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KNOWLEDGE OF COVID-19, RISK PERCEPTION AND PREVENTION PRACTICES AMONG RESIDENTS OF PLATEAU STATE, NIGERIA

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ASTRACT

Since the onset of COVID-19 pandemic, several efforts have been made to educate the public about the disease and the measures individuals can take to protect themselves. This study aimed to assess the knowledge, prevention practices and risk perception of COVID-19 among residents of Plateau State, Nigeria. A cross-sectional online survey was conducted among adult residents of Plateau State using Microsoft forms. A snowball sampling technique was used to share the link of the questionnaire on WhatsApp platforms of Plateau residents from the three senatorial zones. Data was retrieved on Microsoft Excel and analyzed using SPSS 23. A total of 210 respondents participated in the study. More of the respondents were aged between 31-45 years (39.1%) and resided in the north central zone (57.1%) while 11.4 % were healthcare workers. Over 80% and 70% of respondents showed high knowledge of COVID-19 symptoms and preventive measures respectively. Over 80% practiced staying at home, frequent hand washing or use of hand sanitizers and the practice of social distancing. Perception of risk for COVID-19 was absent among 25% and low among 47% of respondents. Higher risk perception was found among healthcare workers compared to non-healthcare workers.

The knowledge of and prevention practices for COVID-19 was found to be high among respondents but risk perception for the disease was generally low. Efforts should be intensified by government and other stakeholders to sensitize the public with accurate information about their risks and address misconceptions about the disease.

KEYWORDS: COVID-19, Knowledge, risk perception, prevention practices, Plateau State.

INTRODUCTION

COVID-19 (corona virus disease 2019), an infectious disease caused by a newly discovered coronavirus, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is an ongoing global pandemic. The first human case was discovered in Wuhan, China in December 2019.[1] It is believed to have been spread from a sea food market in Wuhan from where human to human transmission was rapidly established killing over 1,800 and infecting over 70,000 persons within the first fifty days of the epidemic.[2]

The disease can be transmitted from one person to another through droplets from the nose or mouth when talking, coughing or sneezing. Transmission can also occur by touching the eyes, nose or mouth after touching surfaces contaminated with droplets from an infected person.[1] Symptoms of COVID-19 are usually mild and commonly include fever, dry cough and difficulty in breathing. Others include body aches, tiredness, runny nose, sore throat or diarrhea. Some infected persons may be asymptomatic, showing no symptoms at all. It is reported that up to 80% of infected individuals need no special treatment to recover from the disease. Fewer people may develop serious illness including pneumonia and multi-organ failure with the risk being higher among older people and persons with comorbidities such as cardiovascular diseases, cancer, chronic respiratory disease and diabetes.[1,3]

The coronavirus outbreak was declared a Public Health Emergency of International Concern by the World Health Organization (WHO) in January 2020 and subsequently declared a pandemic in March 2020 as it had spread to all the six regions of the WHO.[4,5] As at 29th July 2020, more than 6.5 million cases of the disease had been recorded with 665,112 deaths globally. By this time, Africa had contributed about 4.4% to the global number of cases.[6] In Nigeria, the first case was reported on the 27th of February, 2020.[7] Five months after, over 41,000 cases had been confirmed with 868 deaths nationally and number of cases continue to rise on a

daily basis.[8] Eight weeks after the first case was reported in the country, Plateau State recorded its first confirmed case.[3] Community transmission seem to have been established in the State as many more cases are confirmed every day. Over 1,000 cases and about 20 deaths were reported three months after the first case was confirmed.[8]

The WHO has identified several measures to prevent and slow down transmission of COVID-19 infection. These include regular hand washing with soap and water or using an alcohol-based sanitizer; maintaining social distance; avoiding touching eyes, nose and mouth; practicing respiratory hygiene by covering of mouth and nose when coughing or sneezing with a bent elbow or tissue and then disposing the used tissue immediately; seeking medical care when feeling unwell especially when suffering from fever, cough and difficulty breathing; following medical advice and staying informed on the latest developments about COVID-19.[1,9] There is presently no known cure or vaccine for the disease as treatment remains palliative.[1]

The protective behavior of individuals towards a disease is usually influenced by their depth of knowledge and perceived risks of that disease.[10] Understanding peoples' perceived risks of COVID-19 can help inform stakeholders on appropriate communication messages and strategies for prevention. The aim of this article is to assess the basic knowledge and risk perception of COVID-19 among residents of Plateau State, Nigeria and determine the measures being taken to prevent the disease among them.

METHODOLOGY

The study was carried out in Plateau State, located in North central region of Nigeria. Plateau State is divided into three senatorial zones and 17 Local Government Areas. It has a projected population of 4,679,519 for 2020. The official languages of the State include English and Hausa.

A cross-sectional, online survey was carried out among residents of Plateau State. The survey was conducted shortly after Nigeria reported the first case of COVID-19 and lasted between 28th March and 18th April 2020 during the lockdown period in the State. No case had been reported in Plateau State during the period of study. The study included only adult residents of Plateau State.

Sampling technique was snowball method whereby messages were shared on WhatsApp platforms of Plateau residents who were urged to further share with their contacts residing in Plateau State. Respondents received a short message which contained the title of the survey, the objectives, procedures, voluntariness and declarations of anonymity and confidentiality. The link to the survey was attached at the bottom of the message. All respondents were directed to click on the link to view the questions. Instructions on how to respond to the questions were provided before the questions popped up.

The questionnaire was a semi-structured one developed using Microsoft forms. There were 10 questions that addressed socio-demographics; knowledge of COVID-19 symptoms and prevention; prevention practices of respondents and risk perception. The questionnaire was translated in both English and Hausa languages.Responses were extracted on Microsoft Excel and analyzed using SPSS version 23. Proportions were calculated for all knowledge, practice and perception questions and results displayed as tables and charts. Chi-square test was carried out to identify factors associated with risk perception. The statistical significance level was set at $p < 0.05$.

RESULTS

The total number of respondents was 210 with the highest proportion of respondents aged between 31-45 years (39.1%) and resided in the Northern senatorial zone of the state (57.1%).

Table 1: Respondents socio-demographics.

Parameter	Frequency N = 210	Percentage (%)
Age range (years)		
18-30	65	31.0
31-45	82	39.1
46-60	48	22.9
>60	15	7.1
Gender		
Female	106	50.5
Male	104	49.5
Senatorial zone		
Northern zone	120	57.1
Central zone	50	23.8
Southern zone	40	19.1
Healthcare worker status	24	11.4
Healthcare worker	186	88.6
Non-healthcare worker		

Knowledge of COVID-19

A high proportion of the respondents correctly identified major symptoms (over 80% mentioned 3 symptoms correctly) and measures that can be taken to prevent for COVID-19 (more than 70% mentioned 6 preventive measures correctly). These were shown in tables 2 and 3.

Table 2: Knowledge of major symptoms of COVID-19.

Symptoms	No. of responses	%
Fever	172	81.9
Cough	184	87.6
Difficulty in breathing	194	92.4
Yellowness of the eyes	7	3.3
Body rashes	6	2.9
Usually no symptoms	12	5.7
I have no idea	3	1.4
Others	26	12.3

Table 3: Knowledge of COVID-19 prevention practices.

Symptoms	No. of responses	%
Regular hand washing/sanitizing	203	96.6
Avoid touching eyes, nose and mouth with unwashed hands	191	90.9
Cough/sneeze into flexed elbow or a tissue which should be properly disposed	187	89.0
Practice social distancing	186	88.6
Stay at home especially when sick	174	82.8
Wear protective devices like face masks, gloves, etc	150	71.4
Take lemon drinks or lots of vitamin C	82	39.0
Take herbal preparations	3	1.4
Others	2	1.0

Prevention practices of respondents

A large proportion of respondents reported taking preventive measures against the infection. The most popular measures taken were staying at home, frequent hand washing or use of hand sanitizers and the practice of social distancing which were common among over 80% of respondents. Over half (51%) of respondents used protective gears such as face masks. Up to 35% of respondents engaged in taking lemon, vitamin C or other vitamin supplements as a measure of prevention against COVID-19 pandemic (table 4).

Table 4: Prevention practices of respondents.

Practices	No. of responses	%
Staying at home	185	88.1
Frequent hand washing/sanitizing	184	87.6
Avoiding contact with sick people	139	66.2
Practicing social distancing	178	84.8
Taking lemon, vitamin C or other vitamin supplements	75	35.7
Wearing protective devices like masks	108	51.4
Taking herbal preparations	1	0.5
Avoiding crowded places	166	79.0
Avoiding unnecessary touching of the eyes, nose and mouth	156	74.3
Other	1	0.5

As a protective measure against COVID-19, respondents were asked if they were willing to report any person that recently returned from a COVID-19 affected country/area. Figure 1 shows that most (99% of) respondents were willing to disclose such information.

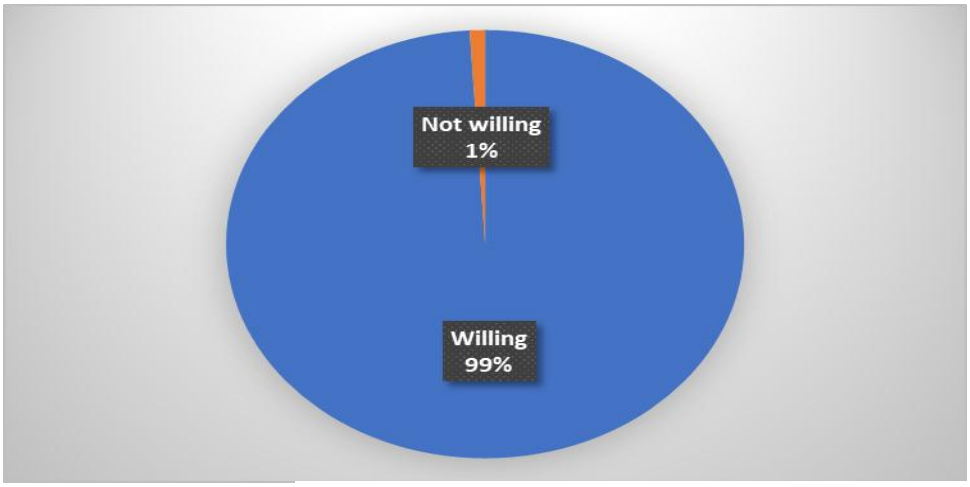

Figure 1: Willingness to report any person that recently returned from a COVID-19 affected country/area.

Risk perception of respondents

As depicted in figure 2, 25% of respondents perceived that they had no risk of contracting the coronavirus infection while low risk was perceived among 47%. The most common reasons given for these perceived levels of risk include lack of contact with a suspected or confirmed case, protective measures being carried out and the conviction of residing in an area which had not reported any transmission. Some respondent also reported that they were immune to the disease (table 5).

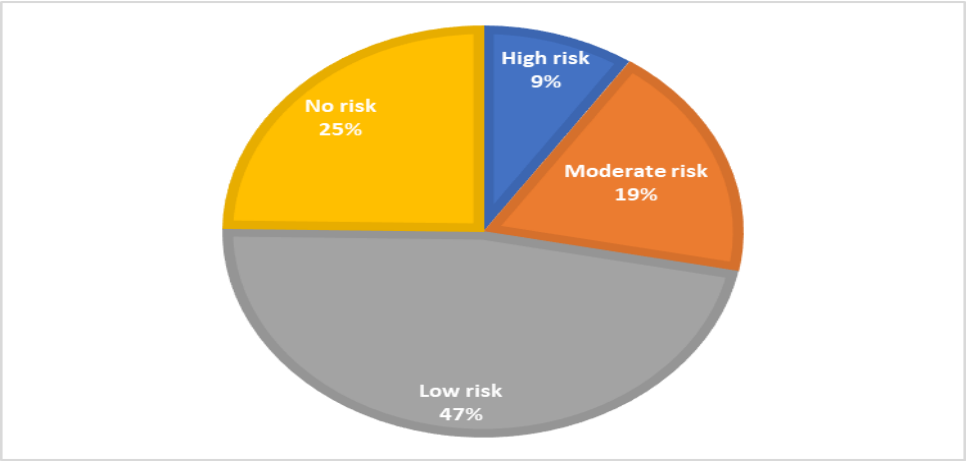

Figure 2: Perception of risk for COVID-19 among respondents.

Table 5: Reasons for perceived risk level.

Reasons	No. of responses	%
I have had close contact with someone who has tested positive or recently returned from an area experiencing the outbreak	5	2.4
I haven't had any contact with a suspected or confirmed case	104	49.5
I recently returned from a place experiencing the outbreak	8	3.8
I am taking every measure to protect myself	129	61.4
I reside in an area that is free of transmission	44	20.9
I am immune to the disease	6	2.9
I don't believe that COVID-19 exists	1	0.5
I am a healthcare worker	24	11.4
Other	5	2.4

Factors associated with risk perception

Occupational status as healthcare worker was found to be significantly associated with risk perception. All (100% of) healthcare workers perceived some risk compared to 72% of non-healthcare workers. Although age was not statistically associated with risk perception, the proportion of those who perceived no risk was highest among the younger age group of 18-30 years (32.3%).

Table 6: Factors associated with risk perception.

Factors	No perceived risk (n=52) Freq (%)	Some perceived risk (n=158) Freq (%)	χ^2	df	p-value
Age range					
18-30	21 (32.3)	44 (67.7)			
31-45	13 (15.9)	69 (84.1)			
46-60	14 (29.2)	34 (70.8)	6.008	3	0.111
>60	4 (26.7)	11 (73.3)			
Gender					
Female	28 (26.4)	78 (73.6)			
Male	24 (23.1)	80 (76.9)	0.575	1	0.633
Location					
Northern Zone	27 (22.5)	93 (77.5)			
Central zone	15 (30.0)	35 (70.0)	1.067	2	0.587
Southern zone	10 (25.0)	30 (75.0)			
Health worker status					
Healthcare worker	0 (0.0)	24 (100.0)			
Non-healthcare worker	52 (28.0)	134 (72.0)	8.918	1	**0.003***

***significant**

DISCUSSION

Respondents generally had good knowledge of the common symptoms of the disease and its protective measures. Authorities including the Plateau State government, the NCDC through its 'TakeResponsibility Campaign,' other agencies and individuals routinely share information on COVID-19 to the general public through SMS, social media, radio, television and other channels. This probably informed the high level of knowledge observed. Other studies conducted among the United States, United kingdom and Chinese nationals have similarly observed high knowledge of COVID-19.[11,12] This is not surprising as the target population for online surveys will mostly include literate and educated individuals who have the resources to access current information. Another study carried out in India showed that respondents had moderate knowledge of COVID-19 with most mentioning regular hand washing as a preventive measure. In that study however, only 18.2% mentioned fever as a major symptom.[13]

In this study, many of the respondents reported that taking lemon and vitamin C was an important measure in preventing the disease, and this was also reflected in their practice. A few also mentioned the use of herbal preparations to prevent the disease. Vitamin C, an important vitamin contained in citrus fruits, has been shown to be a strong immune booster which plays a role in the respiratory defense mechanism and prevention of infectious diseases.[14,15] This awareness may have informed their practice. There is however, no sufficient evidence yet to include intake of vitamin C especially in high doses or citrus fruits, as a standard preventive measure against COVID-19. The WHO has outlined evidence-based measures to be taken in the prevention of the disease and this includes adequate nutrition.[16] This misconception (taking mainly lemon drinks or vitamin C and neglecting other fresh fruits or vegetables that also supply important nutrients to the body) and several other misconceptions on prevention of COVID-19 such as use of herbal preparations, have been circulating on social media which have become established beliefs for many members of the public. A similar observation which entailed public adoption of unverified information on prevention practices was made in another study carried out among US and UK citizens.[12] Lessons learnt from the 2014 Ebola outbreak in Nigeria have shown that panic and anxiety can cause the public to engage in certain practices that result from circulation of false messages on social media.[17] Nevertheless, many study participants reported the practice of staying at home, regular hand washing or use of sanitizers, avoiding large gatherings and practicing social distance, avoiding unnecessary touching of the face, use of protective devices like face masks, and other correct preventive measures. The same observation was made in an Indian study where most respondents engaged in correct prevention practices.[13] This shows that sensitization campaigns towards controlling the spread of coronavirus infection is having a positive impact on the general public to an extent. Efforts should also be made to correct certain misconceptions and circulate accurate information especially on social media. Compared to a Chinese study where up to 98% reported using face masks and 96.4% had not visited crowded places, fewer respondents in this study reported use of protective devices like face masks (51.4%) and 79% avoided crowded places. The reason for this finding could be attributed to the fact that these measures were not yet enforced during the time of this study and also due to the general low level of perceived risks among the respondents.

The Federal Government of Nigeria has urged all residents to take responsibility for controlling this pandemic and this includes reporting persons who fail to comply with protection guideline.[3] In this vein most of the respondents (99%) were willing to report persons that

recently returned from a COVID-19 affected country or area.

Most people residing in areas where there is no or minimal spread of COVID-19 perceive that their risk is low compared to those living in areas where the disease is spreading fast.[1] This also informed the low level of risk perceived by many respondents in this study. As at the time of carrying out this study, no case had been reported in Plateau state and this probably explained why up to 20% of respondents felt that the area was free of transmission. The low level of perceived risk was also attributed to the fact that many respondents had no contacts with infected persons and adequate protective measures were being taken. All healthcare workers on the other hand, perceived some form of risk probably because of the nature of their job which entails having close contacts with patients, many of whom may be infected with the coronavirus but may not show classical signs of the disease. This perception of risk among healthcare workers may be further heightened by the shortage of PPEs during the period of study. Occupational exposure to infectious diseases is high among healthcare workers and that of COVID-19 is not an exemption. A significant proportion of cases have been reported among this category of workers.[18] Risk perceptions are known to generally inform individuals' judgments and evaluations of threats, and can also influence the response of the general public to important messages and information communicated by authorities.[19]

Although not statistically significant, younger respondents aged 18 – 30 years had the highest proportion of those who perceived no risk to COVID-19. The infection has been noted to be more severe among the elderly and this could have informed this perception. Absent or generally low risk perception may affect people's attitude towards taking adequate protective measures or complying with directives from authorities in the fight to end the pandemic.[10,20]

Limitation of the study

This study could only target the population with android phones and access to internet who are literate in either English or Hausa. Hence, findings may not be entirely representative of the State.

CONCLUSION

The knowledge of COVID-19 was found to be high among Plateau State residents who are also taking preventive measures against the disease. However, their perceived risk level for the disease is low except for healthcare workers. Efforts should be intensified by the State government, public health specialists and other relevant stakeholders to sensitize the public with accurate information concerning their risks and address misconceptions about the disease.

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