

# Assessment of Knowledge, Attitude and Practice of Prevention and Control of Covid-19 Outbreak: A Community Based Cross-Sectional Study in Benue State, North Central, Nigeria

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Article Submitted: 12th September, 2021. Published 22nd January 2022.

## ABSTRACT

The novel Coronavirus disease (COVID-19) remains a disease of public health emergency despite the measures put in place to mitigating the effects. We conducted a community-based cross sectional study on the knowledge, attitude and practices of prevention and control of the disease among 560 adults who lived in Benue State, Nigeria, between December, 2019 when the first case of the disease was announced in Wuhan China and March, 2021, via structured interviewer administered questionnaire. Multistage sampling technique was used to select the eligible respondents. Data was analyzed using Statistical Package for Social Sciences (SPSS) version 23.0 and presented in exploratory formats as frequency tables and charts. The age of the respondents ranged from 16-76 years with mean age of 36.4 ( $\pm$  13.1) years. Overall, 552(99.6%) were aware of COVID-19 and the predominant source of information was media 428(77.2%), 206(37.3%) attested to know persons infected with COVID-19 and 30(5.4%) had history of contacts with an infected person. Regular practice of hand washing, use of face mask and hand sanitizer was 20.2%, 40.1% and 42.5.4% respectively. Overall, 40.4% had good knowledge, 44.5% had good attitude and 56.4% had good practice scores. In order to mitigate the effect of COVID-19 in Benue, the State COVID-19 action committee need to intensify their campaign on health promotion and adherence to good practices of prevention and control of infection.

**Keyword:** Attitude, Knowledge, Practice, Covid-19, Benue, Nigeria



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 [10.5281/zenodo.5907221](https://doi.org/10.5281/zenodo.5907221)

### How to cite this article

Audu O, Ukpe D, Ngishe S, Anderson M, Erhies I Kur J et al., Assessment of Knowledge, Attitude and Practice of Prevention and Control of Covid-19 Outbreak: A Community Based Cross-Sectional Study in Benue State, North Central, Nigeria. *West J Med & Biomed Sci* 2022; 3 (1). 97-105. DOI: [10.5281/zenodo.5907221](https://doi.org/10.5281/zenodo.5907221)

## INTRODUCTION

There has been outbreak of various forms of diseases caused by the Coronaviridae family which the causative agent of the novel Coronavirus Disease 2019 (COVID-19) belonged to. Among these includes the zoonotic cases of 1965, severe acute respiratory syndrome (SARS-CoV) of 2003 and the Middle East Respiratory Syndrome (MERS-CoV) of 2014.<sup>1,3</sup> In December, 2019 the outbreak of the novel coronavirus, identified as SARS CoV-2, was noticed in Wuhan, a city in the Hubei province of China from where it spread to over 198 countries worldwide. On the 30<sup>th</sup> January 2020, the World Health Organization (WHO) labelled the disease as COVID-19 and declared it a global pandemic on 12<sup>th</sup> March 2020.<sup>4</sup> The first confirmed case in Nigeria was reported on 27<sup>th</sup> February, 2020 and a month later, Benue State recorded her first case. As of 24<sup>th</sup> July, 2020 a total of 38,948 confirmed cases were reported in Nigeria, and greater percentage of the confirmed cases were asymptomatic, a factor that was viewed to pose threat to the spread of the virus.<sup>5,6</sup>

At the early phase of the pandemic, the WHO in collaboration with other Organizations put up coordinated measures for limiting the spread. These include: restriction of movement in areas of transportation and travels, mass gathering, trades/commerce, and non-pharmaceutical measures like social distancing, use of facemask, hand washing, use of alcohol based hand sanitizers, personal protective equipment and isolation of persons that have come in contact with a confirmed case or experiencing symptoms of the viral infection.<sup>7-9</sup> Strict observances of these precautionary measures by the masses is key to controlling the disease. The COVID-19 action committee in Benue state made substantive efforts to control the disease through the aforementioned measures. It is therefore, imperative to understand the public awareness of the disease, attitude towards it and compliance with the preventive protocols. The main goal of the present study was to assess the level of

knowledge, attitude and practice of COVID-19 prevention and control among people of Benue State. In addition, the results could help update the awareness campaigns and provide baseline data for formulating future pandemic polices.

## MATERIALS AND METHODS

### Study Area

Benue State is one of the 36 States of Nigeria, located in the North- Central Geopolitical zone. The State has 23 Local Government Areas (LGAs) with an estimated population of 6,381,985 (projected from 2006 National Population Census). About a quarter (1,404,036.70) of the total population are women of reproductive age (15-49 years) and 31.7% are young people aged 10-24 years. The State lies between latitudes 6° 25' & 8° 8' N and longitudes 7° 47' and 10° 0' E. It shares boundaries with Nasarawa State in the North, Taraba State in the East, Republic of Cameroun in the South East, Cross River in the South, Enugu State in the South west and Kogi State in the West. The State has a tropical sub-humid climate, with two distinct seasons which are wet season and dry season. The wet season last for 7 months between April and October, while the dry season comes between November and March. Temperatures are generally very high during the day, particularly in March and April. Along the river valleys, these high temperatures plus high relative humidity produce debilitating weather conditions. Benue is rich in agriculture and popularly referred to as the Food Basket of the Nation. The major ethnic groups are the Tiv, Idoma and Igede. Other groups include: Etulo, Abakwa, Akweya and Nyifon.

There are 1,410 Health facilities in the State, of which 888 (63%) are public while 522 (37%) are private. Of the total public Health facilities, 24 (2.7%) are secondary while 2(0.2%) are tertiary and the remaining (97.1%) are Primary Health Care (PHCs) facilities. The secondary health facilities are under the State Hospitals

Management Board (HMB) while the PHCs are under the State Primary Health Care Board (SPHCB) in line with the policy of Primary Health Care under one Roof being implemented in the country. All the health facilities are linked through the two-way referral system. As at 3<sup>rd</sup> march, 2021, when the study was conducted there were 13,376 tested cases and 1,336 confirmed cases, corresponding to 9.9% positive rate. Of the total positive cases, Makurdi LGA constitutes about 22%.

### **Study Design and population**

The study was a community-based cross sectional study.

The study population was adults who lived in the State between December, 2019 when the first case of COVID-19 was announced in Wuhan China and March 3<sup>rd</sup> 2021, when the study was conducted. Those who are less than 16 years as at the time of the study and those who were seriously ill and cannot respond were excluded from the study. The eligible adults who refused to consent to the study were also excluded.

### **Sample Size Determination**

With 50% assumption of adults with good knowledge/appropriate practice of COVID-19 and 5% degree of precision at 95% confidence interval, a minimum sample size of 384.2 was arrived at using the formula  $[n=Z^2pq/d^2]$ .<sup>10</sup>. Considering a non-response rate of 10%, the calculated sample size was adjusted to 426 and later rounded up to 560 to increase the power of the study. An average of twenty-one respondents was purposively allocated to each of the 22 LGAs while 98 was allocated to Makurdi LGA. This was because a greater number of the COVID-19 cases recorded at the period of the study were in Makurdi; probably because it is the headquarter and many travellers from other States, LGAs and countries visit the town for various reasons.

### **Sampling Technique**

Multi-stage sampling technique was used. In the first stage, all the LGAs were selected. An average of twenty

respondents was purposively allocated to each of the 22 LGAs while 120 was allocated to Makurdi LGA. This was because 22% of the COVID-19 cases recorded at the period of the study were from Makurdi; probably because Makurdi is the State and a LGA headquarter. In the second stage, four council wards were selected from each of the 22 LGAs by simple random sampling technique and 10 wards from Makurdi LGA. The list of the wards obtained from the national population website was used as the sampling frame. The last stage was selection of actual respondents. Each of the council wards in the 22 LGAs had 5 respondents while Makurdi had 12 participants per ward. Any eligible adult who was available at the time of sample collection was considered and those who consented were used for the study.

### **Data Collection**

The study was conducted between 22<sup>nd</sup> February, 2021 and 5<sup>th</sup> March, 2021, through the administration of structured interviewer administered questionnaires. Before the questionnaire was administered, it was tested among 56 randomly selected persons in the wards that was not part of the one selected for the study to enable better understanding of the questions by participants and adjustments was made where necessary. Information obtained were sociodemographic data of the respondents, general knowledge, risk perception, treatment, prevention and control of COVID-19.

### **Data Analysis**

Data was analyzed using Statistical package for social sciences (SPSS Inc., Chicago, Illinois, USA) version 23.0 and presented in exploratory formats as frequency tables and charts.

### **Ethical consideration**

The study protocol was reviewed and approved by the Ethical Committee of the Benue State Ministry of Health. An informed written consent was also obtained from the ward heads and the respondents.

## RESULTS

### Sociodemographic Characteristics

Of the 560 respondents sampled across the 23 LGAs, 552 questionnaires were correctly filled corresponding to 98.6% response rate. Table 1 presents the sociodemographic profile of the respondents. The age of the respondents ranged from 16-76 years with mean age of 36.4 ( $\pm$  13.1) years, and the male to female ratio was 1.5:1.0 (Table 1).

### Knowledge of COVID-19

The questions regarding the participant's knowledge of COVID-19 comprises of the general information about the disease, groups at higher risk, mode of transmission and methods of prevention. Almost all, 552(99.6%) the respondents had ever heard of COVID-19 and the predominant source of information was media 428(77.2%), followed by friends 75(13.6%), while the least was family 51(9.2%) (Figure 1). Among the 552 who acknowledged to be aware of COVID-19, 206(37.3%) attested to have heard of some persons who had contracted the disease, 446(80.8%) had heard of death that had occurred as a result of COVID-19 and 30(5.4%) had history of contact with an affected person (Table 2). More than two-third (87.1%) of them did not know SARS-Cov-2 as the causative agent of the disease; 92.8% agreed that all age groups had equal risk of having the disease, while 7.12% of them disagreed. The predominant mode of transmission acknowledged by the respondents was physical contact with infected person (40.6%, n=224), inhalation (39.7%, n=219) and contact with patient's secretion (19.8%, n=109). The preventive measures were avoiding handshakes (38.7%, n=214), wearing of face mask (25.2%, n=139), observing social distance (23.1%, n=128), hand washing with soap and clean water (7.3%, n=40) and use of alcohol based hand sanitizers (5.8%, n=32) (Figure 3).

### Attitude Towards COVID-19

Three hundred and thirty-one (60.0%) of the respondents acknowledged that COVID-19 was real,

48.4% (n= 267) agreed that it exist in Benue State. However, 211(38.2%) recognized it as the disease of the rich people, 138(25.0%) agreed that, adhering to the COVID-19 preventive protocols will help curtail the spread of the disease. More than two-third (67.3%, n=371) agreed that the pandemic will gradually fade out on its own, hence no need for intervention. More than one third (36.5%, n= 201) agreed that vaccine can curtail the spread of the disease while 47.1% (n= 260) agreed that laboratory testing for COVID-19 should be made compulsory (Table 3).

### Practice of Preventive Measures

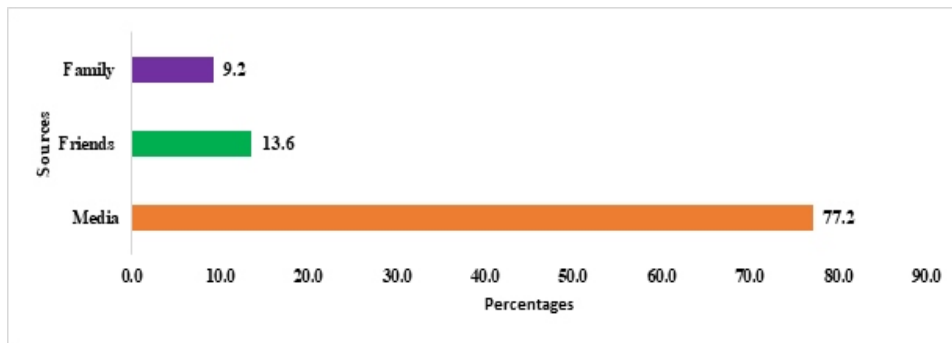
Among the infection, prevention and control (IPC) materials owned by participants, hand washing materials predominates 520(94.2%), followed by face mask 469(85.0%) and alcohol based sanitizers 313(56.2%). About 65.8%(342) of those who have hand washing materials washed their hands occasionally, 20.3% (106) washed their hands all times, while 13.9%(72) rarely practiced hand washing. Slightly below half 49.3% (231), of those who have face masks wore them occasionally; 188(40.1%) wore them all the times, while 50(10.7%) rarely wore them. Similarly, 154(49.2%) of the respondents who have hand sanitizers used them occasionally, 133 (42.5%) used them always, while 26 (8.3%) rarely used them (Table 4).

### Knowledge, Attitude and Practice Scores

All related questions on knowledge, attitude and practice were awarded one (1) mark for any correct answer and zero (0) mark for all wrong answers. The total was summed up and the percentage score were graded as reported in a previous study.<sup>11</sup> Overall, 40.4% had good knowledge, 44.5% good attitude and 56.4% had good practice scores

**Table 1 : Age and sex distribution of Respondents (n=552)**

Age Group (Years )	Frequency	Percent
16-20	58	10.5
21-25	69	12.5
26-30	90	16.3
31-35	69	12.5
36-40	86	15.6
41-45	48	8.7
46-50	50	9.1
51-55	35	6.3
56-60	20	3.6
61-65	15	2.7
66-70	6	1.1
≥71	6	1.0
Mean (SD)	36.4 (± 13.1).	
<b>Sex</b>		
Male	333	60.3
Female	219	39.7



**Fig 1: Sources of Information of COVID-19 Among Respondents (n=552)**

**Table 2: Respondents' Knowledge of Persons Infected with COVID-19, Contacts and Death Due to Covid-19 (n=552)**

Variables	Frequency	Percent
<b>Knowledge of anyone who has been infected</b>		
Yes	206	37.3
No	346	62.7
<b>Knowledge of anyone who died of covid-19</b>		
Yes	446	80.8
No	106	19.2
<b>History of contact with an infected person</b>		
Yes	30	5.4
No	522	94.6

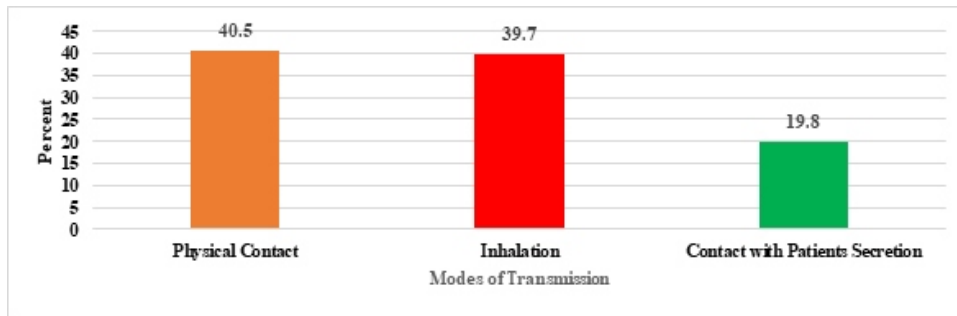


Fig 2: Respondents Knowledge of Mode of Transmission of COVID-19

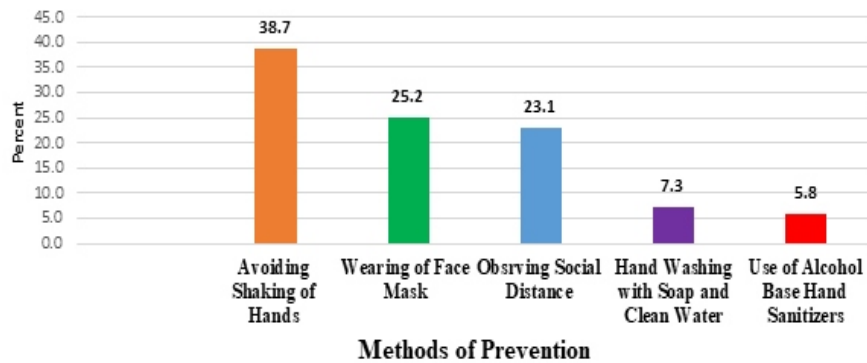


Fig 3: Respondents Knowledge of Methods of Prevention of COVID-19 (n=552)

Table 5: Summary of Testing for COVID-19

Variables	Frequency (%)
<b>Ever heard of COVID-19 Test? (n=552)</b>	
Yes	501 (90.8)
No	51 (9.2)
<b>Ever been tested for COVID-19? (n=501)</b>	
Yes	80 (16.0)
No	421 (84.0)
<b>Tested with history of contact/no history of contact (n=80)</b>	
Yes	9(11.3)
No	71(88.7)

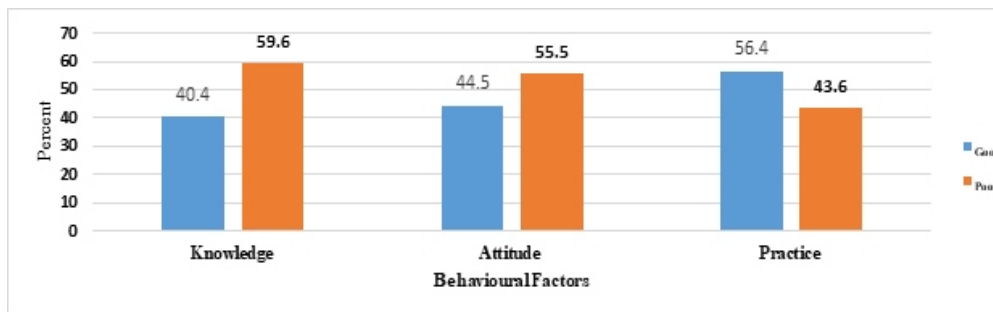


Fig 4: Knowledge, attitude, and Practice score

**Table 3: Attitude of Respondents towards COVID-19**

Variables	Agreed Frequency (%)	Not Agreed Frequency (%)
COVID-19 is real	331(60.0)	221(40.0)
COVID-19 exist in Benue State	267(48.4)	285(51.6)
COVID-19 id disease of the rich people	211(38.2)	341(61.8)
All age groups has equal risk of contracting the disease	204(37.0)	348(63.0)
Pandemic will fade away even without intervention	371(67.2)	181(32.8)
Vaccine can curtail the spread	201(36.4)	351(63.6)
Testing should be made compulsory	260 (47.1)	292(52.9)

**Table 4: Practice of Prevention and Control of COVID -19 among Respondents (n=552)**

Variables	Frequency	Percent
<b>Ownership of IPC Materials</b>		
Hand Washing Stations	520	94.2
Face mask	469	85.0
Alcohol Base Hand Sanitizer	313	56.7
<b>Hand Washing Practices (n=520)</b>		
Occasionally	342	65.8
All the times	106	20.3
Rarely	72	13.9
<b>Use of Face Mask (n= 469)</b>		
Occasionally	231	49.3
All the times	188	40.1
Rarely use it	50	10.7
<b>Use of Alcohol Based Sanitizer (n=313)</b>		
Occasionally	154	49.2
All the times	133	42.5
Rarely use it	26	8.3

## DISCUSSIONS

Correct knowledge and strict adherence to precautionary measures of infection, prevention and control are critical to successful handling of emergencies such as COVID-19 pandemic. In our study, almost all the respondents were aware of COVID-19 and the leading source of information was media, followed by friends and family. Our finding is consistent with other findings that reported the use of social media as the major source of information for COVID-19.<sup>12-15</sup> Our findings on respondents' knowledge of the age group that is more at risk, mode of transmission, and methods of prevention of COVID-19 aligns with the findings of Nemati et al.<sup>16</sup>. However, the

lower knowledge score of our participants is at variance with the report of other previous studies.<sup>13, 15, 17,18</sup> The discrepancy between the level of awareness and the knowledge score demonstrated in our study reflects the ineffectiveness of use of media as main source of information. Social media is sometimes associated with common health misinformation that contradicts existing evidence from medical specialists, therefore other sources like friends and family which is low in our study need to be boosted. Furthermore, considering the time the COVID-19 pandemic was pronounced by WHO and the series of engagement or levels of implementation on interventions to curtail the pandemic, the low knowledge score in our study calls

for more health education and mass awareness programs in Benue State.

Regarding attitude, majority of our study participants had poor attitude towards COVID-19, and significant proportion of them agreed that COVID-19 will gradually fade out without intervention. By implication, the participants in our study have contrary opinion as regards to the societies' responsibility to implement safety measures to control the spread of COVID-19. This is in contrast to positive attitude expressed by participants in a population based study conducted in Iran.<sup>18</sup> Even though participants in our study attested to have heard of persons who had contracted COVID-19, history of contact with an infected individual was low. This signifies that, the spread of the disease was not as rampant as recorded in other parts of the world.

Our study demonstrated high ownership of hand washing materials, face mask and hand sanitizers and significant level of good practices that are similar to a few other studies.<sup>12-15, 19</sup> Despite the ownership, appropriate use was low amongst the participants. This is probably due to high negative attitude found in our study. This calls for more health education and awareness campaign.

## CONCLUSION

Our study has demonstrated poor knowledge of COVID-19, negative attitude and some level of appropriate practices of prevention and control. Therefore, more health education and mass awareness programs are needed.

### Conflicts of interest

No conflicts of interest among the authors.

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