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Public Knowledge, Attitudes and Practices towards COVID-19: A Cross-Sectional Study in Kogi State, Nigeria.

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Abstract

The COVID-19 pandemic exposed countries to significant health challenges which required prompt implementation of new policies and practices to curb the virus' spread. The success of these measures is linked to the people's knowledge, attitude and practices towards the disease and it is key to determining their readiness to adopt behavioral changes. A cross-sectional online survey of 451 Kogi residents was undertaken between 6th October to 26th November 2020. The survey instrument consisted of demographic characteristics, 13 items on knowledge, 3 items on attitudes and 3 items on practices, modified from a previously published questionnaire on COVID-19. Descriptive statistics, chi-square tests, t-tests and one-way analysis of variance (ANOVA) were used for analysis. A p-value less than 0.05 ($p < 0.05$) was considered statistically significant. The mean knowledge score was 9.6±1.7 for all participants. Most participants held positive attitudes toward the successful control of COVID-19 (72.5%), the ability of Nigerian government to conquer the disease (76.5%) and a few trusted the way the Kogi state government's handling of the crisis (28.6%). Most participants were also taking precautions such as avoiding crowds (89.1%), wearing of face mask (71.6%) and practising proper hand hygiene (86.5%) in the week before the lockdown. Findings of this study brought to fore the importance of delivering consistent health information by the government and her agents as well as the need for tailored health education programs aimed at improving levels of knowledge, attitudes and practices across different settings. It also highlighted the need for the Kogi State government to put in more effort to handle the pandemic.

Keywords: ***attitudes, behaviour changes, health education, knowledge of COVID-19, well-being,***

Introduction

In 2019, Nigeria, like the rest of the world, faced the emergence of a new disease called the coronavirus disease 2019 (COVID-19). This zoonotic illness, transmitted between animals and people, caused significant concern due to its highly contagious nature and severe impact on public health (Habibzadeh & Stoneman, 2020; Rothan & Byrareddy, 2020). During the early stages of the pandemic, there was limited knowledge about COVID-19 and public awareness varied (Azlan et al., 2020).

At the initial stage, more than 2.3 million positive COVID-19 cases were recorded with at least 150,000 deaths globally (WHO, 2019). The outbreak started in December 2019 in Wuhan, China (Chang et al., 2020) and later spread across the globe making it a universal health emergency and its declaration by WHO as a worldwide pandemic. On the 27th of February 2020, Nigeria documented its initial instance of COVID-19 (NCDC, 2020b). By the 31st of May 2020, the nation documented a total of 11,166 confirmed cases and 315 fatalities attributed to the virus. Lagos state had highest cases of COVID-19 infections (NCDC, 2020a).

As the virus continued to spread, Nigeria faced challenges in containing its transmission and managing its impact on public health. The implementation of lockdown protocols was deemed imperative in mitigating the propagation of the virus, given the swift interpersonal transmission dynamics that manifested. Due to limited knowledge about the virus, these measures were considered necessary (Kalu, 2020). Public attitudes towards the pandemic varied, ranging from fear and anxiety to skepticism and misinformation. This diversity in attitudes influenced people's behaviour and adherence to preventive measures such as wearing masks, practicing social distancing, and following public health guidelines (Isah et al., 2020).

However, the effectiveness of these measures depended on the level of public compliance and engagement (Chan et al., 2020). Understanding the prevailing attitudes and practices towards COVID-19 was crucial for tailoring effective public health interventions and communication strategies.

As the pandemic unfolded, researchers and healthcare professionals in Nigeria and across the globe collaborated on further studies to explore treatment options, conduct clinical trials, and develop vaccines. This collective effort not only expanded knowledge about the virus but also underscored the importance of evidence-based research in guiding the country's response to the pandemic. More so, knowledge has been found to influence attitude and practice, which can impact quality of intervention (Isah et al., 2020).

This study seeks to address a critical gap in understanding the awareness, perceptions, and behaviours concerning the ongoing COVID-19 pandemic within the specific context of Kogi State. By comprehensively examining the knowledge levels, attitudes, and practices of individuals in this region, the research endeavours to provide essential insights that can inform targeted public health interventions, policy formulation, and communication strategies aimed

at effectively managing and controlling the spread of COVID-19 within Kogi State and potentially serve as a model for similar settings elsewhere.

Research Questions

1. What is the level of knowledge among the general public in Kogi State, Nigeria, regarding the symptoms, transmission, and risk factors associated with COVID-19?

2. What are the prevailing attitudes and perceptions of the population towards COVID-19?

3. What preventive practices have individuals in Kogi State adopted to protect themselves and others from COVID-19?

4. Are there any significant differences in knowledge, attitudes, and practices towards COVID-19 among different demographic groups (e.g., age, gender, education level, occupation) within Kogi State?

5. What sources of information do individuals in Kogi State rely on for updates and knowledge about COVID-19?

Methods

Study design

A quantitative cross-sectional survey was used in this study as it enables research questions to be answered. This design is relatively easy to replicate and is convenient for data collection and statistical analysis (Wang & Cheng, 2020). Data collection was performed online using questionnaires due to the lockdown. Recruitment was carried out online through social media platforms.

Procedure

This cross-sectional survey was conducted over a three weeks period, starting from 6th October to 26th November 2020. Slovin's formula was used to determine the sample size of 451 at a ±5% margin of error and a confidence interval of 95%. Owing to the nationwide lockdown and social distance preventive measures, data was collected online through the use of Google forms. Inclusion criteria used for the study was based on any Kogi resident above the age of 18 who can read and write and make use of social media apps.

Different techniques were used to reach as many participants as was possible. This includes relying on colleagues, community, church, market and student leaders and social media influencers (Keny media) to air and share the survey online within Kogi State. The major

platforms used in disseminating this survey were social media (Facebook and WhatsApp). This is due to the fact that they are among the most popular communication and social platforms in Nigeria (Statistica, 2022; Ismail, 2021). A total of 451 participants took part in this study.

Study instrument

The instrument that was used to measure Knowledge, Attitude and Practice towards Covid-19 in this study utilised the modified Chinese residents' knowledge, attitudes and practices (KAP) towards COVID-19 in China (Zhong et al., 2020). The questionnaire has 4 themes which include; demographics, knowledge, attitudes and practices relevant to COVID-19. 13 items were adapted from previous research (Azlan, et al, 2020). The first four Items assess the respondent's knowledge of the diseases' clinical presentations item 5-8 examines routes of transmission while 9-13 measures prevention and control knowledge. Participants are to choose a response from 3 options, "true," "false," or "not sure" to these items. To obtain the sum score for the knowledge items, 1 point was allotted to each accurate response and 0 to all wrong and not sure responses. Total obtainable score ranged from 0–13, with higher scores indicating better COVID-19 knowledge

Question 14 -16 on the scale measures attitudes towards COVID-19. Firstly, the participants are to select an option from agree, disagree or not sure responses to whether the pandemic would be successfully controlled. Secondly they are to choose from a yes or no response about their confidence towards the government winning the battle against COVID-19 and finally, the participants are to express their opinion about the government's capacity to handle the COVID-19 pandemic by either agreeing, disagreeing or selecting not sure from the list of options

Questions 17-19 on the questionnaire examined the participant's practices towards the Covid-19 pandemic. The participants were requested to pick from a yes/no response as to whether they had avoided going to crowded places such as markets, worship places or weddings. If they wore a face mask when leaving home; and if they practiced proper hand hygiene in the week before the lockdown.

Statistical analysis

Collated data were analysed using the Statistical Package for the Social Sciences (SPSS), version 26. Descriptive analysis focused on frequencies, and percentages while independent samples t-tests and one-way analysis of variance (ANOVA) were utilised to determine the

differences between groups for selected demographic variables. The statistical significance level was set at p <0.05. Internal consistency of the knowledge measures as reported by (Azlan et al, 2020) was Cronbach alpha for knowledge 0.655 (13 items)**.**

Results

A total of 451 people partook in the study. Mean age was 29 With a SD of ± 5.2, and ranged from 18-65 years, female made up 55%. Majority are Kogi indigenes comprising 78.9% of urban and rural dwellers while non–indigenes living within Kogi made up 27.1%., majority of the participants had a degree 75.4%.

Assessment of knowledge

On the questionnaire, 13 questions measured knowledge of Corona virus, the mean knowledge score was 9.6 for all participants (SD 1.7). Majority (80%) of the study participants scored 9 which represent a good knowledge score. 86.7% knew the main symptoms (fever, fatigue, dry cough and body aches) of the disease, while many (60.3%) could not differentiate between common cold and sneezing. Majority (94.1%) of the respondents identified that the illness had no cure. Over a third (82.7%) had the awareness that not all cases will develop into severe cases. A higher proportion (89. 1 %) recognised that it spreads through respiratory droplets, however a little over a fourth (26.9%) did not believe that it was airborne, and 14% were not sure. See table 1 and 2 below for further details.

Table 1 (frequency table)

	Characteristics	Number	Percentage
Gender	Male	206	55
	female	245	45
Age	18-29	298	66.1
	30-49	121	26.9
	50 and above	32	7
Region of Kogi	East	140	31.0
	Central	88	19.5
	West	55	12.2
	Metropolis	169	13.3
Educational level	Diploma	37	8.2
	Degree	379	84.0
	Masters	35	7.8
Occupation	Retiree	6	1.3
	Public sector	108	23.9
	Private sector	92	20.4
	student	245	54.3

Table 2 for knowledge items

Questions	True	False	I'm not sure
1. The main clinical symptoms of COVID-19 are fever, fatigue, dry cough, and body aches.	**391 (86.7%)**	33 (7.3%)	21 (6.0%)
2. Unlike the common cold, stuffy nose, runny nose, and sneezing are less common in persons infected with the COVID-19 virus.	**179(39.7%)**	173 (38.4%)	99 (22.0%)
3. There currently is no effective cure for COVID-19, but early symptomatic and supportive treatment can help most patients recover from the infection.	**419(94.1%)**	66 (1.4%)	222 (4.6%)
4. Not all persons with COVID-2019 will develop to severe cases. Only those who are elderly and have chronic illnesses are more likely to be severe cases.	**373(82.7%)**	46 (10.2%)	32 (7.1%)
5. Eating or touching wild animals would result in the infection by the COVID-19 virus.	80 (17.7%)	**280 (62.1%)**	91(20.2%)
6. Persons with COVID-19 cannot infect the virus to others if they do not have a fever.	50 (11.1%)	**336(74.5%)**	30 (6.7%)
7. The COVID-19 virus spreads via respiratory droplets of infected individuals.	**402(89.1%)**	19 (4.2%)	520 (10.7%)
8. The COVID-19 virus is airborne.	267(59.6%)	**121 (28.9%)**	63 (14.0%)
9. Ordinary residents can wear face masks to prevent the infection by the COVID-19 virus.	**392 (86.9%)**	41 (9.0%)	18 (4.0%)
10. It is not necessary for children and young adults to take measures to prevent the infection by the COVID-19 virus.	43 (9.5%)	**395 (87.6%)**	13 (2.9%)
11. To prevent the infection by COVID-19, individuals should avoid going to crowded places and avoid taking public transportations.	**405 (89.8%)**	11(7.3%)	33 (2.9%)
12. Isolation and treatment of people who are infected with the COVID-19 virus are effective ways to reduce the spread of the virus.	**427 (94.7%)**	11 (2.4%)	13 (2.9%)
13. People who have contact with someone infected with the COVID-19 virus should be immediately isolated in a proper place. In general, the isolation period is 14 days.	**435 (96.5%)**	6 (1.3%)	10 (2.2%)

Answers in bold are the correct answers

Differences in knowledge scores among different demographic characteristics were assessed using t-tests and ANOVA. The results show that there was a significant difference in the knowledge scores of the participants based on level of education, region, occupation but no difference was noted in gender and age. However, those with higher education (masters) had better knowledge of the disease. All others were not significant. See table below 3

Table 3. Demographic characteristics of participants and knowledge score (N = 451).

Characteristics		No. of participants	Knowledge score (SD)	t / F	P
Gender	Male	248 (55.0%)	9.6 (1.7)	0.380	<0.538
	Female	203 (45.0%)	9.7 (1.7)		
Age group	18–29	298 (66.1%)	9.5 (1.8)	0.116	<.890
	30–49	121 (7.1%)	9.6 (1.8)		
	Above 50	32 (11.2%)	9.5 (1.4)		
Region	Kogi East	140(31.0)	10.7 (2.1)	2.429	**<0.065**
	Kogi West	88(19.5)	10.1 (1.9)		
	Koi Central	55(12.2)	10.4 (1.6)		
	Kogi Metropolis	169(13.3)	10.4 (1.2)		

Education level	Diploma	37(8.2)	10.5 (1.5)	4.867	<**0.008**
	Degree	379(84.0)	10.1 (2.8)		
	Masters	35(7.8)	10.7 (2.0)		
occupation	Retiree	6(1.3)	10.5 (0.5)	1.265	<**0.287**
	Public sector	108(29.0)	9.8 (1.6)		
	Private sector	92(20.4)	9.5 (1.5)		
	Student	245(54.3)	9.6 (1.8)		

Assessment of attitudes

The participant's attitudes were assessed based on question 14 to 16 on the questionnaire as explained above. For the first question, a great deal of the participants agreed that COVID-19 would successfully be controlled (72.5%), 9.8% disagreed while, 17.7% of participants were uncertain whether the virus would be controlled. 76.5% affirmed their confidence in Nigeria wining the Covid-19 battle, only 28.6% agreed that the government of Kogi State is handling the pandemic very well. The attitude of successfully controlling COVID-19 was not significantly related to region, occupation, age group and gender see bar chart and table below for details

Table 4. Demographic characteristics of participants and attitude score (N = 451).

Characteristics		**No. of participants and percentages**	**Attitude score (SD)**	**t / F**	**P**
Gender	Male	248 (55.0%)	1.7(0.8)	.514	.474
	Female	203 (45.0%)	1.8(0.9)		
Age group	18–29	298 (66.1%)	1.7(1.0)	.302	.737
	30–49	121 (7.1%)	1.8(0.9)		
	Above 50	32 (11.2%)	1.6(0.9)		
Region	Kogi East	140(31.0%)	1.7(.08)	.369	.775
	Kogi West	88(19%)	1.8(0.1)		
	Koi Central	55(12.2%)	1.8(.18)		
	Kogi Metropolis	169(13.3%)	1.7(.90)		
Education level	Diploma	37(8.2%)	1.6(.18)	.527	.591
	Degree	379(84.0%)	1.8(.90)		
	Masters	35(7.8%)	1.7(.97)		
occupation	Retiree	6(1.3%)	1.8(.98)	.512	.211

	Public sector	108(2.9%)	1.9(1.0)		
	Private sector	92(20%)	1.6(.86)		
	Student	245(54.3%)	1.7(1.0)		

Assessment of practice

As earlier stated, practice towards Covid-19 it was evaluated by items 17 to 19 on the questionnaire. Study participants were asked to confirm by ticking yes or no if, they avoided crowded places, wore face mask and practiced proper hand hygiene. Majority (83.1 %) of the participants affirmed that they avoided crowded locations, while 16.9 did not, 71. 6% indicated that they wore face masks but the rest 28.4% did not. Lastly 86.5% practiced proper hand hygiene and 13.5% did not. Appropriate hand hygiene performance was significantly linked to gender, region and occupation but not to age, and education level. See bar chart and table below

Table 5. Demographic characteristics of participants and practice score (N = 451).

Characteristics		**No. of participants and percentages**	**Attitude score (SD)**	**t / F**	**P**
Gender	Female	248 (55.0%)	2.4(0.8)	4.3	**0.038***
	Male	203 (45.0%)	2.3(0.9)		
Age group	18–29	298 (66.1%)	2.4 (0.9)	..109	.0.896
	30–49	121 (7.1%)	2.3(0.8)		
	Above 50	32 (11.2%)	2.4(0.9)		
Region	Kogi East	140(31.0%)	2.2(0.9)	9.8	**0.001***
	Kogi West	88(19%)	2.1(0.9)		
	Koi Central	55(12.2%)	2.2(1.0)		
	Kogi Metropolis	169 (13.3%)	2.6 (0.6)		
Education level	Diploma	37(8.2%)	2.2(0.9)	1.480	.0.229
	Degree	379(84.0%)	2.6(1.0)		
	Masters	35(7.8%)	2.4(0.9)		

occupation	Retiree	6(1.3%)	0.3(0.9)	3.049	**0.028***
	Public sector	108(2.9%)	2.4(0.8)		
	Private sector	92(20%)	2.4(0.8)		
	Student	245(54.3%)	2.4(0.9)		

Discussion

This cross-sectional study conducted among Kogi residents in different locations within the state examined their knowledge attitude and practices towards Covid-19. Four hundred and fifty-one Kogi residents' aged between18-65 years took part in the study. More females filled out the questionnaire; this may be due to the fact that females are more inclined to fill out surveys compared to males (Mulder & de Bruijne, 2019). Majority of the study participants were graduates and those in tertiary institutions, this could be tied to the fact that the survey was conducted on-line, hence the respondents were more likely to be educated and had better understanding of the pandemic and ability to assimilate and interpret circulating information, and had the potential to form meaningful opinions (Smyth et al., 2014, Lenehan et al., 2014). The mean knowledge score of all respondent was good and this is similar to other research investigating knowledge of Covid-19 (Reuben et al., 2021, Olapegba et al., 2020, Azlan et al, 2020). This discovery may be related to increased information disseminated to the general public through various media channels during the pandemic (Anikwe et al., 2020, Makolo et al, 2021).

The participants' knowledge of Covid-19 was significantly influenced by region, educational level and occupation. Those in the metropolis had better knowledge compared to those in the districts this may be explained by the fact that they have access to more media outlets, electricity, internet and handsets compared to those in the districts (Ilesanmi, & Afolabi, 2022, Ripon et al, 2021). Those with a master's degree had better Covid 19 knowledge compared to graduates and diploma holders, this result is in tandem with other results (Saadatjoo et al., 2021) and may be associated to the fact that more education is equated to more exposure and understanding.

Finally, students had higher knowledge of Covid-19 when compared to retirees, public and private sector workers. This outcome may be due to the fact that students meet more people in their place of learning and might have paid more attention to the preventive information knowing that they are more at risk of exposure to the virus due to their population dense setting. Ilesanmi, & Afolabi, (2022) affirmed that living with someone in the COVID-19 high risk group was a significant predictor of good COVID-19 health literacy in both rural and urban communities of Ondo State, Nigeria.

The research also found that the attitude of Kogi residents towards Covid-19 was average. A possible explanation is because a lot of the study participants did not believe that Kogi state

government is handling the pandemic very well; this is in agreement with other studies (Nwagbara et al, 2021, Ogolodom et al, 2020.). Moreover, Nigeria as a country viewed the disease as a white man's ailment that cannot reach their domain. They attached little value to it and took their time in implementing early preventive measures (Reuben, et al, 2021). The situation in Kogi was worse because the Kogi state government did not believe in the existence of the disease. The governor insisted that Kogi state has no case of Covid-19; he did not declare a lockdown within the state and asked residents to go about their normal duties. This created fear in most residents hence their poor response (Onakpa & Aruwa, 2021, Tope & Sunday, 2023).

Despite the poor attitudes of the respondents, their practices towards the disease was good, this is consistent with findings by Mousa et al. (2020) and Sengeh et al. (2020). Many participants practiced good hand hygiene, wore face masks and avoided crowded places. The media publicity by the government on preventive measures coupled with fear of being infected, dread of law enforcement agents' brutality and the perceived mortality of the disease may be the possible explanation for this outcome (Odigbo et al., 2020, Chia et al., 2021). Other explanation include gender, education level, region and occupation as found in the study by Udoakang et al. (2022).

Conclusion

This study established that majority of Kogi state residents have good knowledge and practice towards Covid-19. A bulk of them had awareness of the main symptoms but found it difficult to differentiate between common cold and Covid-19. A large proportion of the respondents acknowledged that the illness is incurable not all cases will become severe, however about a fourth of them did not believe that it was airborne. A greater part of the study participants observed the preventive measures but their attitude towards the disease was not so good

Recommendations

Based on findings from this study and studies reviewed in the course of this research, the following were recommended:

Tailored Public Health Education: Targeted public health education campaigns that address specific gaps in knowledge identified by this study should be developed. These campaigns should utilize clear and culturally sensitive communication strategies to enhance the understanding of disease transmission, prevention, and treatment.

Community Engagement Initiatives: Foster community engagement and empowerment by involving local leaders, organizations, and influencers in disseminating accurate information. Community-based approaches can aid in preventive practices and dispel misinformation, thereby enhancing the adoption of safe behaviours.

Regular Data Monitoring and Surveillance: Establish a robust and continuous system for monitoring public knowledge, attitudes, and practices related to diseases such as COVID-19. Regularly collect and analyze data to assess changes in awareness and behaviour over time, enabling prompt adjustments to public health strategies as needed.

Crisis Communication Plan: Develop a comprehensive crisis communication plan that outlines clear protocols for disseminating accurate and timely information during emergencies. This plan should leverage various communication channels, including traditional media, social media, and community networks, to ensure the rapid and effective dissemination of critical updates and guidance.

Long-Term Preparedness: Utilize the insights gained from this study to inform long-term pandemic preparedness plans for Kogi State. Integrate lessons learned into comprehensive strategies that enhance the region's resilience against future health crises and contribute to building a sustainable public health infrastructure.

Limitations

This study is not without limitations. Firstly, the demographic structure of the subjects in this study does not represent that of the overall population in Nigeria because it included only adults. Thus, the knowledge, attitude and practice of the other groups have been excluded. Secondly, this study was conducted in Kogi state, Nigeria, hence, the findings cannot be generalized or used to accurately represent the whole nation. Thirdly, only online data that was collected thus the opinion of those who did not have access to online is absent in this work. Fourthly, the second limitation is related to the KAP instrument used in this study. The instrument was adapted from a survey that had been previously tested and utilized in China and lastly the survey was conducted between October and November, 2020. Thus, it is likely that COVID-19 health literacy has improved among the general adult population in Kogi State at the time this work was written.

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