(RESEARCH ARTICLE)

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Healthcare preferences in the control of the COVID-19 pandemic in Port Harcourt, Rivers State, Nigeria

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Abstract

Background: COVID-19 started with the diagnosis of a patient with pneumonia of unknown origin (PUO) at Jinyintan Hospital in Wuhan, China, on December 31, 2019. Usually, those infected are treated with preventive and orthodox measures based on WHO recommendations; but is it possible that some persons may prefer additional treatment modalities based on their faith/spirituality and home remedies in addition to those?

This study assessed the individual's healthcare preferences in the control of COVID-19.

Methodology: Self-administered questionnaires were used to collect data on individuals' healthcare preferences. Data were analyzed using IBM Statistical Package for the Social Sciences (SPSS) version 25. Categorical data and numerical data were summarized using frequencies, mean, standard deviation, and median. A chi-square test was done to determine Statistical significance set at $p < 0.05$. Multinomial statistics was done to determine factors associated with care preference

Results: 400 participants were recruited with an M: F of 1:1.5. Two-fifths were in the third decade of life and had tertiary education. The mean age was 29.48±10.32 years. 379(94.7%) of participants wanted to be treated by orthodox medicine if infected by COVID-19, however, 30.8% and 39.2% would in addition prefer Trado-medical agents like garlic, ginger, steam inhalation and faith (fasting, praying, going to mosque/church and paying of zakat and tithe) respectively. There were significant associations between participants' professions (p=0.03), age group(p=0.04), education (p=<0.0001), and care preference when infected with COVID-19.

Conclusion: 3 out of 10 participants would prefer to add tradomedical agents (home remedies) and 2 out of 5 would prefer to use their faith in addition to orthodox management of COVID-19 if infected.

Keywords: Care preference; COVID-19; Faith; Home remedies; Individuals

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1. Introduction

The degree of physical, emotional, and economic devastation that swept through the world after a patient was diagnosed with pneumonia of unknown origin (PUO) at Jinyintan Hospital in Wuhan, China, on December 31, 2019, was unprecedented.[1,2]

The pandemic caused many disorders and upheavals in the society in terms of health and economy and its impact on the world is yet to be fully quantified. [3-6] Thus, frantic efforts were made to find the cure for it. In the course of this, the issues of home remedies and the place of faith/ spirituality came to the forefront and many laid claims to the effectiveness of some herbs and herbal concoctions in helping boost immunity against COVID-19 infection as well as the central place individuals' faith/spirituality played in the ability to cope during the pandemic.

Since many who had COVID-19 were either asymptomatic or mildly infected, the use of home remedies as immune modulators should perhaps have been encouraged since they have been reported to play an immunomodulating role in many diseases.[7,8] Moreso, they are cheap, readily available, easily dispensed, and palatable.[7] Many home remedies contain substances are beneficial to health. Some have even been proven to contain antiviral, antibacterial and antifungal properties which can be used to treat viral, bacterial and fungal illnesses and diseases.[7,8]

Natural spices like garlic, ginger and turmeric as well as leaves like neem, guava leaves are potent immune modulators and have antioxidant and anti-inflammatory properties which are beneficial to the bodies.[7,8] Curcuma longa Linn (turmeric), a bright yellow-orange spice commonly used in curries and sauces, is a potent anti-viral whose aqueous extract has been proven to be effective against Hepatitis B virus (HBV).[8] It was strongly recommended as home remedy whose powder was to be taken with milk during COVID-19.[8]

Ginger is a flowering plant whose rhizome, root or leaves are widely used as spice and garlic is a plant in the Allium (onion) family.[8] During the COVID-19 pandemic, various home remedies were projected as home remedies.[8-10]

In Nigeria, home remedies used during COVID-19 were reported to have restored both physiological and psychological functions of the users.[9-11] The antioxidant properties and the phenolic compounds of the substances contributed to their therapeutic effects as the anti-oxidants and enzymes produced by the body protect the cells and membrane from damage by toxic substances. [9,10]

Traditionally, steam inhalation is used as a home remedy for common colds and upper respiratory tract infections in many parts of the world. It is commonly prescribed in primary care despite the fact that the evidence of its effectiveness is limited because of small clinical trials.[12,13] Also, there is a common misconception which has not been proven that it is beneficial in treating respiratory tract infection.[13] Though the evidence base of the practice is weak, there are unproven theories that the steam loosens mucus, opens nasal passages, and reduces mucosal inflammation and the heat inhibits replication of viruses.[13]

The social media and homemade tutorials from unverified sources as well as information pass down among generations have probably played a misleading role in the practice of this dangerous habit.[12] Despite this, a survey of general practitioners in the United Kingdom (UK) in 2016 showed that 80% of general practitioners have recommended steam inhalation as a home remedy to their patients.[12] This practice has resulted in scald injuries especially mostly among children.[12,13] A UK hospital reported a 30-fold increase during COVID-19 lockdown period.[14] The scald injury was most frequently from accidental spillage of boiling water from a bowl or from a kettle as children have occasionally been left unsupervised.[14]

Recently, religion, culture, and health have become intertwined. The role of faith (religion, spirituality) in the management of diseases is a new concept that is interestingly becoming really important. Faith is a complete trust or confidence in someone or something and spirituality is seeking a meaningful connection with something bigger than oneself.[15] Religion on the other hand is the belief in and worship of a superhuman power(s) especially of God.[15]

Spirituality, a concept that is broader and more inclusive than religion has been reported to be a fundamental issue in palliative care.[16,17] Spiritual well-being is reported to be a potential protective factor and central component of quality of life.[17] A strong association is said to exist between spiritual well-being and psychological distress.[17] What does spirituality address? Is it the hopelessness, helplessness, worthlessness and guilt associated with diseases? Or is it the depression associated with these conditions? What is the mechanism by which spirituality help in alleviating these conditions?

Religion/spirituality has been reported to play significant role in diseases/illnesses/conditions like depression, cancer, dementia, and palliative care among others.[18-28]

This study assessed the individual's healthcare preferences in the control of COVID-19. Would there be individuals who would want to add home remedies and use their faith in addition to the orthodox treatment for COVID-19 if infected?

2. Material and methods

A quantitative study carried out in Ozuoba community in Ozuoba-Ogbogoro ward in Obio/Akpor Local Government Area in Greater Port Harcourt, Rivers State, Nigeria.

A self-administered questionnaire was used to assess the participants' personal healthcare choice for COVID-19 control using Likert's 5 points scale and a structured question. The inclusion criteria were residents of Rumalogue a community in Ozuoba in Ozuoba-Ogbogoro ward in Obio/Akpor LGA in Rivers State who were 18 years and above. The exclusion criteria included residents below 18 years of age and those unwilling to enroll in the study

The sample size was determined using Cochran's formula for calculating a sample for proportions.[29.30]

$$n = (Z\alpha)2 \ pq/e2$$

$$n = (1.96)2* 0.34* 0.66/ (0.05)2 = 344.8$$

Where substitute $Z\alpha$ is 1.96 corresponding to 95% confidence interval, p = 34.0% of preventive measures in an urban community (Reyes-Vega et al., 2021) and q = 1-p.

$$\text{Minimum sample (n)} = 344.8+ 10\% \text{ attrition} = 344.8+34.48 = 379.3 \sim 380 \text{ subjects.}$$

However, four hundred participants from Ozuoba community in Ozuoba-Ogbogoro ward of Obio/Akpor Local Government Area (LGA) in Port Harcourt, Rivers State were recruited for this study.

A multi-stage stratified sampling method was used to recruit participants at every stage of the quantitative study. First a random sampling was done using a random table to pick the LGA for the study whereby Obio-Akpor was selected. Thereafter, another random sampling was done to pick the ward (Ozuoba- Ogbogoro) and then the community (Ozuoba). Likewise at the community level, random sampling was done to pick the streets, houses, families and finally the individuals that were recruited for the study.

Data was analyzed with the Statistic Package for Social Sciences (SPSS) version 25 (IBM, Armonk, New York, USA).

Ethical approval was sought from the Ethics Committees of the University of Port Harcourt and Rivers State Ministry of Health Board, Port Harcourt.

Respondents' consent was sought after explaining the study to them. Participation was voluntary and anonymity was preserved by removing all identifiable information from the narratives. Participants were encouraged to voice their opinions and assured there was no right or wrong answers.

3. Results

Table 1 shows participants demographics with mean age of 29.48±10.32 years and M: F of 1:1.5. Median age was 27 years. About half of participants were in the third decade of life, two-fifth had tertiary education and three-fifth self-employed.

Table 1 Participants' demographics

Variables	Frequency	Percentage
Gender		
Male	186	46.5
Female	214	53.5
Age Group		
11-20	80	20.0
21-30	186	46.5
31-40	84	21.0
41-50	30	7.5
51-60	12	3.0
61-70	8	2.0
Tribe		
Ijaw	35	8.8
Ikwerre	87	21.8
Igbo	125	31.3
Yoruba	27	6.8
Hausa	6	1.5
Ibibio	48	12.0
Others	72	18.0
Religion		
Christianity	387	96.7
Islam	12	3.0
Traditionalist	1	0.3
Education		
No Formal	30	7.5
Primary	17	4.3
Secondary	125	31.3
Post-Secondary	62	15.5
Tertiary	166	41.5
Profession		
House wife	18	4.5
Artisan	18	4.5
Self-employed	237	59.2
Civil-servants	30	7.5
Retiree	3	0.8
Professionals	5	1.3
Others	5	1.3
Total	400	100.0

Mean age = 29.48±10.32 years, median =27years, mode=18 years, variance = 106.49, Std of error = 0.52

Table 2a Participants care preference for the control of COVID-19 if infected

Variables	Frequency	Percentage
What to use to control COVID-19		
Orthodox medicine: isolation/ taking prescribed drugs by doctors/vitamins & supplements		
Strongly agreed	344	86.0
Agreed	44	11.0
Neutral	6	1.5
Disagree	3	0.8
Strongly disagree	3	0.8
Trado-medical care: taking herbs like garlic, ginger, using aboki balm/hot water		
Strongly agreed	60	15.0
Agreed	64	16.0
Neutral	81	20.3
Disagree	84	21.0
Strongly disagree	111	27.7
Faith: fasting /praying/going to church/mosque, paying zakat/tithe		
Strongly agreed	90	22.5
Agreed	58	14.5
Neutral	75	18.8
Disagree	58	14.5
Strongly disagree	119	29.7
What would you use to control COVID-19 if YOU get infected		
Orthodox medicine: isolation/ taking prescribed drugs by doctors/vitamins & supplements		
Strongly agreed	330	82.5
Agreed	49	12.2
Neutral	10	2.5
Disagree	3	0.8
Strongly disagree	8	2.0
Trado-medical care: taking herbs like garlic, ginger, using aboki balm/hot water		
Strongly agreed	62	15.5
Agreed	61	15.3
Neutral	81	20.2
Disagree	74	18.5
Strongly disagree	122	30.5
Faith: fasting /praying/going to church/mosque, paying zakat/tithe		
Strongly agreed	93	23.2
Agreed	64	16.0

Neutral	62	15.5
Disagree	59	14.8
Strongly disagree	122	30.5
Total	400	100.0

As regards participants' care preference for the control of COVID-19 when people are infected, though 97% agreed that orthodox medicine should be used, 31% and 37% respectively wanted the use of Trado-medical agents (garlic, ginger and using aboki balm/hot water) and faith (fasting, praying, going to mosque or church and paying of zakat and tithe).

Though, 94.7% of participants want to be treated by orthodox medicine if infected by COVID-19, 30.8% and 39.2% would add tradomedical agents and use faith in addition respectively. Table 2a.

Table 2b Participants other variables for the control of COVID-19

Variables	Frequency	Percentage
Were you infected with COVID-19?		
Yes	10	2.5
No	390	97.5
Know anybody who was infected with COVID-19?		
Yes	67	16.8
No	333	83.2
Who?		
Father	4	6.0
Mother	4	6.0
Friend	28	41.7
Sibling	6	9.0
Neighbour	25	37.3
Total	67	100.0
Did you agree with the lockdown used to control the spread of COVID-19?		
Yes	194	48.5
No	206	51.5
How did the lockdown affect you?		
Socially		
Yes	136	34.0
No	264	66.0
Financially		
Yes	180	45.0
No	320	55.0
Healthwise		
Yes	38	9.5
No	362	90.5

Religion		
Yes	84	21.0
No	316	79.0
Mentally		
Yes	30	7.5
No	370	91.5
Total	400	100.0

Table 2b shows the participants other COVID-19 variables. Though, only 2.5% of participants were infected with COVID-19, 16.8% knew someone who was infected. 34%, 45% and 21% of participants were affected socially, financially and religious wise respectively by the COVID-19 lockdown.

Table 3 Association between some demographics and care preference for others in the control of COVID-19

Variables	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	χ²	p
Effective for COVID-19	**Sex**																**11.54**	**0.02***
	Male		**Female**		**Total**													
Hand washing	142	76.3	152	71.0	294	73.5												
Vitamins	12	6.5	21	9.8	33	8.2												
Mouthwash	5	2.7	1	0.5	6	1.5												
Influenza vaccine	11	5.9	28	13.1	39	9.8												
Avoid those with NCDs	16	8.6	12	5.6	28	7.0												
Total	186	100.0	214	100.0	400	100.0												
Orthodox care for COVID-19	**Religion**																**28.20**	**<0.0001***
	Christians		**Moslems**		**Traditionist**		**Total**											
Strongly agreed	336	86.8	8	66.6	0	0.0	344	86.0										
Agreed	41	10.6	2	1.7	1	100.0	44	11.1										
Neutral	4	1.0	2	1.7	0	0.0	6	1.5										
Disagreed	3	0.8	0	0.0	0	0.0	3	0.7										
Strongly disagreed	3	0.8	0	0.0	0	0.0	3	0.7										
Total	387	100.0	12	100.0	1	100.0	400	100.0										
Use of faith for COVID-19	**Age group**																**32.61**	**0.04***
	10-20		**21-30**		**31-40**		**41-50**		**51-60**		**61-70**		**Total**					
Strongly agreed	25	31.2	40	21.5	10	11.9	8	26.7	6	50.0	1	12.5	90	22.5				

	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	χ²	P
Agreed	9	11.2	31	16.7	13	15.5	4	13.3	0	0.0	1	12.5	58	14.5				
Neutral	19	23.8	38	20.4	11	13.1	5	16.7	1	8.3	1	12.5	75	18.8				
Disagreed	15	18.8	22	11.8	16	19.0	3	10.0	1	8.3	1	12.5	58	14.5				
Strongly disagreed	12	15.0	55	29.6	34	40.5	10	33.3	4	33.3	4	50.0	119	29.7				
Total	80	100.0	186	100.0	84	100.0	30	100.0	12	100.0	8	100.0	400	100.0				
Use of faith for COVID19	Profession															37.77	0.04*
	House wife		Artisan		Self-employed		Civil servant		Retiree		Professionals		Others		Total			
Strongly agreed	9	50.0	2	11.1	42	17.8	7	23.3	1	33.3	0	0.0	29	32.6	90	22.5		
Agreed	1	5.6	5	27.8	36	15.2	5	16.7	0	0.0	0	0.0	11	12.4	58	14.5		
Neutral	0	0.0	6	33.3	46	19.4	5	16.7	0	0.0	1	20.0	17	19.1	75	18.8		
Disagreed	1	5.6	1	5.6	43	18.1	4	13.3	0	66.7	2	40.0	7	7.9	58	14.5		
Strongly disagreed	7	38.8	4	22.2	70	29.5	9	03.0	2		2	40.0	25	28.0	119	29.7		
Total	18	100.0	18	100.0	237	100.0	30	100.0	3	100.0	5	100.0	89	100.0	400	100.0		

Table 3 shows the statistical significance between sex and what is effective in treating COVID-19 and the association between religion, age group, profession and care preference for the management of COVID-19 when others are infected.

Table 4 Association between some demographics and participants' care preference if infected with COVID-19

Variables	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	χ²	P
Use of faith for COVID-19	Profession															46.07	0.004*
	House wife		Artisan		Self-employed		Civil servant		Retiree		Professionals		Others		Total			
Strongly agreed	9	50.0	2	11.1	42	17.8	7	23.4	1	33.3	0	0.0	32	36.0	93	23.2		
Agreed	1	5.6	5	27.8	41	17.2	6	20.0	0	0.0	0	0.0	11	21.3	64	16.0		
Neutral	0	0.0	4	22.2	40	16.9	4	13.3	0	0.0	0	0.0	14	15.7	62	51.5		

Disagreed	0	0.0	3	16.7	43	18.1	3	10.0	0	0.0	3	60.0	7	7.8	59	14.8	
Strongly disagreed	8	44.4	4	22.2	71	30.0	10	33.3	2	66.7	2	40.0	25	28.2	122	30.5	
Total	18	100.0	18	100.0	237	100.0	30	100.0	3	100.0	5	100.0	89	100.0	400	100.0	

COVID-19 care preference	Age group													39.20	0.04*
	10-20		21-30		31-40		41-50		51-60		61-70		Total			
1. Orthodox	71	88.7	162	87.1	80	95.2	26	86.6	9	75.0	7	87.5	355	88.8		
2. Tradomedical	5	6.2	5	2.7	1	1.2	0	0.0	1	8.3	0	0.0	12	3.0		
3. Faith	2	2.5	4	2.2	1	1.2	0	0.0	0	0.0	0	0.0	7	1.8		
1&2	0	0.0	8	4.3	0	0.0	0	0.0	0	0.0	1	12.5	9	2.2		
1&3	1	1.3	0	0.0	1	1.2	2	6.7	1	8.3	0	0.0	5	1.2		
1, 2 &3	1	1.3	7	3.7	1	1.2	2	6.7	1	8.3	0	0.0	12	3.0		
Total	80	100.0	186	100.0	84	100.0	30	100.0	12	100.0	8	100.0	400	100.0		

COVID-19 care preference	Education													55.60	<0.0001*
	Non-formal		Primary		Secondary		Post-Secondary		Tertiary		Total					
1. Orthodox	26	86.7	11	64.7	114	91.2	56	90.2	148	89.2	355	88.8				
2. Tradomedical	2	6.7	1	5.9	4	3.2	1	1.6	4	2.4	12	3.0				
3. Faith	0	0.0	0	0.0	4	3.2	1	1.6	2	1.2	7	1.8				
1&2	1	3.3	0	0.0	1	0.8	1	1.6	6	3.6	9	2.2				
1&3	0	0.0	0	0.0	0	0.0	1	1.6	4	2.4	5	1.2				
1, 2 &3	1	3.3	5	29.4	2	1.6	2	3.2	2	1.2	12	3.0				
Total	30	100.0	17	100.0	125	100.0	62	100.0	166	100.0	400	100.0				

COVID-19 self-care preference	Profession													46.5	0.03*
	House wife		Artisan		Self-employed		Civil servant		Retiree		Professionals		Others		Total

1. Orthodox	14	77.7	14	77.7	214	90.2	26	86.7	3	100.0	5	100.0	79	88.9	355	88.8	
2. Tradomedical	1	5.6	1	5.6	7	3.0	0	0.0	0	0.0	0	0.0	3	3.4	12	3.0	
3. Faith	1	5.6	0	0.0	4	1.7	0	0.0	0	0.0	0	0.0	2	2.2	7	1.8	
1&2	1	5.6	0	0.0	4	1.7	0	0.0	0	0.0	0	0.0	4	4.4	9	2.2	
1&3	1	5.6	0	0.0	1	0.4	3	10.0	0	0.0	0	0.0	0	0.0	5	1.2	
1, 2 &3	0	0.0	3	16.7	7	3.0	1	3.3	0	0.0	0	0.0	1	1.1	12	3.0	
Total	18	100.0	18	100.0	237	100.0	30	100.0	3	100.0	5	100.0	89	100.0	400	100.0	

There was statistical significance between profession, age group, education and care preference when participants are infected with COVID-19. Table 4.

Table 5 Predictors of participants' COVID-19 care preference if infected

Variable	Bivariate analysis			Multinomial logistic regression			
Care preference if infected	N (%)	χ^2	P	AOR	95% Confidence Interval		P
					Lower	Upper	
1. Medical (Hospital + drugs + quarantine)							
COVID-19 Knowledge		14.39	0.543	1.627	.339	7.801	
Age group (years)		39.20	0.035*				
10-20	71 (20.0)			5.695E-8	.000	.b	0.997
21-30	162 (45.7)			7.421E-8	.000	.b	0.997
31-40	80 (22.5)			2.284E-7	.000	.b	0.997
41-50	26 (7.3)			5.161E-8	.000	.b	0.997
51-60	9 (2.5)			3.149E-8	.000	.b	0.997
61-70	7 (2.0)			.	.	.	
Sex		6.38	0.271				
Male	166 (46.8)			.527	.109	2.553	0.426
Female	189 (53.2)			.	.	.	

Tribe		27.83	0.579				
Ijaw	29 (8.2)			.148	.016	1.410	0.097
Ikwerre	76 (21.4)			.956	.108	8.466	0.968
Igbo	108 (30.4)			2198339.087	.000	.b	0.989
Yoruba	26 (7.3)			3557628.543	.000	.b	0.993
Hausa	6 (1.7)			631222.972	.000	.b	0.994
Ibibio	43 (12.1)			.493	.065	3.751	0.495
Others	67 (18.9)			.	.	.	
Education		55.61	<0.0001				
Informal	26 (7.3)			.375	.013	10.688	0.566
Primary	11 (3.1)			.030	.003	.278	0.002*
Secondary	114 (32.1)			1.077	.105	11.016	0.950
Post Secondary	56 (15.8)			.679	.063	7.327	0.749
Tertiary	148 (41.7)		.	.	.	.	
Profession		46.53	0.028				
Housewife	14 (3.9)			1.995	.000	.b	1.000
Artisan	14 (3.9)			2.125E-7	.000	.b	0.996
Self-employed	214 (60.4)			5.574E-7	.000	.b	0.997
Civil servant	26 (7.3)			3.905E-7	.000	.b	0.996
Retiree	3 (0.8)			1.359	.000	.b	1.000
Professionals	79 (22.3)			8.433E-7	.000	.b	0.997
Others	5 (1.4)		.	.	.	.	
Religion		1.70	0.998				
Christianity	342 (96.3)			.055	.000	.b	1.000
Islam	12 (3.4)			187072.790	.000	.b	0.999
Others	1 (0.3)		.	.	.	.	
Total	355 (100.0)						

2. Religious care: use of faith, fasting & prayer, going to church/mosque							
COVID-19 knowledge			0.080	.072	.004	1.364	0.080
Age group (years)		39.20	0.035*				
10-20	2 (28.6)			13.453	.000	.b	1.000
21-30	4 (57.1)			9.996	.000	.b	1.000
31-40	1 (14.3)			5.353	.000	.b	1.000
41-50	0 (0.0)			1.640E-6	.000	.b	0.998
51-60	0 (0.0)			2.044E-6	.000	.b	0.999
61-70	0 (0.0)			.	.	.	
Sex		6.38	0.271				
Male	2 (28.6)			.122	.008	1.819	0.127
Female	5 (71.4)			.	.	.	
Tribe		27.83	0.579				
Ijaw	1 (14.3)			4113001.956	.000	.b	0.993
Ikwerre	1 (14.3)			673119.021	.000	.b	0.994
Igbo	4 (57.1)			19721506725306.080	.000	.b	0.988
Yoruba	1 (14.3)			189409363901183.500	.000	.b	0.989
Hausa	0 (0.0)			27258437.629	.000	.b	0.989
Ibibio	0 (0.0)			.512	.000	.b	1.000
Others	0 (0.0)			.	.	.	
Education		55.61	<0.0001*				
Informal	0 (0.0)			9.534E-8	.000	.b	0.994
Primary	0 (0.0)			7.557E-10	.000	.b	0.997
Secondary	4 (57.1)			5.295	.222	126.596	0.303
Post Secondary	1 (14.3)			1.477	.041	53.574	0.832
Tertiary	2 (28.6)		.	.	.	.	
Profession		46.53	0.028*				

Housewife	1 (14.3)			328365362.386	.000	.b	0.998
Artisan	0 (0.00			2.818E-8	.000	.b	0.998
Self-employed	4 (57.1)			2.623	.000	.b	1.000
Civil servant	0 (0.0)			1.354E-7	.000	.b	0.998
Retiree	0 (0.0)			5.419	.000	.b	1.000
Professionals	2 (28.6)			2.286	.000	.b	1.000
Others	0 (0.0)		.	.	.	.	
Religion		1.70	0.998				
Christianity	7 (100.0)			252287209.600	.000	.b	0.999
Islam	0 (0.0)			230720991.834	.000	.b	0.999
Others	0 (0.0)		.	.	.	.	
Total	7 (100.0)						
3. Trado-medical care: herbs like garlic, ginger, aboki balm/hot water							
COVID-19 knowledge			0.984	.981	.137	7.035	0.984
Age group (years)		39.20	0.035*				
10-20	5 (41.7)			2.406	.000	.b	1.000
21-30	5 (41.7)			.994	.000	.b	1.000
31-40	1 (8.3)			1.097	.000	.b	1.000
41-50	0 (0.0)			9.227E-8	.000	.b	0.998
51-60	1 (8.3)			.610	.000	.b	1.000
61-70	0 (0.0)			.	.	.	
Sex		6.38	0.271				
Male	4 (33.3)			.329	.043	2.496	0.282
Female	8 (66.7)			.	.	.	
Tribe		27.83	0.579				
Ijaw	1 (8.3)			.619	.016	23.861	0.797
Ikwerre	4 (33.3)			2.449	.106	56.574	0.576

Igbo	6 (50.0)			8796532.929	.000	.b	0.998
Yoruba	0 (0.0)			1.550	.000	.b	1.000
Hausa	0 (0.0)			2.207	.000	.b	1.000
Ibibio	0 (0.0)			2.341E-7	.000	.b	0.993
Others	1 (8.3)			.	.	.	
Education		55.61	<0.0001*				
Informal	2 (16.7)			1.109	.019	64.260	0.960
Primary	1 (8.3)			.186	.007	5.233	0.323
Secondary	4 (33.3)			1.039	.065	16.493	0.979
Post Secondary	1 (8.3)			.528	.020	13.943	0.702
Tertiary	4 (33.3)		.	.	.	.	
Profession		46.53	0.028*				
Housewife	1 (8.3)			13435291.277	.000	.b	0.996
Artisan	1 (8.3)			1.789	.033	97.530	0.776
Self-employed	7 (58.3)			2.493	.132	46.939	0.542
Civil servant	0 (0.0)			2.718E-7	.000	.b	0.996
Retiree	0 (0.0)			1.066	.000	.b	1.000
Professionals	3 (25.0)			2.743	2.743	2.743	
Others	0 (0.0)		.	.	.	.	
Religion		1.70	0.998				
Christianity	12 (100.0)			2130015.022	2130015.022	2130015.022	
Islam	0 (0.0)			614886.906	.000	.b	0.997
Others	0 (0.0)		.	.	.	.	
Total	12 (100.0)						
1&2							
COVID-19 knowledge			0.238	.245	.024	2.529	0.238
Age group (years)		39.20	0.035*				

10-20	0 (0.0)			4.090E-15	.000	.b	0.994
21-30	8 (88.9)			6.360E-8	.000	.b	0.997
31-40	0 (0.0)			3.048E-14	.000	.b	0.995
41-50	0 (0.0)			2.622E-15	.000	.b	0.995
51-60	0 (0.0)			8.352E-16	.000	.b	0.996
61-70	1 (11.1)			.	.	.	
Sex		6.38	0.271				
Male	3 (33.3)			.332	.036	3.084	0.333
Female	6 (66.7)			.	.	.	
Tribe		27.83	0.579				
Ijaw	1 (11.1)			.500	.011	23.031	0.723
Ikwerre	2 (22.2)			1.237	.041	37.474	0.903
Igbo	4 (44.4)			2802395.021	.000	.b	0.989
Yoruba	0 (0.0)			2.346	.000	.b	1.000
Hausa	0 (0.0)			1.992	.000	.b	1.000
Ibibio	1 (11.1)			.483	.014	16.998	0.688
Others	1 (11.1)			.	.	.	
Education		55.61	<0.0001*				
Informal	1 (11.1)			.448	.004	51.640	0.740
Primary	0 (0.0)			1.428E-9	.000	.b	0.998
Secondary	1 (11.1)			.216	.008	6.114	0.369
Post Secondary	1 (11.1)			.258	.009	7.669	0.434
Tertiary	6 (66.7)		.	.	.	.	
Profession		46.53	0.028*				
Housewife	1 (11.1)			53893639.635	.000	.b	0.996
Artisan	0 (0.0)			4.418E-7	.000	.b	0.996
Self-employed	4 (44.4)			3.624	.179	73.329	0.401

Civil servant	0 (0.0)			4.135E-7	.000	.b	0.995
Retiree	0 (0.0)			2.453	.000	.b	1.000
Professionals	4 (44.4)			24.750	24.750	24.750	
Others	0 (0.0)		.	.	.	.	
Religion		1.70	0.998				
Christianity	9 (100.0)			.524	.524	.524	
Islam	0 (0.0)			996983.071	.000	.b	0.998
Others	0 (0.0)		.	.	.	.	
Total	9 (100.0)						
1&3							
COVID-19 knowledge			0.870	1.424	.021	97.386	0.870
Age group (years)		39.20	0.035*				
10-20	1 (20.0)			27759481800055572.000	.000	.b	0.994
21-30	0 (0.0)			1.153E-7	.000	.b	0.998
31-40	1 (20.0)			37321775849.038	.000	.b	0.996
41-50	2 (40.0)			22247000225.836	.000	.b	0.996
51-60	1 (20.0)			12750373040071456.000	.000	.b	0.996
61-70	0 (0.0)			.	.	.	0.994
Sex		6.38	0.271				
Male	2 (40.0)			1.034E-6	.000	.b	0.971
Female	3 (60.0)			.	.	.	
Tribe		27.83	0.579				
Ijaw	0 (0.0)			4.287E-14	.000	.b	0.985
Ikwerre	1 (20.0)			569233.844	.000	.b	0.981
Igbo	3 (60.0)			236163303243531456.000	.000	.b	0.975
Yoruba	0 (0.0)			144432.834	.000	.b	0.997
Hausa	0 (0.0)			12477316890498.455	.000	.b	0.997

Ibibio	0 (0.0)			.190	.000	.b	0.999
Others	1 (20.0)			.	.	.	
Education		55.61	<0.0001*				
Informal	0			4.649E-36	.000	.b	0,968
Primary	0 (0.0)			1.148E-9	.000	.b	0.997
Secondary	0 (0.0)			1.589E-28	.000	.b	0.970
Post Secondary	1 (20.0)			9.537E-13	.000	.b	0.972
Tertiary	4 (80.0)		.	.	.	.	
Profession		46.53	0.028*				
Housewife	1 (20.0)			60009622945325.480	.000	.b	0.997
Artisan	0 (0.0)			7.701E-18	.000	.b	0.997
Self-employed	1 (20.0)			4.065E-22	.000	.b	0.995
Civil servant	3 (60.0)			5.911E-5	.000	.b	0.999
Retiree	0 (0.0)			2.152E-17	.000	.b	0.997
Professionals	0 (0.0)			6.793E-29	.000	.b	0.994
Others	0 (0.0)		.	.	.	.	
Religion		1.70	0.998				
Christianity	5 (100.0)			1.105E-5	.000	.b	1.000
Islam	0 (0.0)			119900397887.998	.000	.b	0.999
Others	0 (0.0)		.	.	.	.	
Total	5 (100.0)						

The reference category is: 123.

4. Discussion

Four hundred consenting participants were recruited for this study. There is a slight female predominance and an F: M of 1.15: 1 and a mean age of 29.48±10.3 years. The mean age in this study is comparable to other studies done in the western and northern parts of Nigeria.[31,32] Studies done in the western and south-south parts of Nigeria and other parts of the world reported a female predominance like this study.[32-34] Other studies reported a male predominance.[31,35-38] Fourth-fifths of participants were between 18 and 35 years. This compares with the study done in Kano, the northern part of Nigeria.[17] Ten (2.5%) participants had COVID-19 and 67(16.8%) knew someone who was infected.

Traditionally, steam inhalation is used as a home remedy for common colds and upper respiratory tract infections in Nigeria and other parts of the world.[7-12] Furthermore, home remedies like garlic, turmeric and garlic have been reported to have enough potential and functional outcomes to be utilized both for prevention and treatment of COVID-19 as well as use for immuno-modulation.[7-12, 39] Though. 97 of participants would use orthodox treatment if infected with COVID-19, and three (3) out of 10 participants in this study would use steam inhalation, garlic and ginger in addition to conventional treatment if infected with COVID-19.

A study done in India reported that garlic and neem leaves are useful for home disinfection for COVID19 like conditions.[39] Another study suggested the use of culinary herbs, spices like turmeric and herbal tea with ginger protected from the COVID-19 menace effectively.[7] In Madagascar projected COVID-19 Organic CVO (A combination of neem leaves, paw leaves, garlic, ginger, lime and oranges) that is boiled for 30 minutes and steam inhaled. [14,40-43]

Religion, culture and health are intertwined. Studies in the past and also recently have shown that religious beliefs and practices are associated with how people cope with or recover from illnesses and diseases as well as their having a positive attitude in facing health challenges.[16, 28,44-47]. Also, people's perception of illness and diseases as well as their behaviours and attitudes to such depends on their faith.[47]

Two-fifths of the participants in this study would add their religious belief/practice to orthodox treatment for treating COVID-19, if infected. This is not surprising as many people have strong religious beliefs that they use to cope with challenging situations. It has been reported that religion should not be overlooked when managing patients for illnesses and diseases.[48]

A study done in Polish reported that 57.9% men and 42.1% women said their faith played a significant role during COVID-19 pandemic.[44] They further reported that more women than men declared that they strengthened their faith/spirituality in the face of the coronavirus hazard and 64% of younger women (21-35 years) believed that their faith would protect them from coronavirus infection.[44]

Positive spiritual coping, though associated mechanisms still unclear, has been reported to be a significant predictor of life prolonging care near death.[16,30]

Thus, the role of faith in coping with illnesses and diseases cannot be over-emphasized. During the COVID-19 pandemic, it was reported that many people sought for comfort through spiritual counselling and attendance of spiritual services. In Sao Paulo and Philippines spiritual hotlines were provided for online counselling and guidance.[45] In Nigeria, some churches opened for services during the pandemic after putting in place some preventive measures to mitigate the spread of the infection.[49,50]

5. Conclusion

Peoples' culture and faith (beliefs, spirituality, religion) have great impact on how they perceive diseases as well as on the kind of healthcare they embrace. Therefore, these aspects of wellbeing should be incorporated in their treatment in order to make it wholistic and of great benefits to them.

Furthermore, various kinds of strategies are used for survival when faced with situations/conditions that are frightening, and faith/spirituality is one of such as it allows one to keep hope and feel secured. Man is not just a mere body but is also made of soul and spirit. Thus, it is time to focus on healing the whole man, rather than focusing on the body only.

Also, many home remedies contain substances which are beneficial to health. Some have been proven to even contain antiviral, antibacterial and antifungal substances which can be used to treat viral, bacterial and fungal illnesses.

 Finally, considering the global burden of diseases like COVID-19 and Ebola among others, there is the need to explore and prove scientifically the benefits of these acclaimed home remedies in order to widened their use in fighting diseases effectively.

Limitations

This study only assessed the faith preference of participants in the control of COVID-19 and not the components of their spirituality.

Also, this study did not assess the use of all home remedies but the commonly used ones in Nigeria during the pandemic.

Compliance with ethical standards

Acknowledgments

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Disclosure of conflict of interest

The authors declare no conflict of interest for this study

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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