ISSN 2348-3156 (Print)
International Journal of Social Science and Humanities Research ISSN 2348-3164 (online)
Vol. 14, Issue 2, pp: (6-16), Month: April - June 2026, Available at: www.researchpublish.com

# Assessment of Knowledge of COVID-19 among Members of the Public in Makurdi Local Government Area of Benue State

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DOI: https://doi.org/10.5281/zenodo.19414590

Published Date: 04-April-2026

***Abstract:*** **Sufficient knowledge enhances precautionary actions and helps to reduce the spread of a disease. Knowledge regarding COVID-19 refers to the understanding of its nature, causes, risk factors, transmission modes, and preventive strategies. The assessment of knowledge of members of the public in Makurdi Local Government Area is an attempt to explore their awareness about COVID-19 and how they adopted precautionary measures. Makurdi Local Government has an estimated population of about 433,700 persons with eleven (11) council wards and a sample size of 400 respondents was adopted using Taro Yamane (1967) sample size determination formula. The study was predicted on the assumption that Knowledge of the populace about COVID-19 is a significant predictor of adherence to prevention measures in Makurdi Local Government Area. The respondents are found to adopting precautionary measures base on their belief system and perception of an ailment. Thus they turn to adopt precautionary measures based on their knowledge about the disease. The findings revealed that participants have high knowledge of COVID-19 on symptoms, preventive measures and mode of transmission. About 95.75% of the respondents have good knowledge of the symptoms of COVID-19, while 99.9% of the respondents have good knowledge of the preventive measures and 100% of the respondents have good knowledge of the mode of transmission of the disease.**

***Keywords:*** **Knowledge regarding COVID-19, nature, causes, risk factors, transmission modes, belief system.**

## 1. INTRODUCTION

Corona viruses constitute a family of viruses responsible for a spectrum of illnesses, from mild conditions such as the common cold to more severe diseases like Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS) (Barani, 2021). Transmission occurs via airborne routes, direct and indirect contact, with the predominant mode being droplet spread. Similar to other corona viruses, symptoms of Corona virus disease range from mild flu-like manifestations including colds, sore throat, cough, and fever to severe outcomes such as pneumonia, respiratory distress, and potentially fatal complications.

The novel corona virus disease (COVID-19) first emerged in Wuhan, China in late 2019, rapidly disseminating globally, including to Nigeria. By 29 January, 2020, China reported 7,711 confirmed cases, with an additional 98 cases across 18 other countries (China CDC, 2020; WHO, 2020a). Consequently, on January 30, 2020, the World Health Organization (WHO) designated the COVID-19 outbreak a public health emergency of international concern, urging global cooperation to curb its spread (WHO, 2020b).

Globally, according to Nigeria Centre for Disease Control (NCDC 2021) update of 30$^{th}$ August – September 5$^{th}$ 2021, the confirmed cases of COVID-19 were two hundred and twenty million, three hundred and eighty-three thousand, nine hundred and fifty-four (220,383,954) with four million, five hundred and sixty one thousand, four hundred and forty six (4,561,446) deaths resulting in a case fatality rate of 2.1%. The disease mostly affected people aged 60 years old and above with underlying disease conditions such as hypertension, diabetes, cardiovascular disease, chronic respiratory disease and cancer.

The disease in children appears to be rare and mild with no significant reported cases amongst individuals aged under 19 years (Wu and Mc Googan, 2020).

COVID-19 has led to massive loss of lives and livelihoods. According to United Nations, apart from World War II COVID-19 is the worst global crisis (Agrawal et al., 2020). As at January 2021, laboratory-confirmed cases of COVID-19 infection globally was 93,956,883 with 2,029,084 reported deaths (WHO, 2021d).The worst affected countries were United States of America, Brazil, India, Russia and the United Kingdom (WHO 2020b). India had the third highest confirmed COVID-19 cases in the world after the United States and Brazil (Anand and Jatin 2020).

Barani (2020) noted that India recorded the highest number of confirmed COVID-19 cases in Asia, with the initial case identified on January 30, 2020; by July 17, 2020, the country reported 1,003,832 cases, comprising 373,379 active cases, 677,422 recoveries, and 26,816 deaths, with states like Maharashtra, Delhi, and Telangana exhibiting the highest positivity rates (WHO, 2020c), and by December 31, 2020, cases exceeded 7,000,000 with nearly 200,000 fatalities (WHO, 2020).

In Brazil, the first case was documented on February 26, 2020, involving a 61-year-old man who had travelled to Italy, and by late April, the country reported 9,056 cases, 1,769 hospitalisations, and 359 deaths, surpassing China's death toll with over 5,000 fatalities, exacerbating the strain on the healthcare system without flattening the curve (BRASIL, 2020; WHO, 2020c; Requia et al., 2020).

The United States reported its first COVID-19 case on January 20, 2020, and despite a high Global Health Security (GHS) Index score of 83.5%, the country recorded 239,279 cases by April 2, 2020, and 7,163 deaths by April 4, 2020 (WHO, 2020; GHS Index Map, 2020; CDC, 2020; Centre for Science and Engineering, 2020).

In sub-Saharan Africa, as of June 23, 2021, over 3,760,000 cases and 92,000 deaths were reported, with Southern Africa bearing the highest burden at over 2,300,000 cases, primarily driven by South Africa, followed by East Africa (708,000 cases), West Africa (482,000 cases), and Central Africa (189,000 cases), though underreporting was likely due to weak institutional frameworks (Africa CDC, 2021; Burchard, 2020). In Ghana, by January 23, 2021, there were 60,115 cases and 361 deaths (Ghana Health Service, 2021), while Nigeria reported its first case on February 27, 2020, from a foreigner arriving from a high-burden state, with 167,859 cases, 164,382 recoveries, and 2,121 deaths by February 4, 2021, predominantly in Lagos which recorded over 57,000 cases (NCDC, 2021). In North-Central Nigeria, Benue State had 1,188 cases (NCDC, 2021). By 25 September 2022, Benue State had recorded a total number of 2, 129 confirmed cases of COVID-19 (NCDC, 2022).

Numerous studies have linked the adoption of protective behavior to knowledge. Alves et al. (2021) identify knowledge as a precursor to preventive measures also Durizzo et al. (2021) highlight the critical role of public knowledge in curbing infectious disease spread, particularly in resource-limited settings like low- and middle-income countries with constrained healthcare systems which is typical of Makurdi Local Government Area.

**1.1 Setting**

The study was conducted in Makurdi Local Government Area of Benue State. Makurdi is the capital of Benue State and is located in the North - central part of Nigeria (Makurdi/Encyclopedia.com, 2021). The city is situated on the south bank of the Benue River. Makurdi town doubles as the State capital of Benue State and Headquarter of Makurdi Local Government. It shares boundaries with Guma Local Government Area in the North, Gwer East to the south, Gwer West to the West and Doma Local Government Area of Nasarawa State to the North-west (Ismail and Kersha, 2018).

Makurdi came into prominence in 1927 when the headquarters of Benue province was moved from Abinsi to Makurdi. Since then, it has grown steadily and the growth was highly accelerated when it was made the state capital of Benue State when Benue State was created in 1976, (Encyclopedia Britannica. Retrived, 2020). There are eleven council wards in Makurdi Local Government Area. These include Agan, Annkpa/Wadata, Bar, Central/ South Mission, Clerks/Market, Fiidi, Mbalagh, Modern Market, North Bank i, North Bank ii and Wailomayo (INEC, 2015).

Makurdi has a population of about 433,700 persons as projected in 2022 by National Bureau of Statistics (2022). The population is diverse and the life style of the people varies as well. The predominant ethnic groups in the town are the Tiv and Idoma people with other groups like Alago, Etulo Igede, Jukun and Agatu constituting smaller population. Christianity is the predominant religion practiced in the local government area but few people still practice traditional religion and Islamic religion.

The occupation of the people varies with the population, majority of the people living in Makurdi are civil servants, military and police officers, business men and traders. Also, due to the presence of River Benue, fishermen are found in good number and the rural population of the local government area consists mostly farmers.

Education is another significant aspect of the socio- economic landscape of Makurdi, with several schools at different levels providing educational opportunities. Makurdi Local Government Area has the Rev. Fr, Moses Orshio Adasu University, Joseph Sarwuan Tarka University, Nigeria Army college of Environmental Science and Technology, Makurdi and Akawe Torkula Polytechnic. There are many secondary schools situated in Makurdi Local Government Area, including Government Secondary School North-Bank, Mount Saint Gabriel's Secondary School, Special Science Secondary School, Tilley Gyado College, North-Bank, Government Girls' Secondary School among others (Tanimu Foundation, Retrieved 2021).

Health care facilities in Makurdi are owned by both the private and public sectors. There is one primary health clinic established by government in each of the ward totalling 11 primary health clinic across the local government. These facilities typically provide a range of services such as primary care, maternal and child health services, vaccine, disease prevention and control, health education. Health facilities (public and private) and their location in Makurdi Local Government Area are presented in appendix.

**1.2 Background on Knowledge of Members of the Public about COVID-19**

Public knowledge regarding COVID-19 refers to the understanding of its nature, causes, risk factors, transmission modes, and preventive strategies, with numerous studies linking such knowledge to the adoption of protective behaviors. Hosen et al. (2021) argue that sufficient knowledge of COVID-19 enhances precautionary actions, a view supported by Alves et al. (2021) who identify knowledge as a precursor to preventive measures, and Lee et al. (2021) who note that COVID-19 education fosters cautious behaviors. Iorfa et al. (2020) emphasise that perceptions shape knowledge and the uptake of safety measures, suggesting that community perceptions can inform targeted interventions to enhance understanding of the virus.

Durizzo et al. (2021) highlight the critical role of public knowledge in curbing infectious disease spread, particularly in resource-limited settings like low- and middle-income countries with constrained healthcare systems. In Nigeria, the NCDC (2020a, 2020b) implemented health education campaigns across states to improve knowledge, promoting measures such as mask-wearing, hand washing, social distancing, and restrictions on gatherings.

Zhong et al. (2020) note that the lethal nature of COVID-19 instilled fear, driving protective behaviors, though Ufuwa et al. (2020) caution that such fear-driven actions may not be sustainable. In their contribution, Iorfa et al. (2020) attribute non-adherence to a knowledge-attitude discrepancy, underscoring the need for continuous public sensitisation.

In the United States and United Kingdom, people demonstrated strong awareness of COVID-19, including its transmission methods and symptoms (Geldsetzer, 2020). In contrast, Latin America, unprepared due to no prior experience with viruses like SARS or MERS, faced challenges with public health systems when COVID-19 emerged (Zegarra et al., 2020). In Peru, the rapid spread of the virus through mildly symptomatic or asymptomatic individuals highlighted the need to study public behavioral responses. After Peru confirmed its first COVID-19 case on March 6, 2020, the government enforced strict measures, including social distancing, hygiene protocols, face shield mandates, restrictions on public transport, closure of non-essential public spaces, curfews, and gender-based pedestrian limits to reduce street crowds. Due to rising cases, mandatory social isolation was extended (Prensa, 2020).

Globally, safety measures like hand sanitising with alcohol-based solutions, hand washing with soap (Bonful et al., 2020), wearing masks (Amzat et al., 2020), quarantining suspected cases, social distancing, travel bans, and limiting gatherings to ten people or fewer were widely adopted (Taboe et al., 2020). Adherence to these measures depended on public knowledge, attitudes, and perceptions of COVID-19 (Zhong et al., 2020). Higher risk perception correlated with increased hand washing, as people who felt vulnerable were more likely to adopt this practice (Iorfa et al., 2020), a key strategy to curb transmission.

Research by Alabi et al. (2021) found that awareness and knowledge levels in Nigeria aligned with studies in China (Zhong et al., 2020), Saudi Arabia (Alahdal et al., 2020), Egypt (Abdelhafiz et al., 2020), and Nigeria (Habib et al., 2021; Olapegba et al., 2020; Reuben et al., 2020). However, individuals with lower education levels scored lower in knowledge, likely due to limited access to information through social media or other channels. A study by Aniefiok et al. (2022) surveyed 1,106

West Africans, revealing an average knowledge score of 67.82%, with 93.4% able to identify symptoms and 75.2% willing to vaccinate. Knowledge varied by country and settlement type (urban, suburban, rural), and 54% supported isolation and treatment to curb the virus. Only 8% rated their government's response as excellent, while a third called it good. This suggests West Africans generally had basic knowledge and positive attitudes toward COVID-19, though preventive measures needed stronger enforcement, especially in rural and poorer areas.

In Nigeria, studies by Olapegba et al. (2020) and Alabi et al. (2021) confirmed moderate to high knowledge of COVID-19, with 97.1% aware of the disease, 95.5% recognising its viral cause, and 99.1% knowing preventive guidelines. Knowledge covered transmission, symptoms, and prevention, often sourced from media (93.5%). High awareness, as noted by Almutairi et al. (2015) and Rabhani et al. (2020), likely helped Nigeria reduce COVID-19 spread. Conversely, Zegarra-Valdivia et al. (2020) highlighted that insufficient knowledge increases infection rates, as seen in the Ebola outbreak where poor understanding fueled cases (Ilesanmi and Alele, 2016). For COVID-19, better knowledge of transmission and precautions improved compliance with quarantine measures (Ilesanmi and Alele, 2016; Janjua, 2007; Smith, 2006). Educating populations is critical to adopting preventive measures (Corrin, 2017), though in places like Singapore, minimal information was sufficient for compliance.

Alabi et al. (2021) also explored Nigerians' perception of herbal medicine for COVID-19 treatment, finding strong general knowledge among 345 respondents. Olapegba et al. (2020) further noted that 94% of 1,357 Nigerians identified transmission through airborne droplets, 81.13% linked COVID-19 to coughing, and 94.25% endorsed social distancing and hand swashing. Some (11.86%) used herbal remedies like ginger or garlic, and 91.73% viewed the disease as deadly, with media as the primary information source. These findings underscore Nigeria's relatively high COVID-19 knowledge, driven by effective media campaigns.

## 2. METHODOLOGY OF THE STUDY

The study adopted a descriptive survey research design. The survey method was chosen because of its empirically verifiable nature and its ability to generalise on a larger population from which a sample is initially selected. According to Ajir (2012), it is the best method available to the social scientist interested in collection of original data for describing a population too large to be observed directly. The logic is to besiege the problem of cost and time. In particular, the study adopted a cross-sectional survey design, which involves collection of data from a sample at a single point in time (Asika, 2006). A representative sample of 400 respondents was drawn from a combined population of the area from the six wards of the local government. Primary data was collected from this sample, analyzed and findings generalised on the entire people of Makurdi Local Government Area. The choice of cross-sectional survey research design is due to the fact that the research is conducted on a single subject matter (knowledge of members of the public in Makurdi Local Government about COVID-19). The design is directed at collecting data using the questionnaire and in-depth interviews. The research seeks to collect empirically verifiable evidence on the knowledge of members of the public in Makurdi Local Government Area about COVID-19.

Makurdi local government was clustered into Makurdi North and Makurdi South. The justification for this method is that it enables easier administration of questionnaire, especially where the clusters are geographically dispersed. The method also allowed the researcher to access and sample clusters rather than sampling individuals scattered across a large area. Statistical efficiency and increased precision were also reasons for the choice. The justification for adopting purposive sampling procedure is to enable the researcher select those that are more knowledgeable, and will be willing to give detailed information relevant to the topic under study and can easily be accessed.

In the second stage, the researcher selected six (6) wards out of the eleven (11) wards using simple random sampling procedure. Three wards were selected from Makurdi North and three wards from Makurdi South. The choice of the simple random sampling method was because it is straightforward to understand and implement; every member of the population had equal chance of being selected. The selection process was transparent and easily verified, enhancing the credibility of the sampling method and the study result.

To select samples, the researcher wrote the names of all the wards on pieces of papers, wrapped and shuffled in a basket, and blindfolded research assistant were asked to randomly pick one after another. In this way, six wards were picked, namely Agan, Mbalagh, North Bank 1 (Makurdi North), Bar, Fiidi and Central/South Mission (Makurdi South). The same process was adopted in selecting a clan in each of the selected wards Tse-Swam village was picked from Agan council

ISSN 2348-3156 (Print)
International Journal of Social Science and Humanities Research ISSN 2348-3164 (online)
Vol. 14, Issue 2, pp: (6-16), Month: April - June 2026, Available at: www.researchpublish.com

ward, Tse-Apagher from Mbalagh council ward, Adeke village from Bar ward, while Tse-Mayange was randomly picked from Fiidi ward. Similarly, Lobi Bank was picked from Central/South Mission and lastly Yagba village from North bank1. The purposive sampling method was adopted to select three (3) key informants each from six council wards, giving a total of 18 key informants for the study. The justification for this method was the conviction of the researcher that these categories of people were more knowledgeable and willing to give detailed information, relevant to the topic under study and also easily accessible. A deeper understanding of the phenomenon under study was guaranteed leading to more detailed findings. Similarly, sixty four (64) questionnaires were purposively distributed to respondents in Agan, Mbalagh, Bar and Fiidi while sixty three questionnaires were distributed to North Bank 1 and Central/South Mission. About twenty one (21) compounds were randomly selected in each ward and three questionnaires were fairly distributed in each of the twenty one (21) selected compounds. Here too the researcher adopted simple random sampling because each member of the household had an equal chance of being selected.

In total, three hundred and eighty two (382) questionnaires were distributed to participants across the study area while eighteen (18) sem-structured questions were verbally administered to key informants. Each of the key informants answered about eleven (11) structured questions, three (3) questions on each objective. The questions were to know if they had heard of COVID-19, the media through which heard of COVID-19, what their personal view of COVID-19 was, what types of remedies they adopted to prevent COVID-19 infection, whether they used any alternative medicine like drinking of blended ginger, garlic, turmeric, alligator pepper, juice from the neem tree and what actually influenced their choice of these alternative medicines, if they encountered challenges while trying to access these alternative medicines and what their take was on integrating alternative medicine into conventional medicine to achieve a holistic healthcare delivery.

In-depth interviews were employed to have one on one dialogue with the purposively selected heads of households and women in order to get qualitative and detailed information about their views and experiences during the COVID-19 pandemic regarding the use of alternative medicine for prevention. The criteria for selecting members were based on their position as heads of families, age and willingness to shed light on the issue under discussion. The method was considered appropriate because it allowed participants the psychological space and time to tell their own story in their own words, enabling the researcher to mine a range of insights on issues that were not captured in the questionnaire.

Three (3) key informants were chosen from each of the selected council wards, amounting to 18 key informants. The researcher invested a significant amount of time with each participant using the pre - set interview guide questions which enabled the participants' air out their views without holding vital information necessary for the study.

Interviews were conducted with 18 participants across the study area with the period of 30 minutes spent with each participant. During the interviews, discussions were written down in a note book as well as recorded using a cell phone and later transcribed at the end of the exercise. Table 1shows the number and categories of participants interviewed in each ward.

**Table 1: In-depth Interview: Categories of Participants by Ward**

| Category | Sex | Ward |
|---|---|---|
| Informant 1<br>Informant 2<br>Informant 3 | M<br>M<br>F | Agan |
| Informant 1<br>Informant 2<br>Informant 3 | M<br>M<br>F | Bar |
| Informant 1<br>Informant 2<br>Informant 3 | M<br>M<br>F | Fiidi |
| Informant 1<br>Informant 2<br>Informant 3 | M<br>M<br>F | Mbalagh |
| Informant 1<br>Informant 2 | M<br>M | North bank 1 |

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International Journal of Social Science and Humanities Research ISSN 2348-3164 (online)
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| | | |
|---|---|---|
| Informant 3 | F | |
| Informant 1<br>Informant 2<br>Informant 3 | M<br>M<br>F | Central-South Mission |
| **Total 18** | | |

**Source: Field Survey 2024**

Data collected for the study was analysed quantitatively and qualitatively. Quantitative data was first arranged and coded, then entered into a spread sheet version 2010. The data were then analysed using Statistical Package for Social Science (SPSS). The assumption was tested using hierarchical regression, to determine the statistical significance of the assumption formulated for the study.

The in-depth interview was analysed qualitatively. The recorded data were played and transcribed, then organised into themes based on the objectives of the study. The quantitative data was then triangulated with the qualitative data to bring out areas of discordance and convergence. This was done to bring out a robust result.

## 3. FINDINGS

The total numbers of respondents based on gender were 48.75% (195) males and 51.25% (205) females. Also, 8.25% (33) of the participants were between the ages of 19-30 years old, 17.00% (68) were between 31-40 years, 24.50%(98) were between the age of 41-50 while 50.25% (201) were 51 years and above. Also, 72.25% (289) of the population were married while 16.50% (66) were single and 11.25% (45) were either divorced or separated. While 24.75% (99) had no formal education, 26.00% (104) had primary school certificates, 20.50% (82) had obtained a GCE/SSCE certificate, 19.00% (76) had first degrees or higher national diplomas, 7.50% (30) had master's degrees and 2.25% (9) had doctorate degrees. This was further grouped as low and high education. Non-formal education, primary and secondary school leavers were grouped as low education while first degree, master's and Ph.D. holders) were grouped as higher education. This means that those with lower educational qualification made up 70.50% (285) and those with higher educational qualification makes up 28.75% (115). From this data, it can be deduced that different people of different educational backgrounds participated in the research.

Furthermore, 47.75% (191) of the population were from rural areas while 52.25% (209) reside in urban area. 80.25% (321) were Christians, 17.00% (68) were traditional religious worshipers while 2.75% (11) were Muslims. Also 26.75% (107) of the population earned below 20,000, 24.00% (96) earned between 21,000- 30,000, 21.75% (87) earned 31,000-40,000, 16. 25% (65) earned from 41,000-50,000 while 11.25% (45) earned from 51,000 and above. This was recorded as low and higher income with those earning less than 41, 000 grouped as low income earners and those earning 50,000 and above grouped as high income earners.

**Table 2: Source of Information about COVID-19**

| Source | Frequency | Percentages% |
|---|---|---|
| **Friends/family members** | 80 | 20.00 |
| **Television/radio** | 150 | 37.50 |
| **Health workers** | 40 | 10 |
| **Face book/what sap/twitter** | 130 | 32.50 |
| **Total** | 400 | 100 |

**Source: Field Work, 2024**

Table 2 shows that 20.00% (80) of the respondents heard of COVID-19 from their friends and family members while 37.50% (150) of the respondents heard of COVID-19 on the television and radio. Also, 10.00% (40) of the respondents heard of COVID-19 from health workers and 32.50% (130) of the respondents heard of COVID-19 on the social media. This result shows that 100% of the population under study heard of COVID-19. This implies that COVID-19 was a global health concern that was known and heard of across the globe.

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International Journal of Social Science and Humanities Research ISSN 2348-3164 (online)
Vol. 14, Issue 2, pp: (6-16), Month: April - June 2026, Available at: www.researchpublish.com

**Table 3: Symptoms of COVID-19**

| Common symptoms | Frequency | Percentages |
|---|---|---|
| **Fever** | 101 | 25.25 |
| **Cough** | 89 | 22.25 |
| **Shortness of breath** | 99 | 24.75 |
| **Headache** | 94 | 23.50 |
| **I don't know** | 17 | 4.25 |
| **Total** | 400 | 100 |

**Source: Field Work, 2024**

Table 3 shows that 101(25.25%) of the respondents identified fever as the common symptom of COVID-19 while 89 (22.25%) mention cough as a symptom of COVID-19 and 99 (24.75%) of the respondent identified shortness of breath as the common symptom of COVID-19. Also, 94 (23.50%) others mentioned headache as a common symptom of COVID-19 and 17 (4.25%) stated that they did not know the symptoms of COVID-19. This result shows that 95.75 % (383) of the population under study have good knowledge of the symptoms of COVID-19. This implies that adequate awareness was created by the government and health workers.

**Table 4: Prevention Measures for COVID-19**

| Preventive measures | Frequency | Percentages (%) |
|---|---|---|
| **Wearing mask** | 60 | 15.00 |
| **Washing hands frequently** | 56 | 14.00 |
| **Avoiding close contact** | 57 | 14.25 |
| **Taking alternative medicine** | 207 | 51.75 |
| **Getting vaccinated** | 20 | 5.00 |
| **Total** | 400 | 100 |

**Source: Field Work, 2024**

Table 4 shows that 15.00% (60) of the respondent identified wearing of mask as a preventive measure against COVID-19 while 14.00% (56) identified washing of hands as one of the preventive measures against COVID-19. The table also shows that 14.25% (57) of the population identified avoiding close contact with one another as a way of preventing COVID-19 infection. This signifies that the laid down preventive guidelines by the NCDC and the Federal Ministry of Health were properly followed.

It is observed that 51.75% (207) considered taking of alternative medicine as a preventive measure against COVID-19. Also, 271 (78.6%) agreed to use the herbal medicine for the treatment and management of COVID-19 if made available and 153 (44.3%) preferred herbal medicine to chemical drugs. This shows that most of the respondents preferred alternative medicine for the prevention of COVID-19 than any other form of preventive measures. This could serve as an insight to the government agencies to fund research aimed at discovering alternative medicines that could be used for the prevention and management of viral infections especially when vaccines are yet to be manufactured. Notably, 5.00% (20) of the population identified vaccine as a prevention measure against COVID-19.

**Table 5: Modes of Transmission**

| Mode of transmission | Frequency | Percentages |
|---|---|---|
| **Air** | 170 | 42.5 |
| **Direct contact** | 102 | 25.5 |
| **Droplet** | 128 | 32.00 |
| Total | 400 | 100 |

**Source: Field Work, 2024**

Table 5 shows that 42.5% (170) of the population identified air as the major mode of transmission of the disease, while 25.5% (102) of the population identified direct contact with an infected person as a mode of transmission and 32.00% (128) of the population mentioned droplet as a mode of transmission of the disease.

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**Assumption:** Knowledge of the populace about COVID-19 is not a significant predictor of adherence to prevention measures in Makurdi Local Government Area.

**Table 6: Hierarchical Multiple Regression Results of the Effect of Knowledge of the Populace about COVID-19 on adherence to Prevention Measures in Makurdi Local Government Area.**

**Predicted Variable: Adherence to Preventive Measures**

| Dependent Variable: adherence | Step 1(β) | T | Step2 (β) | T | Step3 (β) | T | Step4 | T |
|---|---|---|---|---|---|---|---|---|
| Source | .346* | 25.855 | .018 | .639 | 019 | .703 | -.154* | -6.121 |
| Symptoms | | | .337* | 12.866 | .212* | 6.734 | .049 | 1.716 |
| Prevention | | | | | .143* | 6.533 | .149* | 8.285 |
| Transmission | | | | | | | .471* | 13.769 |
| R | .792 | | .858 | | .873c | | .916d | |
| $R^2$ | .626 | | .735 | | .760 | | .838 | |
| Adj. $R^2$ | 626 | | 735 | | 760 | | 838 | |
| $\Delta R^2$ | .627 | | .110 | | .026 | | .077 | |
| F Δ | 668.501 | | 165.536 | | 42.677 | | 189.590 | |
| sigF Δ | 0.000 | | 0.000 | | 0.000 | | 0.000 | |

**Source: Computed using SPSS (V.21).NB: *indicates significance at 0.05 Level**

Result of hierarchical regression presented in

Table shows that in step 1, the knowledge or sources of knowledge of COVID-19 has significant independent prediction of adherence to preventive measures (β = ..346, p<.05) with joint prediction of 62.6% ($R^2$ = .626, F = 668.501, p<.05). With the inclusion of the knowledge symptoms of COVID-19 pandemic in step 2, the variance for adherence to prevention measures was 73.5 percent ($R^2$ = .735, F = 165.536, p<.05) which accounted for 11 percent variance change in adherence to preventive measures (Δ $R^2$ = .110). This means that the effect of adherence to prevention measures will improve by 11.% when the populace who have knowledge of the sources are imparted with the knowledge of the symptoms of COVID-19 (β = .19, p>.05). The introduction of the knowledge of preventive measures of COVID-19 pandemic in step 3 produces a joint prediction effect accounting for 87.3 percent variation in adherence to prevention measures($R^2$ = .873, F = 42.667, p<.05) which resulted in variance change that is higher than the second model by 2.6 percent (Δ $R^2$ = .026). This means that knowledge of preventive measures of COVID-19 also improves adherence to preventive measures although the difference is smaller than that of the second model, meaning that the respondents' knowledge of the symptoms of COVID-19 enhances their adherence to preventive measures better than knowledge of actual preventive measures.

In step 4, with the introduction of knowledge mode of transmission of COVID-19 pandemic, the joint prediction effect accounted for 83.8 percent variation in adherence to prevention measures ($R^2$ = .838, F = 189.590, p<.05) which resulted in variance change that is higher than the third model by 7.7 percent (Δ $R^2$ = .077). This means that the knowledge of modes of contraction of COVID-19 has incremental joint effect on adherence to prevention measures which was significant at 0.05 level (β = -.471, p<.05).

Thus, the assumption which stated that knowledge of the populace about COVID-19 is a significant predictor of adherence to prevention measures in Makurdi Local Government Area is accepted. It can therefore, be safely concluded that the knowledge of the populace towards COVID-19 is a significant predictor of adherence to preventive measures against COVID-19 in Makurdi Local Government Area.

## 4. DISCUSSION

Public knowledge regarding COVID-19 refers to the understanding of its nature, causes, risk factors, transmission modes, and preventive strategies, with numerous studies linking such knowledge to the adoption of protective behaviors. Hosen et al. (2021) argue that sufficient knowledge of COVID-19 enhances precautionary actions, a view supported by Alves et al.

(2021) who identify knowledge as a precursor to preventive measures, and Lee et al. (2021) who note that COVID-19 education fosters cautious behaviors. Iorfa et al. (2020) emphasise that perceptions shape knowledge and the uptake of safety measures, suggesting that community perceptions can inform targeted interventions to enhance understanding of the virus.

Durizzo et al. (2021) highlight the critical role of public knowledge in curbing infectious disease spread, particularly in resource-limited settings like low- and middle-income countries with constrained healthcare systems. In Nigeria, the NCDC (2020a, 2020b) implemented health education campaigns across states to improve knowledge, promoting measures such as mask-wearing, hand washing, social distancing, and restrictions on gatherings.

Zhong et al. (2020) note that the lethal nature of COVID-19 instilled fear, driving protective behaviors, though Ufuwa et al. (2020) caution that such fear-driven actions may not be sustainable. In their contribution, Iorfa et al. (2020) attribute non-adherence to a knowledge-attitude discrepancy, underscoring the need for continuous public sensitisation.

In the United States and United Kingdom, people demonstrated strong awareness of COVID-19, including its transmission methods and symptoms (Geldsetzer, 2020). In contrast, Latin America, unprepared due to no prior experience with viruses like SARS or MERS, faced challenges with public health systems when COVID-19 emerged (Zegarra et al., 2020). In Peru, the rapid spread of the virus through mildly symptomatic or asymptomatic individuals highlighted the need to study public behavioral responses. After Peru confirmed its first COVID-19 case on March 6, 2020, the government enforced strict measures, including social distancing, hygiene protocols, face shield mandates, restrictions on public transport, closure of non-essential public spaces, curfews, and gender-based pedestrian limits to reduce street crowds. Due to rising cases, mandatory social isolation was extended (Prensa, 2020).

Globally, safety measures like hand sanitising with alcohol-based solutions, hand washing with soap (Bonful et al., 2020), wearing masks (Amzat et al., 2020), quarantining suspected cases, social distancing, travel bans, and limiting gatherings to ten people or fewer were widely adopted (Taboe et al., 2020). Adherence to these measures depended on public knowledge, attitudes, and perceptions of COVID-19 (Zhong et al., 2020). Higher risk perception correlated with increased hand washing, as people who felt vulnerable were more likely to adopt this practice (Iorfa et al., 2020), a key strategy to curb transmission.

Research by Alabi et al. (2021) found that awareness and knowledge levels in Nigeria aligned with studies in China (Zhong et al., 2020), Saudi Arabia (Alahdal et al., 2020), Egypt (Abdelhafiz et al., 2020), and Nigeria (Habib et al., 2021; Olapegba et al., 2020; Reuben et al., 2020). However, individuals with lower education levels scored lower in knowledge, likely due to limited access to information through social media or other channels. A study by Aniefiok et al. (2022) surveyed 1,106 West Africans, revealing an average knowledge score of 67.82%, with 93.4% able to identify symptoms and 75.2% willing to vaccinate. Knowledge varied by country and settlement type (urban, suburban, rural), and 54% supported isolation and treatment to curb the virus. Only 8% rated their government's response as excellent, while a third called it good. This suggests West Africans generally had basic knowledge and positive attitudes toward COVID-19, though preventive measures needed stronger enforcement, especially in rural and poorer areas.

In Nigeria, studies by Olapegba et al. (2020) and Alabi et al. (2021) confirmed moderate to high knowledge of COVID-19, with 97.1% aware of the disease, 95.5% recognising its viral cause, and 99.1% knowing preventive guidelines. Knowledge covered transmission, symptoms, and prevention, often sourced from media (93.5%). High awareness, as noted by Almutairi et al. (2015) and Rabhani et al. (2020), likely helped Nigeria reduce COVID-19 spread. Conversely, Zegarra-Valdivia et al. (2020) highlighted that insufficient knowledge increases infection rates, as seen in the Ebola outbreak where poor understanding fueled cases (Ilesanmi and Alele, 2016). For COVID-19, better knowledge of transmission and precautions improved compliance with quarantine measures (Ilesanmi and Alele, 2016; Janjua, 2007; Smith, 2006). Educating populations is critical to adopting preventive measures (Corrin, 2017), though in places like Singapore, minimal information was sufficient for compliance.

Alabi et al. (2021) also explored Nigerians' perception of herbal medicine for COVID-19 treatment, finding strong general knowledge among 345 respondents. Olapegba et al. (2020) further noted that 94% of 1,357 Nigerians identified transmission through airborne droplets, 81.13% linked COVID-19 to coughing, and 94.25% endorsed social distancing and hand swashing. Some (11.86%) used herbal remedies like ginger or garlic, and 91.73% viewed the disease as deadly, with media as the primary information source. These findings underscore Nigeria's relatively high COVID-19 knowledge, driven by effective media campaigns.

## 5. CONCLUSION

The research has assessed the knowledge of members of the public in Makurdi Local Government Area of Benue State about COVID-19. The study has successfully supplied empirical evidence to establish that members of the public in the study area have high knowledge of COVID-19 on symptoms, preventive measures and mode of transmission. 95.75% of the respondents have good knowledge of the symptoms of COVID-19, while 99.9% of the respondents have good knowledge of the preventive measures and 100% of the respondents have good knowledge of the mode of transmission of the disease.

## 6. RECOMMENDATIONS

Based on the findings, the study recommends that Governments and Non-governmental Organisation (NGOs) should sustain public awareness campaigns whenever there is an outbreak of infectious disease. Educating the public is key to reducing the spread of the virus as well as the mortality rate and also helps individuals to make informed choices regarding their health.

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