Research Article

Corona virus disease (covid-19); awareness, knowledge and misconceptions among patients seen in a primary care setting of a teaching hospital in ilorin, North Central Nigeria

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Abstract

Background: A pandemic of Corona Virus Disease (Covid-19), perhaps the most ravaging epidemic in contemporary history broke out in Wuhan, Hubei Province of China in December 2019 with a significant global mortality of over seventy-five thousand so far and over 1.4 million infected people and still counting. Covid-19 infections have been reported in 204 countries of the world so far. Nigeria so far, has two hundred and thirty two positive cases, thirty-three have been treated and discharged home and five deaths have been reported. Twelve out of the thirty-two states of the federation have reported cases of Covid-19.

The World Health Organization on January 30, 2020 declared the Corona Virus outbreak a global health emergency This, was quickly followed on March 11, 2020 by the World Health Organization's Director General's official declaration of the novel Corona Virus Disease as a pandemic. In Nigeria it appears that knowledge of Covid-19 is generally low with associated paucity of data on the subject matter. The aim of this research was to assess the awareness, knowledge and misconceptions about Corona Virus Disease in Ilorin, Nigeria.

Methods: This was a hospital based, cross sectional, descriptive study of four hundred respondents who attended the University of Ilorin Teaching Hospital, Family Medicine Department Out- Patients Clinic, from 3rd February through 31st March, 2020. A semi-structured questionnaire was used to collect data on socio-demographics, awareness, knowledge and misconceptions about Covid-19.

Results: The minimum age of the respondents was 20 years while the maximum was 80 years. The mean age was 43.3150 ± 17.11133. There were more female 344(86.0%) than male 56(14.0%). Majority were married 264(66.0%). One hundred and nineteen (29.8%) had primary education, 171(42.8%) had secondary school education, while 82(20.5%) were without formal education. They were predominantly Muslims 288(72%) and of Yoruba ethnic group 358(89.5%). Majority of the respondents were traders 131(32.8%) and only (14.0%) were students. Although 370 (92.5%) had heard of Covid-19, only 16 (4.0%) knew the numbers to call when Covid-19 was suspected. In addition, one hundred and fifty six (39.0%) had poor knowledge of Covid-19, 102(25.5%) had a fair knowledge, while 142 (35.5%) had good knowledge of Covid-19. Eighty eight (22.0%) thought Covid-19 was treatable. Three hundred and twelve (78.0%) knew that neither definitive drugs nor vaccine was available for the management of the disease. Twenty six (6.5%) of the 88(22.0%) who thought that Covid-19 was treatable believed that traditional medication could cure Covid-19. The major source of information was through the radio 313(78.2%) followed by 37(9.3%) from neighbours while health workers were responsible only for 32 (8.0%). One hundred and fifty eight (39.5%) believed that Covid-19 was an air borne disease, 32(8.0%) believed it was transmitted through mosquito bites and 26(6.5%) by bacteria. Eighty nine (22.2%) had the right knowledge of Covid-19 being of viral origin. Seventy nine (19.8%), 76(19.0%), 53(13.2%) believed that traditional healers, spiritual healers and bathing with salt and hot water respectively could treat Covid-19 successfully.

Conclusion: In Ilorin, North Central Nigeria, Covid-19 awareness is high, but comprehensive knowledge of Covid-19 is generally low with associated serious misconceptions. Radio is by far the preferred means for receiving information about the Corona Virus Disease. These public health gaps must be addressed to contain the pandemic that is currently ravaging the country even as at the time of writing this paper.

Keywords: Awareness; Knowledge; Misconceptions; Corona Virus Disease (Covid-19)

Introduction

Over the past two decades, the world has faced the challenges of several infectious disease outbreaks. Ebola Virus Disease, Influenza A (H1N1), Severe Acute Respiratory Syndrome, Middle East Respiratory Syndrome, Zika Virus and most recently, Covid-19, have had a massive global impact in terms of mortality, economic disruption, strain on local and global public health resources and above all, human health. The Corona Virus Disease (Covid-19) is a highly transmittable and pathogenic viral infection caused by the Severe Acute Respiratory Syndrome Corona Virus 2 (SARS-CoV-2), which emerged in Wuhan, China and spread very rapidly around the world [1]. Genomic analysis so far revealed that SARS-CoV-2 is phylogenetically like (SARS-like) Bat viruses, therefore Bats could be the possible primary reservoir [2]. The intermediate source of origin and transfer to humans is not known, however the rapid human to human transfer has been confirmed widely [2]. Patients with Covid-19 initially are asymptomatic and will later within the incubation period of 14 days present with non-specific symptoms such as fever, cough, sore throat, respiratory distress, acute respiratory distress syndrome and later may progress to multi-organ failure [3]. Patients are known to spread the virus and could infect others even while they are asymptomatic.

As at 30th March 2020, the World Health Organization (WHO) reported a total of over 800,141 cases of Covid-19 and over 40,000 deaths. The first case of Covid-19 in Nigeria was an Italian engineer and consultant of a cement factory in Ogun State, a major gateway to the country, who became ill two days upon arrival from Italy on 11th March 2020. He was treated and has been discharged from the Infectious Diseases Hospital in Lagos. As at the 30th of March 2020, Nigeria had 139 cases, 8 had been treated and discharged home with 2 deaths [4]. Lagos State, the commercial capital of Nigeria is the epicenter of the outbreak in Nigeria. The Federal Capital Territory Abuja is closely following Lagos in terms of the number of cases with other cases reported in 9 of the 32 states that constitute Nigeria. Currently in Nigeria, most of the States are on lockdown with curfew imposed by the various State Governors in a bid to contain the pandemic in Nigeria. The Federal and State governments have responded by massive public enlightenment, setting up of more treatment centers, testing of those at risk especially contacts of those who have tested positive. There is also an aggressive contact tracing of contacts and this has been greatly facilitated by the total lockdown in the Federal Capital Territory Abuja, Lagos and Ogun States. In a country with a weak health system where the annual health budget is less than 10% of the total national budget, there is panic and anxiety amongst the general populace especially from the news media about how Covid-19 is ravaging the highly industrialized countries of Italy, Spain, United States of America and China among others [5].

Very few studies in Nigeria have examined the awareness, knowledge and misconceptions of Covid-19 so far. With a low budgetary health allocation, a large population, a high level of illiteracy and poverty and a generally weak health system Nigerians are in fear, panic and anxiety [5]. This study will therefore fill a large gap of knowledge on this rapidly spreading pandemic in Nigeria and lessons learnt may help in containing the pandemic.

Methodology

Following institutional ethical approval by the Ethical Review Committee of the University of Ilorin Teaching Hospital Ilorin, the study was conducted at the Out-patients' Clinic of the Family Medicine Department. Using Fisher's Statistical Formula [6].

$$n = \frac{z^2 pq}{d^2} \text{ , } Where$$

n = the desired sample size (when population is greater than 10,000)

z = the standard deviate, usually set at 1.96 (or more simply at 2.0), which corresponds to the 95 percent confidence level,

p = the proportion in the target population estimated to have a particular characteristic, since there is no reasonable estimate and no available previous studies, 50% prevalence was therefore used (i.e. 0.50).

q = 1.0 − p

d = degree of accuracy desired, usually set at 0.05 or occasionally at 0.02

$$n = \frac{(1.96)^2 (0.50)(0.50)}{(0.05)^2}$$

n = 384

since

n (the entire population) is less than 10,000, the required sample size will be smaller

$$nf = \frac{n}{1 + \frac{(n)}{(N)}} \text{ , where,}$$

nf = the desired sample size when populations is less than 10,000

n = the desired sample size when the population is more than

10,000

n = *the estimate of the population size*

$$nf = \frac{n}{1 + \frac{(n)}{(N)}} = \frac{384}{1 + \frac{384}{1000}} = \frac{384}{1.38} = 278$$

A minimum sample size of 278 was calculated but 400, was used to provide for non-response and non-response bias. The inclusion criteria were all patients who attended the Out-patients clinic of the Family Medicine Department of the University of Ilorin Teaching Hospital, Ilorin within the period of 3rd February through 31th March 2020. The exclusion criteria were those who were very sick and therefore could not be part of the study.

A semi-structured questionnaire, made up of close-ended questions was used to collect data. It was serially numbered and interviewer administered. The researchers administered the questionnaire, assisted by well-trained research assistants who were resident doctors in Family Medicine. Administration of questionnaire was done during normal clinic hours usually after clinical consultation.

Pretesting of the questionnaire was carried out at the Kwara State Civil Service Hospital, Ilorin, Kwara State, using 40 respondents (10% of the sample size). This helped to further fine tune the questionnaire and remove ambiguities.

Knowledge was determined after interviews were completed by scoring the patients from fifteen questions based on the cause and symptoms as well as transmission of Covid-19. Respondents that scored below 5 were considered as having poor knowledge while those that got 5-9 questions correctly were considered fair, good knowledge involved getting more 10 questions correctly. Chi-square analysis was used for the data.

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Results

Table 1 shows the socio-demographic characteristics of the respondents. The minimum age of the respondents was 20 years while the maximum was 80 years. The mean age was 43.3±17.1 there were more female 344 (86.0%) than male 56 (14.0%). Majority were married 264 (66.0%), 65 (16.2%) were single while 53 (13.3%) were widows. One hundred and nineteen (29.8%) had primary education, 171 (42.7%) had secondary education while 82 (20.5%) were without formal education. They were predominantly Muslims 288 (72%) and of Yoruba ethnicity 358 (89.5%). Majority were traders 131 (32.8%) while 56 (14.0%) were students.

Table 1: Socio-demographic characteristics of the respondents.

Variables	Frequency	(%)
Age groups		
<30	107	26.8
30-39	76	19
40-49	59	14.8
50-59	69	17.2
60-69	56	14
>=70	33	8.2
Total	400	100
Gender		
Male	56	14
Female	344	86
Total	**400**	**100**
Marital Status		
Single	65	16.2
Married	264	66
Divorced	14	3.5
Widowed	53	13.3
Separated	4	1
Total	**400**	**100**
Level of Education		
None	82	20.5
Primary	171	42.7
Secondary	119	29.8
Tertiary	28	7
Total	400	100
Religion		
Islam	288	72
Christianity	112	28
Total	400	100

Occupation		
Trader	131	32.8
Civil Servant	45	11.2
Self Employed	125	31.2
Unemployed	43	10.8
Student	56	14
Total	400	100
Ethnicity		
Yoruba	358	89.5
Igbo	16	4
Hausa	4	1
Nupe	10	2.5
Others	12	3
Total	**400**	**100**

Table 2 shows awareness of Covid-19 outbreak, and the last Ebola Virus Disease outbreak among the respondents. Three hundred and seventy (92.5%) had heard of Covid-19 but only 16 (4.0%) knew the Covid-19 emergency phone numbers. In addition, 327 (81.8%) were aware of the 2014 epidemic of Ebola Virus Disease in West Africa. Eighty eight respondents (22.0%) thought Covid-19 was curable. Three hundred and twelve (78.0%) of the respondents knew that neither specific drugs nor vaccine were available for treatment. Twenty six (6.5%) of the 88 (22.0%) who thought that Covid-19 was curable believed that traditional medication could cure Covid-19.

Table 2: Awareness of Corona Virus Disease (Covid-19).

Have you heard of Covid-19?	Frequency	(%)
Yes	370	92.5
No	30	7.5
Total	400	100
Do you know the Covid-19 Emergency phone numbers to call?		
Yes	16	4
No	364	96
Total	400	100
Are you aware of the last major epidemic of Ebola Virus Disease?		
Yes	327	81.8
No	73	18.2
Total	400	100
Do you think Covid-19 is Curable?		
Yes	88	22
No	312	78
Total	400	100
Can traditional medications cure Covid-19?		
Yes	26	6.5
No	374	93.5
Total	400	100

Table 3 shows the Covid-19 knowledge of the respondents. One hundred and fifty six (39.0%) had poor knowledge, 102 (25.5%) had a fair knowledge, while 142 (35.5%) had a good knowledge of Covid-19. Age group and marital status of the respondents were statistically significant. Level of education of the respondents was not statistically significant.

Table 3: Association between socio-demographic factors and knowledge of Covid-19.

Variables	Knowledge Group			Total	Chi-square	p-value
	Poor Knowledge	Fair Knowledge	Good Knowledge			
Age Groups						
<30	19(12.2%)	24(23.5%)	64(45.1%)	107(26.8)	78.072	<0.001
30-39	33(21.2%)	16(15.7%)	27(19.0%)	76(19.0)		
40-49	18(11.5%)	17(16.7%)	24(16.9%)	59(14.7)		
50-59	38(24.4%)	22(21.6%)	9(6.3%)	69(17.3)		
60-69	34(21.7%)	6(5.8%)	16(11.3%)	56(14.0)		
>=70	14(9%)	17(16.7%)	2(1.4%)	33(8.2)		
Total	156(100%)	102(100%)	142(100%)	400(100%)		
Gender						
Male	16(10.3%)	19(18.6%)	21(14.8%)	56(14.0%)	3.703	0.157
Female	140(89.7%)	83(81.4%)	121(85.2%)	344(86.0%)		
Total	156(100%)	102(100%)	142(100%)	400(100%)		
Marital Status						
Single	15(9.6%)	20(19.6%)	30(21.1%)	65(16.3%)	51.95	<0.001
Married	88(56.4%)	78(76.5%)	98(69.0%)	264(66.0%)		
Divorced	10(6.4%)	0(0.0%)	4(2.9%)	14(3.5%)		
Widowed	39(25.0%)	4(3.9%)	10(7.0%)	53(13.2%)		
Separated	4(2.6%)	0(0.0%)	0(0.0%)	4(1.0%)		
Total	156(100%)	102(100%)	142(100%)	400(100%)		
Level of Education						
None	30(19.2%)	22(21.6%)	30(21.1%)	82(20.5%)	3.129	0.792
Primary	69(44.2%)	42(41.2%)	60(40.3%)	171(42.7%)		
Secondary	50(32.1%)	29(28.4%)	40(28.1%)	119(29.8%)		
Tertiary	7(4.5%)	9(8.8%)	12(8.5%)	28(7.0%)		
Total	156(100%)	102(100%)	142(100%)	400(100%)		

Table 4 shows the main sources of information of Covid-19 among the respondents in Nigeria and worldwide. The major source of information was through the radio 313 (78.2%) followed by 37 (9.3%) from neighbours. Health workers were responsible for only 32 (8.0%) of the respondents' knowledge on Covid-19. The radio was also the main source of information of the Covid-19 pandemic in Nigeria and worldwide.

Table 4: Main sources of information of Covid-19.

Main Sources of Information of Covid-19 in Nigeria	Frequency	(%)
Neigbours	37	9.3
Friends	6	1.5
Radio	313	78.2
Newspapers	4	1
Health workers	32	8
Relatives	4	1
Others	4	1
Total	400	100
Main Sources of Information of Covid-19 Pandemic		
Neigbours	34	8.5
Friends	2	0.5
Radio	334	83.5
Newspapers	4	1
Health workers	22	5.5
Others	4	1
Total	400	100

Table 5 above shows the misconceptions about the cause and treatment of Covid-19. One hundred and fifty eight (39.5%) of the respondents believed that Covid-19 was entirely air borne, 32 (8.0%) of the respondents believed it is from mosquito bites, 26 (6.5%) of the respondents thought it was from bacteria. Eighty nine (22.2%) had the right knowledge of Covid-19 being of viral origin. Seventy nine (19.8%), 76 (19.0%), 53 (13.2%) believed that traditional healers, spiritual healers and bathing with salt/palm oil/lime and hot water respectively could treat Covid-19 successfully.

Table 5: Misconceptions about the cause and treatment of Covid-19.

Misconceptions	Frequency	(%)	
Misconceptions about the Cause of Covid-19			
Air borne	158	39.5	
Mosquito bites	32	8	
Virus	89	22.2	
Bacteria	26	6.5	
Don't know	95	23.8	
Total	400	100	
Misconceptions about Treatment of Covid-19	Yes (%)	No (%)	Total
Traditional healers can treat it successfully	76(19)	324(81)	400(100)
Spiritual healers can treat it successfully	79(19.8)	321(80.2)	400(100)
Bathing with salt/palm oil/lime/ and hot water	53(13.2)	347(86.8)	400(100)

Table 6 above shows the preventive measures as well as practices of preventive measures against Covid-19 by the respondents. Although 309 (77.2%) believed that regular hand washing and use of sanitizers could prevent Covid-19, only 299 (74.5%) practiced regular hand washing or used sanitizers, while 229 (57.2%) felt that reducing contact with the infected Covid-19 patients would prevent the disease, although only 136 (34.0%) would practice it. Though 262 (65.5%) knew that proper wearing of approved face masks would prevent Covid-19, only 211 (52.8%) would practice it.

Results

Awareness is critical to containing the rapidly spreading Covid-19 pandemic in Nigeria and other developing countries of the world with weak and poorly funded health systems. To a large extent, lack of information and low level of education and poor community mobilization are hindrances to a proper response to the Covid-19 pandemic in Nigeria.

In Ilorin in North Central Nigeria, 156 respondents (39.0%) had poor knowledge of Covid-19, this is comparable to that of the study in Sierra Leone during the 2014 Ebola Virus Disease epidemic where only 39% of the respondents were able to identify three means of prevention and rejected three misconceptions about Ebola Virus Disease [7]. While not sufficient in itself, comprehensive knowledge is a critical

component in increasing the likelihood of individuals to adopt the promoted prevention and medical seeking behavior [7].

Table 7: Preventive and practice measures of Covid-19

Preventive and Practice Measures of Covid-19	Yes (%)	No (%)	Total
Preventive Measures of Covid-19			
Regular hand washing/use of hand sanitizers	309(77.2)	91(22.8)	400(100)
Wearing of approved face masks	262(65.5)	138(34.5)	400(100)
Wearing of protective gears by care givers	154(38.5)	246(61.5)	400(100)
Isolation, precaution and barrier nursing	133(33.2)	267(66.8)	400(100)
Reduce contact with the infected persons	229(57.2)	171(42.8)	400(100)
Infection control and sterilization	176(44.0)	224(56.0)	400(100)
Proper disposal of dead bodies	202(50.5)	198(49.5)	400(100)
Adequate environmental / personal hygiene/ decon-tamination/fumigation	268(67.0)	132(33.0)	400(100)
Practice of Preventive Measures of Covid-19			
Regular hand washing/use of hand sanitizers	299(74.5)	101(25.5)	400(100)
Wearing of approved face masks	211(52.8)	189(47.2)	400(100)
Wearing of protective gears by care givers	104(26.0)	296(74.0)	400(100)
Isolation, precaution and barrier nursing	87(21.8)	313(78.2)	400(100)
Reduce contact with the infected persons	137(34.2)	263(65.8)	400(100)
Infection control and sterilization	123(30.8)	277(69.2)	400(100)
Proper disposal of dead bodies	165(41.2)	235(58.8)	400(100)
Adequate environmental / personal hygiene/decon-tamination/fumigation	244(61.0)	156(39.0)	400(100)

Similar to the findings of the study in Sierra Leone during the 2014 Ebola Virus Disease epidemic, radio was by far the primary medium of receiving information on Covid-19 (78.2%), followed by neighbours (9.3%). In Ilorin, North Central Nigeria, health workers constituted the source of information only in (8.0%) of the respondents as compared to 28% in the Ebola study in Sierra Leone where health professionals moved from house to house [7,10]. Home visits

by health professionals, was not one of the practices adopted in Nigeria except for the purpose of contact tracing. Not only does the radio have the widest reach, it was also the main source of information of the Covid-19 pandemic in Nigeria. There is therefore the need to maximally use radio as it is the most preferred medium with the widest geographic reach. There is also the need to ensure that key information is communicated directly by Government and health professionals through this medium.

In this study, there were serious misconceptions about the cause and treatment of Covid-19. Moreover, only (39.5%) of the respondents believed that Covid-19 was air borne. This was similar to the findings in Sierra Leone where nearly one-third of the respondents believed that Ebola Virus Disease was transmitted by air or through mosquito bites [7,8,10]. Only 22.2% of the respondents had the right knowledge of Covid-19 being of viral origin. There is therefore a need to address misconceptions about the disease, which include clearly spelling out modes of transmission in the local languages, developing clear messages in local languages on protective practices including burial practices, developing special messages around community acceptance of treated Covid-19 affected persons and families who instead are being stigmatized , supporting inter-personal engagement at grassroots levels in order to improve community response and ownership of the various social mobilization efforts [8,9,10].

Furthermore, quite a number of the respondents still believed that traditional healers, spiritual healers and bathing with salt water, lime or palm oil could treat Covid-19 successfully. This misconception of treatment is similar to that in the Sierra Leone study on the Ebola outbreak where about 2 in 5 respondents believed that they could protect themselves from Ebola Virus Disease by washing with salt, lime, palm oil and hot water while nearly 1 in 5 believed that spiritual healers could successfully treat the disease [10].

Recommendations

The government in Nigeria at the various levels therefore need to place a major focus on community engagement and mobilization, educating the public on the misconceptions, the cause, complications, care and how to prevent the spread of Covid-19 as well as encourage people to promptly go on self isolation or seek medical care in the event that they are exposed to infected persons or experience signs and symptoms associated with the disease. The pandemic has affected the economic, religious and socio-cultural life of the people with long lasting consequences most likely to linger on. Myths,

misconceptions, misinformation about the disease, poverty made worse by the lockdowns and massive job losses especially in the informal and private sectors, continue to pose great obstacles to containing Covid-19 in Nigeria.

Limitations of the Study: This was a cross-sectional study and so it was difficult to establish causal association between independent and dependent variables. Also the study

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