Research Paper:

"It Is Divine Punishment for Our Sins" Knowledge and Perception of the Cause, Symptoms, and Mode of Transmission of the COVID-19 Disease Among Local Traders in Nigeria

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ABSTRACT

Background: Access to correct information can influence the formation of the right attitude towards mitigating the spread of the COVID-19. Many individuals in Nigeria have taken up non-scientifically approved practices in a bid to protect themselves from the virus. The aim of this study was to assess the source of information, and knowledge of the cause and mode of transmission of the COIVD-19 among local traders in Ibadan, Oyo State, Nigeria.

Methods: A cross-sectional study of local traders from two densely populated markets in Ibadan was conducted using an interviewer-administered semi-structured questionnaire. Data were analyzed using SPSS software v. 25 and Microsoft Excel 2016 and were presented in frequency tables and charts. The Chi-square test was used to test the associations. The level of significance was set at $P<0.05$.

Results: A total of 321 traders (27.4% were males and 72.6% were females) were recruited with a Mean±SD age of 39.4±11.8 years. Radio (93.5%) and television (75.7%) were the most commonly used sources of information, 65.8% believed that COVID-19 was a result of divine punishment for sins and the majority (95.3%) reported that COVID-19 was spread through personal contact with infected persons. There was a statistically significant association between knowledge of cause and age (P=0.004), as well as between knowledge of cause and marital status (P=0.001). Additionally, a statistically significant association was observed between knowledge of transmission and level of education (P=0.012).

Conclusion: Even though they have access to adequate information, people may not take proper actions to protect themselves and others from contracting the COVID-19. Reinforced health promotion strategies that pay attention to the local contexts and perspectives of community members should be taken across the board.

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1. Introduction

The coronavirus disease 2019 (COVID-19) is a respiratory infection that is caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) [1, 2]. After the first report of the outbreak in Wuhan, China, the disease soon became one of the issues that needed global attention [3]. As of October 26, 2021, there have been 243,857,028 confirmed cases, and 4,953,246 deaths globally as well as 211,171 confirmed cases and 2,884 deaths in Nigeria [4, 5].

The manifestation of COVID-19 could be mild or severe. Fever, cough, shortness of breath, myalgia, anosmia, tiredness, anorexia, and on some occasions, confusion are common symptoms of the infection [6]. Other less frequently reported symptoms are chest pain, sore throat, nausea, dizziness, and abdominal pain [7, 8]. Older people and those with underlying health challenges are at greater risk of contracting the virus and being severely ill from the infection [9]. Preventive measures, such as frequent handwashing, social distancing, wearing nose masks, and maintaining good general hygiene practices have been encouraged to curtail the spread of the virus [10], apart from the rapid vaccination actions being taken around the world [11].

As part of the nation's infection prevention and control efforts, the Nigerian government in partnership with several organizations designed public health campaigns across several mass media platforms, established emergency isolation and operations centers, and created a toll-free line where suspected cases can be reported [5, 12, 13]. Nonetheless, there are several myths and misconceptions of the disease in the Nigerian populace [14], leading to the exhibition of care-free attitudes and the exploration of non-medically ascertained preventive practices.

Several studies reporting the knowledge, attitude, and practices of Nigerians towards the COVID-19 pandemic are well documented [12, 15-17], and a review of the literature continues to reveal that while COVID-19-related information is not scarce, significant changes have not been made in the perceptions and attitudes of some people. The non-formal populace is not well-represented in the body of research that has been conducted so far; hence, this study was done to assess the source of information, knowledge of the cause, and mode of transmission of the COIVD-19 among local traders in Ibadan Nigeria.

2. Methods

Study design: A cross-sectional study

Study setting and research population: This study involved both male and female traders in Bodija and Oje markets in Ibadan, Oyo State, Nigeria. Both markets are large daily markets where all forms of commodities (e.g., food, clothing, household items, etc.) are sold; hence, they have high support from many community members.

Sampling and sample size: The convenience sampling method [18] was used to recruit a total of 321 traders. We utilized this sampling method for data collection, which has become increasingly difficult since the pandemic started. At the time of this research, Nigeria was entering the second wave of the COVID-19 outbreak and another lockdown was imminent. In addition, the two markets where the study was conducted are open markets with traders haphazardly stationed in open spaces and by the roadside. Particularly because not all traders had a definite place of sale, utilizing the random sampling method in this situation could only be theoretically possible. A total of 321 traders were interviewed from the two markets.

Inclusion/exclusion criteria: We included traders who did business in Bodija and Oje markets. Those who were not based in the aforementioned markets or did not consent to participate in this study were excluded.

Measurement tool and data collection: A semi-structured questionnaire was designed for suitability to the outcomes of interest since there is not a validated instrument for measuring such COVD-19 awareness indices. The tool was administered by interviewers and it covered sections on socio-demographic characteristics, sources of information, symptoms, and preventive practices for COVID-19. The interviewers were research assistants with at least a university degree all of whom were pretrained on research ethics and data collection procedures by the principal investigator who was a Consultant Community Physician. The data collection process was also supervised by the principal investigator during the time of the research. Research assistants were daily assessed and monitored on the field by regular spot checks all through the data collection period. Data quality was ensured by daily checking for data completion. Incomplete questionnaires were flagged and removed.

Validation of survey instrument

A pretest of the survey instrument was carried out on a few persons before it was validated for use among the

population of interest. Results from the pretest are not reflected in our final analysis. Since the COVID-19 is an emerging infectious disease, tools for investigating themes around the virus are still being investigated. At the time of this study, there was no public widely validated questionnaire to test the indices that we investigated in this research. Therefore, the questionnaire for our study was researcher-made based on the outcomes of interest. Face and content validity was performed and only relevant items, which measured the dimensions of interest were retained. Items on the questionnaire were evaluated for internal reliability using Cronbach's α giving us a value of 0.85, which is an indication of internal reliability according to previous research [19, 20].

Data analysis: IBM SPSS software v. 25 (Statistical Package for the Social Sciences® 25 Inc., Chicago, IL, USA) and Microsoft Excel 2016 were used for data analysis. Descriptive statistics were presented in frequency tables and charts. The Likert scales were evaluated for internal reliability using Cronbach's α, which gave a value of 0.85. The questions on the knowledge of the cause of COVID-19 were coded 1 for correct answers and 0 for wrong answers. The Chi-square test was used to test the associations between categorical variables. A $P<0.05$ was considered statistically significant.

3. Results

A total of 321 traders were recruited into the study. Mean±SD age was 39.4±11.8 years (Table 1). All the participants were aware of COVID-19 and the main source of their information was the radio, followed by television (Figure 1). Majority of the respondents mentioned that COVID-19 was as a result of divine punishment for sins (Figure 2).

Most people reported that COVID-19 was spread through personal contact with infected persons (Figure 3). Dry cough (84.7%), catarrh/runny nose (62.6%), sneezing (57.9%), breathing difficulty (57.9%), and headache (50.8%) were the most reported symptoms that participants were familiar with. There was a statistically significant association between knowledge of cause, knowledge of transmission and some socio-demographic characteristics. No statistically significant associations were found between preventive practices and the knowledge of the cause of COVID-19 (Table 2).

4. Discussion

The COVID-19 pandemic has significantly threatened public health systems worldwide. In this study, we examined the source of information, knowledge of

Table 1. Sociodemographic characteristics

Variables/Mean±SD		No.(%)	Mean±SD
Sex	Male	88(27.4)	
	Female	233(72.6)	
Age (y)	≤20	27(8.4)	39.4±11.8
	21-30	50(15.6)	
	31-40	108(33.6)	
	41-50	89(27.7)	
	>50	47(14.6)	
Marital status	Single	43(13.4)	
	Married	278(86.6)	
Tribe	Yoruba	305(95.0)	
	Igbo	16(5.0)	
Religion	Christian	139(43.3)	
	Muslim	181(56.4)	
	Traditional	1(3)	
Education	None	24(7.5)	
	Primary	66(20.6)	
	Secondary	196(61.0)	
	Tertiary	35(10.9)	

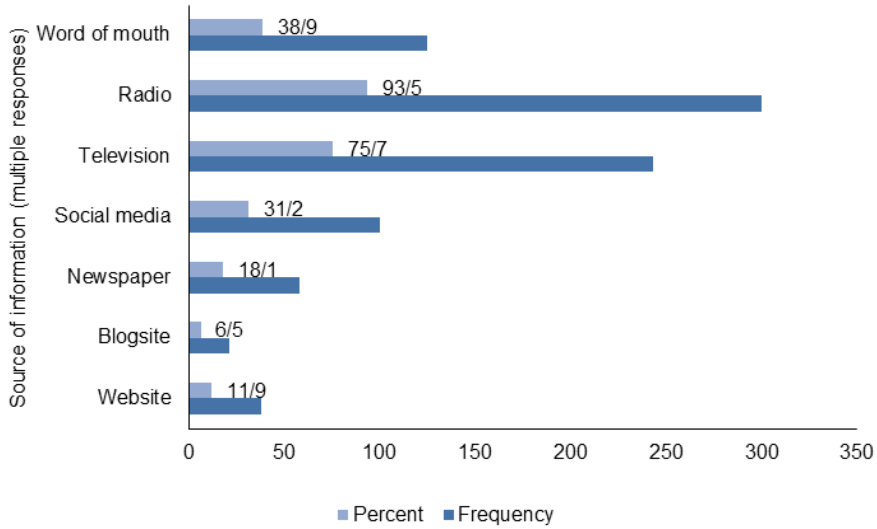

Figure 1. Source of information

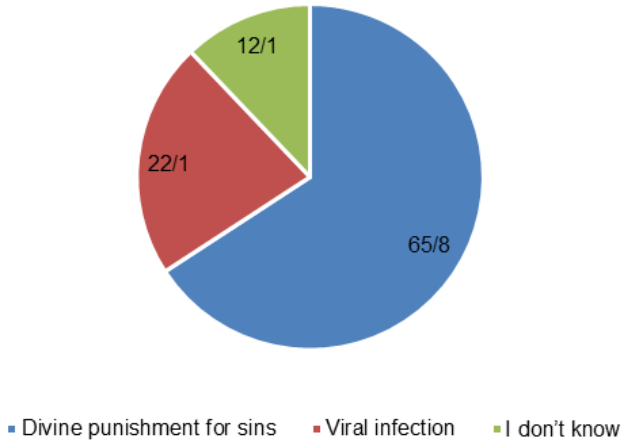

Figure 2. Knowledge of the cause of COVID-19

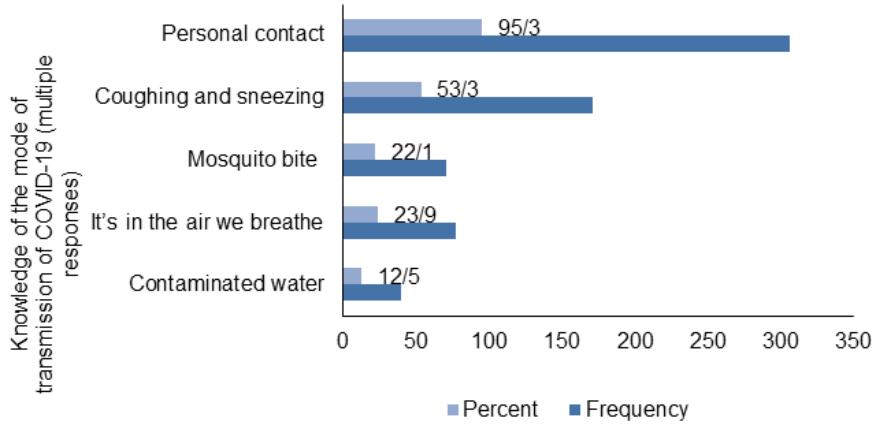

Figure 3. Knowledge of the mode of transmission of COVID-19

Table 2. Association between knowledge of cause/transmission of COVID-19 and sociodemographics/preventive practices

Variables			No.(%) Knowledge of Cause			No.(%) Knowledge of Transmission		
			Good	Poor	P	Good	Poor	P
Sociodemographics	Age	≤20	11(15.5)	16(6.4)	0.004	16(12.1)	11(5.8)	0.243
		21-30	11(15.5)	39(15.6)		20(15.2)	30(15.9)	
		31-40	21(29.6)	87(34.8)		38(28.8)	70(37.0)	
		41-50	25(35.2)	64(25.6)		37(28.0)	52(27.5)	
		>50	3(4.2)	44(17.6)		21(15.9)	26(13.8)	
	Sex	Male	26(36.6)	62(24.8)	0.052	36(27.3)	52(27.5)	1.000
		Female	45(63.4)	188(75.2)		96(72.7)	137(72.5)	
	Marital status	Single	22(31.0)	21(8.4)	0.001	20(15.2)	23(12.2)	0.506
		Married	49(69.0)	229(91.6)		112(84.8)	166(87.8)	
	Tribe	Yoruba	66(93.0)	239(95.6)	0.361	122(92.4)	183(96.8)	0.115
		Igbo	5(7.0)	11(4.4)		10(7.6)	6(3.2)	
	Level of education	No education	2(2.8)	22(8.8)	0.090	12(9.1)	12(6.3)	0.012
		Primary	13(18.3)	53(21.2)		37(28.0)	29(15.3)	
		Junior secondary	2(2.8)	19(7.6)		4(3.0)	17(9.0)	
		Senior secondary	43(15.5)	132(52.8)		64(48.5)	111(58.7)	
		Tertiary	11(15.5)	24(9.6)		15(11.4)	20(10.6)	
Preventive practices	Careful and frequent hand washing	Yes	68(95.8)	239(95.6)	1.000	128(97.0)	179(94.7)	0.412
		No	3(4.2)	11(4.4)		4(3.0)	10(5.3)	
	Maintain social distancing	Yes	45(63.4)	167(66.8)		82(62.1)	130(68.8)	0.232
		No	26(36.6)	83(33.2)		50(37.9)	59(31.2)	
	Avoid touching of the face	Yes	63(88.7)	209(83.6)		119(90.2)	153(81.0)	0.027
		No	8(11.3)	41(16.4)		13(9.8)	36(19.0)	

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the cause, and spread of COVID-19 among traders in Ibadan, Nigeria.

The mass media has been reported to play different significant roles in health promotion and education [21], such as creating awareness on diseases and implementing programs to trigger behavioral change. Since the beginning of the COVID-19 pandemic, mass media has been utilized as a principal wellspring of information about the virus [22]. Respondents in this study majorly got information from the radio and television contrary to reports from other studies where knowledge was mostly gotten from the Internet and social media [17, 23]. Our findings, however, are in line with those of Olapegba et al. who reported that over 90% of study participants relied on the radio or television for COVID-19-related information [15]. A possible explanation for our results is the occupation and literacy of our respondents, which may not make it convenient or possible for them to explore the use of other contemporary sources of information, such as blog sites, newspapers, or social media.

Less than a quarter of our study participants were of the opinion that COVID-19 is caused by a viral infection; the majority believed that the disease was divine punishment for sins. This is in tandem with one study where only 34.7% knew that a virus is the causative agent of the disease [16]; however, it contrasts with findings from some researchers who report the right knowledge of cause among the majority [17, 24]. While it is not clear whether or not the cause of COVID-19 was a priority message in the media sources that were mostly explored by our respondents, we speculate that the absence of the right knowledge of the cause of the disease may be related to the presence of strong cultural and religious opinions about disease causation among some Nigerians [25, 26].

Human-to-human transmission of the coronavirus occurs through close contact with someone who is infected

and exposure to his or her cough, sneezing, or respiratory droplets [27]. The aforementioned were majorly selected by our respondents as means, through which the virus can be contracted, which may be an indication of having knowledge in that regard. Other studies have also reported that study participants had good knowledge of ways, through which COVID-19 is transmitted and symptoms that accompany the disease [24, 28]. Symptoms, prevention, and mode of transmission of the COVID-19 were frequently aired across many local and international radio and television programs, especially at the beginning of the pandemic.

Since the onset of the global outbreak, particularly at the local level, health departments and organizations have doubled up efforts to sensitize the general public about symptoms of the disease, preventive measures, as well as steps to take in the event that there is a suspected case of infection. For instance, WHO set up a dashboard dedicated to giving global updates on the state of the pandemic on a daily basis [4]. Additionally, in Nigeria, the Nigeria Centre for Disease Control (NCDC) has since taken its campaign actions to radio and television stations in order to counter misinformation on the disease [13]. This is apart from the webpage that the body created to provide national updates about the disease on a daily basis [5] and the SMS prompts sent by network service providers in collaboration with NCDC. It is therefore not surprising that our study participants were well-aware of how COVID-19 can be contracted even though most of them had a wrong notion of the source of the viral disease.

Results from an online survey in China and Venezuela respectively report significant values for knowledge score and age, as well as for knowledge score and marital status among others [29, 30]. In this study, age and marital status had significant associations with knowledge of the cause of COVID-19, while the level of education was found to be significantly associated with modes of transmission of COVID-19. Other studies utilizing similar age categories with this research reported the significant associations between age and knowledge of COVID-19 [31, 32]. Knowledge is important to set a foundation for beliefs that can negatively or positively influence attitudes or the utilization of coping strategies for a particular health cause [33].

Our study is limited by the convenient sampling method that was adopted. Hence, we cannot categorically state that our results are reflective of all market traders in Ibadan, Nigeria. Careful considerations should be made before generalizing study findings to other populations. Future research may build upon our findings to qualitatively investigate the factors that may influence the perceptions of traders in our study site, as well as in other markets in Nigeria.

5. Conclusion

Findings from the current study suggest a significant gap in the knowledge of the cause of COVID-19 amongst the participants despite the high level of awareness through the mass media. Using results from this study, more intentional localized health promotion and behavior change programs can be designed to correct wrong perceptions and curb the spread of the virus. This study fills an important gap by investigating a scarcely represented population in COVID-19 research.

Ethical Considerations

Compliance with ethical guidelines

This study was approved by the Department of Research, Planning, and Statistics Division of the Oyo State Ministry of Health (Code: AD 13/479/2046A). Additionally, in line with the 1964 Helsinki Declaration [34], our research did not violate the rights of humans in any form and having carefully explained the objective of the study we sought the voluntary consent of participants before they were recruited.

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Authors' contributions

Conceptualization and supervision: Olubukola Omobowale; Methodology: Olubukola Omobowale and Adeola Fowotade; Writing -original draft: Olubukola Omobowale; Writing -review and editing: All authors; Data collection: Olubukola Omobowale and Temiloluwa Iyanda; Data Analysis: Olubukola Omobowale and Temiloluwa Iyanda; Funding acquisition and resources: Olubukola Omobowale.

Conflict of interest

The authors declared no conflict of interest.

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