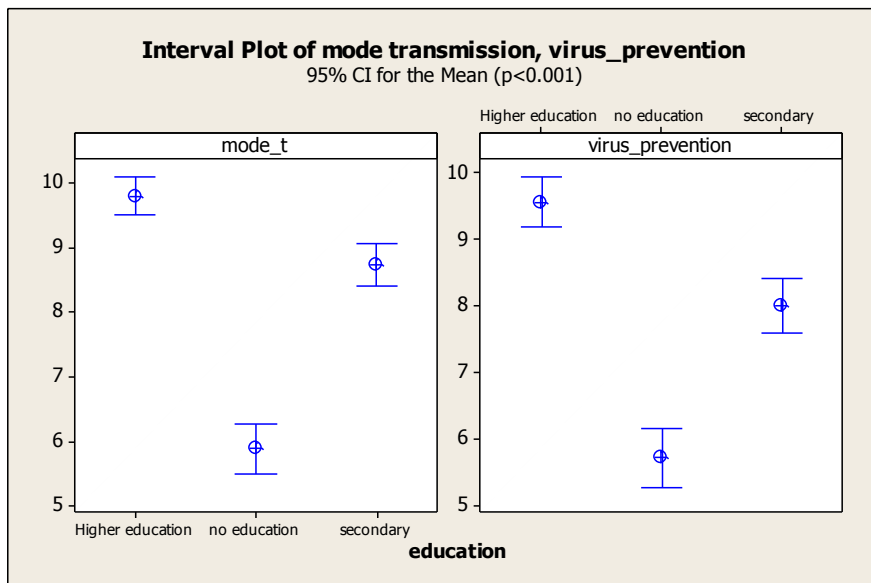
*Table 1: Demographic Characteristics of Respondents*

<b>Variables</b>	<b>Frequency (%)</b>
Sex	
Male	886(50.9)
Female	854(49.1)
Age category (Years)	
18-29	680(39.0)
30-39	612(35.2)
40-49	356(20.5)
50-60	70(4.0)
>60	22(1.3)
Marital Status	
Single	708(40.7)
Married	963(55.3)
Divorced and Cohabitors	55(3.2)
Widows and Widowers	14(0.8)
Educational level	
No Education	204(11.7)
Primary	198(11.4)
Secondary	572(32.9)
Tertiary	599(34.4)
Post Tertiary	167(9.6)
Occupation	
Student	431(24.8)
Unemployed	135(7.8)
Business	446(25.6)
Civil Servants	287(16.5)
Private Employment	121(7.0)
Petty Traders	93(5.3)
Farmers	227(13.0)
Urban Wards in the Area Council	
Gwagwalada Central	235(13.5)
Quarters	209(12.0)
Kutunku	218(12.5)
Rural Wards in the Area Council	
Dobi	217(12.5)
Gwako	216(12.4)
Ibuwa,	218(12.5)
Tungan Maje	220(12.6)
Paiko-Kure	207(11.9)
Total	1,740(100)

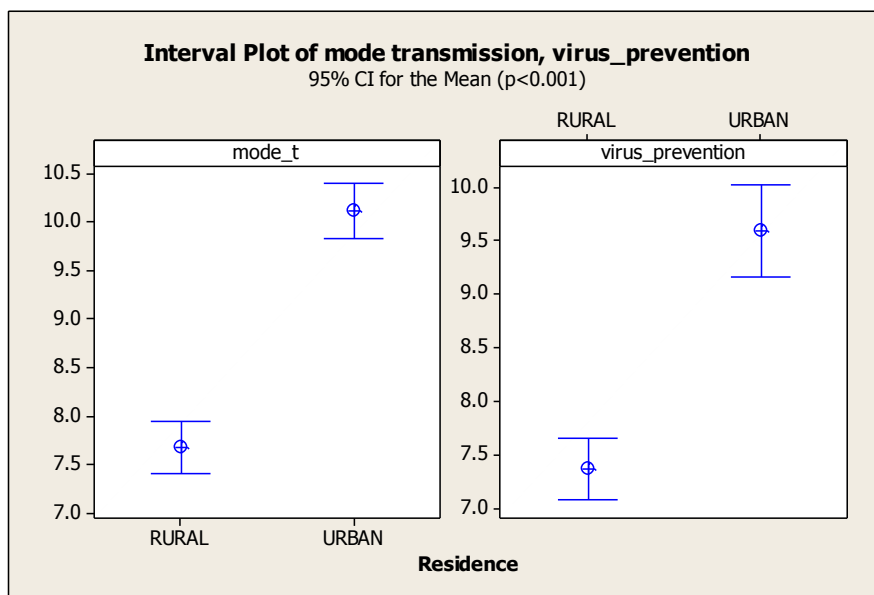


**Table 2: Knowledge about Mode of Transmission and Prevention of COVID-19.**

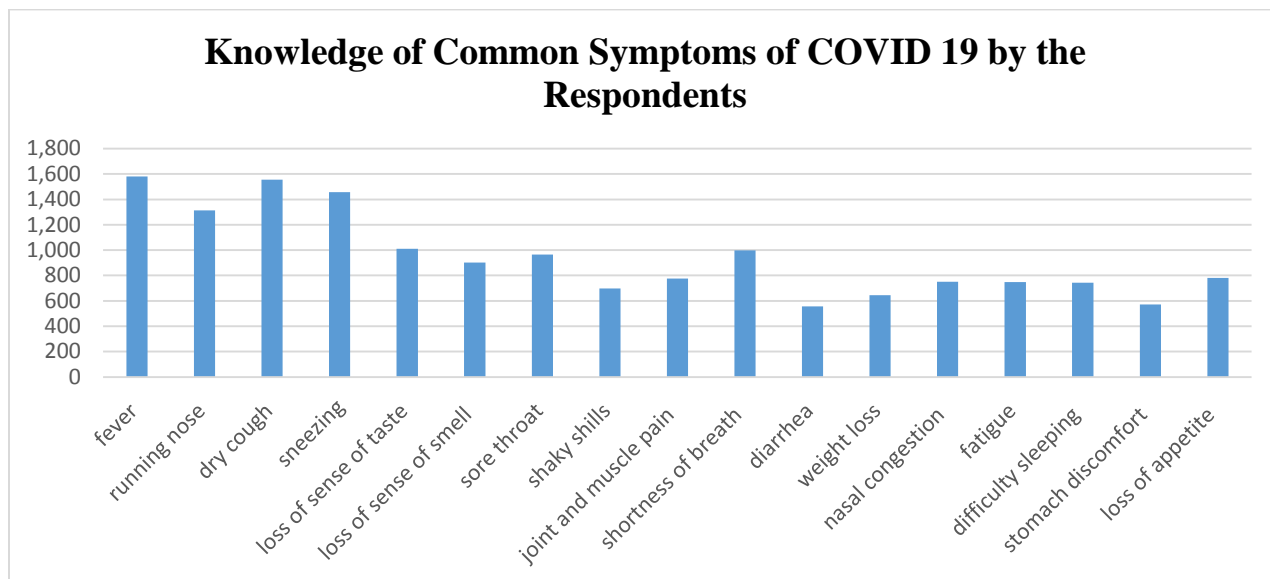
<b>Knowledge</b>	<b>Frequency(%)</b>
What is the mode of transmission of COVID-19	
Coughing/sneezing by people infected person	1,307(75.5)
Going to areas/countries affected by COVID 19	1,091(62.9)
Touching objects/surfaces that was in contact with someone with the virus	1,149(66.2)
Touching face, nose eyes with infected hands	1,205(69.3)
Shake hands with someone infected with COVID19	1,325(76.2)
Being on the same airplane with someone with COVID 19	955(55.0)
Being in crowded places :	1,174(67.7)
Eating food prepared by infected or exposed person	776(44.9)
Receiving in blood transfusion from infected person	705(40.8)
Relating to people working in a hospital or emergency room	783(45.3)
Going to hospital	1,225(70.4)
Not using protective gears indicated by health officials :	976(56.2)
Having sex with infected person	1,231(71.0)
Kissing an infected person	1,261(72.8)
Knowledge about Prevention of COVID-19	
Washing of hands vigorously with soap and water for 20 seconds	1,456(83.8)
Good personal hygiene	1,026(54.6)
Living healthy lifestyle	947(54.6)
Daily temperature monitoring	685(39.5)
Avoid travelling abroad	821(47.4)
Use of nose mask	1,353(78.0)
Staying at home	1,166(67.2)
Avoiding crowded places	966(55.7)
Separation of infected person in the isolation center	1,191(68.6)
Use of alcohol based hand sanitizers	500(28.9)
Check symptoms on the websites	709(40.9)
Avoid going to hospital	742(42.8)
Avoid public transportation	335(19.3)
Antibiotics are the first-line treatment	990(44.1)
Cooking foods properly	777(44.8)
Maintaining social distancing	
Avoid buying food from vendors not wearing the nose mask	1,233(71.2)
People at Risk of Contacting COVID-19	837(48.1)
People with underlying health problems like diabetics, hypertension, cancer	1,222(70.3)
Children <18years	876(50.5)
People > 60 years	1,098(63.2)
Pregnant women	899(51.8)
Health personnel	997(57.4)
Journalists'	822(47.3)
Transport personnel	781(44.9)
The affluent	1,270(73.1)
Law enforcement agents	
General public	



**Figure 1a: Interval Plot for Mode of Transmission and Prevention of COVID-19 for Level of Education**



**Figure 1b: Interval Plot for Mode of Transmission and Prevention of COVID-19 for Place of Residence**



**Figure 2: Knowledge of Common Symptoms of COVID 19 by the Respondents**

**Table 3: Relationship between Demographic Characteristics of Respondents and Knowledge of Mode of Transmission and Prevention of COVID-19**

Knowledge on Mode of Transmission	Degree of knowledge				Knowledge on Prevention	Degree of knowledge					
	Poor	Good	Total	X <sup>2</sup>		P-value	Poor	Good	Total	X <sup>2</sup>	P-value
<b>Sex</b>					<b>Sex</b>						
Male	291	595	886	7.97	0.005	Male	478	408	886	0.72	0.40
Female	336	518	854			Female	478	376	854		
Total	627	1113	1740			Total	956	784	1740		
<b>Age (years)</b>						<b>Age (years)</b>					
18-39	455	837	1,292	1.92	0.38	18-39	729	563	1292	5.13	0.08
40-55	139	217	356			40-55	184	172	356		
56->60	36	56	92			56->60	39	53	92		
Total	630	1110	1740			Total	952	788	1740		



**Table 3: Relationship between Demographic Characteristics of Respondents and Knowledge of Mode of Transmission and Prevention of COVID-19 Continued**

<b>Level of Education</b>					<b>Level of Education</b>				
None	268	402	198.4	0.000	None	317	402	147.3	0.000
	134					85			
Secondary	182	572			Secondary	331	572		
	390					241			
Tertiary	184	766			Tertiary	313	766		
	582					453			
Total	634	1740			Total	961	1740		
	1106					779			
<b>Marital Status</b>					<b>Marital Status</b>				
Single	210	708	8.59	0.01	Single	389	708	0.39	0.82
	498					330			
Married	412	1032			Married	562	1032		
	622					459			
Total	620	1740			Total	951	1740		
	1120					789			
<b>Employment</b>					<b>Employment</b>				
None	258	566	1.90	0.17	None	308	566	0.01	0.96
	308					258			
Employed	432	1174			Employed	665	1174		
	742					509			
Total	690	1740			Total	973	1740		
	1050					767			
<b>Residence</b>					<b>Residence</b>				
Urban	130	594	192.9	0.000	Urban	196	594	95.06	0.000
	464					398			
Rural	928	1146			Rural	969	1146		
	218					177			
Total	1058	1740			Total	1165	1740		
	682					575			



**Table 4: Logistics Regression for Demographic Characteristics and Knowledge of Mode of Transmission and Prevention of COVID-19.**

Mode of Transmission	Variable	p-value	Odd ratio	95% Confidence Interval for OR		Mode of Prevention	Variable	p-value	Odd ratio	95% Confidence Interval for OR	
				Lower	Upper					Lower	Upper
<b>Sex</b>	Male					<b>Sex</b>	Male				
<b>Education</b>	Female None/1 <sup>0</sup>	0.007	0.682	0.517	0.901	<b>Education</b>	Female None/1 <sup>0</sup>	-	-	-	-
	2 <sup>0</sup>	0.00	3.651	2.501	5.329		2 <sup>0</sup>	0.000	3.90	2.62	5.81
<b>Marital Status</b>	3 <sup>0</sup> Single	0.00	6.591	4.457	9.746	<b>Marital Status</b>	3 <sup>0</sup> Single	0.000	7.81	5.20	11.74
	Married	0.36	0.874	0.657	1.163		Married	-	-	-	-
<b>Residence</b>	Widow/ Widower Rural	0.57	1.575	0.333	7.442	<b>Residence</b>	Widow/ Widower Rural	-	-	-	-
	Urban	0.000	3.139	2.328	4.234		Urban	0.001	1.63	1.24	2.15





**Table 5: Responders' Perception about COVID**

<b>Perception</b>	<b>Frequency (%)</b>
Do you believe COVID-19 is real	
Yes	1,384(79.5)
No	267(15.3)
I don't know	89(5.2)
Have you seen or know anybody with COVID-19	
Yes	264(15.2)
No	1,402(80.6)
I don't know	74(4.3)
Is there any stigma associated with COVID-19	
Yes	1,485(85.6)
No	214(12.3)
I don't know	35(2.0)
What is the associated stigma	
The person can infect others	1,340(77.0)
The person is promiscuous	85(4.9)
It is a curse/punishment	45(2.7)
I don't know	270(15.5)
What is your taught towards somebody who recovered from COVID-19	
Can still infect somebody	695(40.0)
Should always stay isolated even after treatment	130(7.5)
People to be very careful when coming in contact with such a person	207(11.9)
The person has been cured and can no longer infect others again	482(27.7)
No taught about the person	226(13.0)
What is your fear concerning COVID-19	
Fear when in contact with person with flu symptoms	1,552(87.8)
Fear of in contact with people just returning from abroad	1,380(79.4)
Fear of visiting hospitals	1,059(61.0)
Fear of coming in contact with people from the isolation center	1,153(66.3)
Fear of being in crowded environment	1,113(64.0)
Fear of running out of mask and sanitizers	880(50.6)
Fear of possible outbreak	969(55.8)
Fear of inadequate medications and treatment facilities	1,000(57.5)
Fear of losing source of livelihood	1,091(62.8)
Fear of being out of school	1,053(60.6)
Did you seek medical help during COVID Pandemic when ill	
Yes	338(19.4)
No	1,402(80.6)
Can infected person without symptoms transmit the disease	
Yes	35(2.0)
No	1650(94.8)
I don't know	55(3.2)
Reason for not seeking medical help	
People will think i have COVID-19	102(5.9)
I could get infected in the hospital	301(17.3)
I used self-medication	454(26.1)
It was not serious for hospital attention	821(47.2)