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## HEALTH SEEKING BEHAVIOUR, PERCEIVED INDIGENOUS TREATMENT AND ITS ADOPTION FOR COVID-19 MANIFESTATIONS AMONG RURAL HOUSEHOLDS IN OYO STATE, NIGERIA

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### ABSTRACT:

The outbreak of the pandemic of COVID-19 precipitated abysmal socioeconomic challenges globally, and principally a terrible threat to global food security. It therefore necessitated looking for homegrown solutions to the pandemic of COVID-19. In responding to the situation at the local level, traditional social setting played significant roles. Thus, this study unearthed the perceived indigenous treatment of COVID-19 manifestations among rural households

in Oyo State. It specifically determined health seeking behaviour of rural people, determined the adoption of indigenous treatment for COVID-19 by rural people, determined risk perception of rural people on COVID-19, and identified herbs and other plant derivatives perceived to be efficacious for treating COVID-19. A multistage sampling procedure was used to arrive at 405 respondents for the study. Structured interview guide was used to elicit information from respondents. Data were analyzed using frequency counts, mean and percentages. They mostly (65.4%) perceived that COVID-19 was a foreign disease. Slightly above average (57.0%) preferred herbal medicine to orthodox medicine. Majority (91.9%) had the source of knowledge of traditional medicine from their ancestors. *Azadirachta indica*, *Capsicum frutescens*, and *Citrus limon*, were some of the herbs and plant materials used. It is hereby concluded that rural people often use homegrown therapy for treating ailments, but had a wrong mental image of COVID-19. It is thus recommended that it is high time the health policy makers integrated herbal medicine into conventional medicine to guarantee sustainable health delivery for entire citizenry.

**Keywords:** Indigenous medicine, COVID-19, Rural household, Treatment.

## 1. BACKGROUND OF THE STUDY

The global atmosphere was distorted and subjected into palpable fear due to the emergence of the Coronavirus disease codenamed (COVID-19). The horror occasioned by loss of lives and unquantifiable global economic shock were notable attendant effects of the outbreak of COVID-19. According to World Health Organization, (22), there are over 193 million confirmed cases and over 4 million deaths. The disease is mainly transmitted through close contact with infected individuals via respiratory droplets from either sneezing or coughing. The virus shows various unspecific symptoms ranging from mild to severe fever, cough, fatigue, sputum production and headache (19). Though there are vaccines produced for COVID19 by different manufacturing industries, nevertheless, global community and researchers are working assiduously to proffer the best way to cure the disease, including herbal medicine.

Traditional medicine is the sum total of the knowledge, skills, and practices based on the theories, beliefs, and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health as well as in the prevention, diagnosis, improvement, or treatment of physical and mental illness (23). The practice has been used throughout the world for centuries to prevent and treat chronic and acute illnesses including, respiratory tract infections. During the early stage of the disease, people were consuming herbal medicines containing certain active substances, which have antimicrobial or antiviral, anti-inflammatory and immunostimulatory activities, such as Quinine, and Curcumin. These herbal compounds are assumed to modulate the immune system of patients, and they might have beneficial effects on preventing or treating COVID-19. Traditional medicine is gaining attention for the design and development of novel anti-infective that might have been used in the prevention and treatment of infectious agents (19). The immunity of patients plays an essential role in COVID-19. Therefore, traditional medicines having immunomodulatory effects could be a potential candidate for preventive and treatment of COVID-19 patients (21).

### Statement of Problem

COVID-19 is an issue of concern globally considering the monumental havoc it has wrecked on global economy and lives it has claimed since its emergence in early 2020. It is an infectious respiratory disease caused by severe acute respiratory syndrome coronavirus. Except for the development of vaccines, there is not yet any evidence-based specific therapy for COVID-19. Different vaccines produced by pharmaceutical industries have been said to be preventive but not totally efficacious to control the disease. The quest for the way out of the debacle necessitates considering traditional medicine. At present, traditional medicine practice for the disease seems to be usual all over the world. Series of herbs and plant derivatives are believed to be efficacious, effective and relieving or treating symptoms. They are said to being notable wellsprings of potential drugs including antiviral, antibacterial and anticancer therapies. Herbal medicines have also helped to mitigate the effects of contagious diseases like SARS-CoV. Evidence reinforces the view that herbal medicine may well be efficacious in managing and reducing the risk of COVID-19 as well (19). Many governments formally or informally advocate or authorize the use of indigenous medicine to treat COVID-19 mainly because of its effectiveness in relieving other respiratory symptoms. However, developing local contents as a means to finding a homegrown solution to ailment affecting Nigerians is a worthwhile effort considering the abundance of tested efficacious herbs and plant derivatives. Collaborative research and promotion of traditional medicine in Nigeria will go a long way to stem the tide of the debacle of COVID-19. The findings of the study will assist the Federal Government of Nigeria in its goal of achieving self-sufficiency in the local production of pharmaceuticals (including vaccines), traditional medicines and other

health products. Herbs and plant derivatives are found within our locality, the availability and affordability of these biodiversity will help to treat the disease. The careful combination of these natural biodiversity gives unprecedented results in healing practices. It is in the consideration of the forgoing that this study is poised to provide answers to the following research questions:

### **Research Questions**

1. What are the socioeconomic characteristics of respondents in the study area?
2. What are the health seeking behaviours of rural people on preventive health as it affects COVID-19?
3. What are the risk perceptions of rural households on COVID-19?
4. What is the level of adoption of various preventive strategies of Covid-19?
5. What are the herbs and other plant derivatives claimed by traditional health workers for the prevention and treatment of COVID-19?

### **Main Objective**

The main objective of the study is to examine traditional medicine, local perception and adoption of preventive health behaviours by rural household on COVID -19 in Oyo State.

### **Specific Objectives**

The specific objectives are to:

1. describe the socioeconomic characteristics of rural households in the study area
2. determine the health seeking behaviours of rural people on preventive health as it affects COVID-19
3. determine the risk perception of rural households of COVID-19
4. determine the level of adoption of various preventive strategies of COVID-19
5. Identify herbs and other plant derivatives claimed by traditional health workers for the prevention and treatment of COVID-19.

## **2. RESEARCH METHODOLOGY**

### **The study area**

Oyo State is one of the states in the South-west geopolitical zone of Nigeria. It lies between latitude  $7^{\circ}$  and  $9^{\circ} 1^{\prime}$  North and longitude  $2^{\circ} 4^{\prime}$  and  $4^{\circ} 3^{\prime}$  East. It is bounded in the North by Kwara State, in the south by Ogun State, in the west by Republic of Benin and in the East by Osun State. It covers an area of approximately 35, 743 square kilometers. The vegetation distribution is much of rainforest and derived savannah dictated by rainfall pattern that distinctly made the south part mainly forest vegetation and the north derived savannah vegetation. The land is well-drained and is dissected by Ogun, Oyan, osun Oya and Ofiki rivers. These rivers have their contributions in the agricultural development of the area. The state is predominantly populated by Yorubas. Farming, trading, civil service are the prominent occupations of the inhabitants of the study area. Oyo State has a population of 5,591,589 people and 33 Local government areas (National Population Census, 2006). Crops such as maize, yam, plantain, cassava. Cocoa, citrus, kolanut, oil palm are also doing well on the deep fertile soil in the state.

### **Research Design**

There are three phases in the design of this study:

Phase I: Qualitative methodological approach

This phase adopted a number of qualitative approaches such as the use of in-depth interview, use of key informants, participant observation, Focus group Discussion, archival research and case study where necessary.

Phase II: Quantitative methodology.

Interview guides was prepared and used at this stage to determine the socioeconomic characteristics of the rural households, their level of adoption of the preventive health behaviour and perception of rural households of COVID-19.

Phase III: Phytochemical analysis on herbs and other biodiversity

At this stage, selected herbs used by the local people as immune boosters, haematinics, antibiotics, herbal cough remedy, herbal for respiratory tract infections, antiviral botanicals, antimalarial and analgesic herbs were identified and arranged.

### **Sampling Procedure and Sample Size**

A multistage sampling procedure was used to select respondents for the quantitative research in the study area.

Stage I: From the 33 Local Government Areas in the study area, 28 of them were purposively chosen for the study because they were in rural area.

Stage II: Ten percent (10%) of 28 local Government was chosen to give three (3) local governments. The Local Government were stratified along vegetation distribution. The three vegetation belts such as: Savannah from the far North, Derived savannah from the middle and rain forest from the South, Ogo-Oluwa, Kajola and Lagelu respectively.

Stage III: Ten Percent (30%) of the political wards were proportionately sampled from the Local Government. They are : Lagelu (Ward 13, ward 14 ward 6) Kajola ( ward 2 , ward 10 and ward 7) and Ogo-Oluwa ( ward 4, ward 8 and ward 10)

Stage IV, twenty percent (20%) of villages were proportionately sampled from each political ward.:Lagelu (Oyedeji, Lagun, Ogunjana) Kajola (Oke-ola, Koso, Ayetoro Oke,) Ogo-Oluwa ( Alagbon, Elepo,. Molosayowo, Bode-osi, Paku)

Stage V: 30% of household heads were selected randomly from the villages. Lagelu ( Oyedeji 25, Lagun 28, Ogunjana, 24, Apatere 32, Olosude,34) Kajola ( Oke-ola, 23, Koso, 21, Ayetoro oke, 22, Ikunu, 37, Ori-Igbo, 29) Ogo-Oluwa ( Alagbon, 24, Elepo, 18, Molosayowo, 20, Bode- osi 23, Paku 21,, Iju, 24)

Total number of respondents = 405

### **Data collection**

Data for the study were collected by quantitative and qualitative methods. Interview guide was prepared and used for socioeconomic characteristics of respondents, adoption of preventive health behaviour and local perception of COVID-19. Qualitative technique such as In-depth interview of Key informants was used to collect qualitative data. Herbs identified were subjected to laboratory analysis.

### **Data Analysis**

Descriptive statistics (tables, pie chart, frequency counts, percentages, mean and bar chart) were used for the study. The qualitative data were analyzed manually by the researchers. This was done through thematic and content analyses. The steps involved are as follows: First, each of the recorded episodes such as interview and recorded interactions within the group were played back, listened to attentively, and transcribed verbatim by the interviewer. Secondly, the experiences or responses of the key informants were summarized and eventually resulted in final findings. Phytochemical analyses were carried out in Laboratory.

### 3. RESULTS AND DISCUSSION

#### 1.0 Socioeconomic characteristics of respondents

From the Table 1, the mean age of respondents was 58 years. This implies that the household heads are gradually aging; nevertheless, they still retain the custodian of traditional medicinal practices for onward transmission to the younger generation. This is in consonance with the submission of (24) that age is positively correlated with the advancement of ethnomedicine. The respondents had different faith affiliations, where 41.2%, 36.8% and 13.8% practiced Islamic religion, Christianity, and traditional religion, respectively. Slightly above average (51.9%) of the respondents had at least a secondary education, this may enhance the advancement of ethnomedicine as submitted by Godoy, Reyes-Garcia, Broesch *et al*, (24) that education does not really erode the development of indigenous knowledge, it enhances it through the change from anecdotal record to proper documentation. The household size was 13 people. The relatively large household size could be traced to the use of household members as family labour as most (77.5%) of the respondents were farmers. Also, 67.9% of the household heads had ancestry as the major source of knowledge of traditional medicine. Documentation remains the key factor that can prevent the erosion of indigenous medicine, most of the ancestors could not read nor write, they transmit the practice anecdotally, with its attendant problem of omission and likelihood of inefficacy.

Table 1: Socioeconomic characteristics of respondents

<b>Variables</b>	<b>Frequency</b>	<b>Percentage n =405</b>
<b>Age (years)</b>		
< 25-34	11	0.3
35-44	29	7.2
45-54	62	15.3
55-64	135	33.3
65-74	101	25.0
>75	67	16.5
<b>Sex</b>		
Male	277	68.4
Female	128	31.6
<b>Religion</b>		
Islam	167	41.2
Christianity	149	36.8
Traditional	56	13.8
Atheist	33	8.1
<b>Educational status</b>		
No formal education	59	14.6
Primary Education	137	33.8
Secondary Education	103	25.7
Tertiary education	106	26.2
<b>Marital status</b>		
Single	23	5.7
Married	296	73.1
Divorced	39	9.6
Widowed	47	11.6
<b>Household size</b>		
1-5	32	7.9
6-10	156	38.5

11-15	145	35.8 mean =13
16-20	59	14.6
21 and above	13	3.2
<b>Occupational status</b>		
Farming	314	77.5
Farm labourer	19	4.7
Government/Private worker	22	5.4
Trading	29	7.2
Artisanship/craftsmanship	21	5.2
<b>Source of ethnomedical knowledge</b>		
Ancestry	275	67.9
Undergone period of apprenticeship/ training	31	7.6
Friends and relatives	0	0.0
	99	24.4

### Health seeking behaviour of rural people in Oyo State

The Table 2 below presents behaviours that rural people often exhibit when it comes to decision on health-related matters or choices. Man, being a corporeal has an activated spiritual being which often guide his actions and inactions; this is the more reason religion influences the health seeking behaviour of people as it appears on the Table 2. (25) affirmed the influence of religion on health choices, according to him, any health solutions that are contrary to man’s faith tenets are rejected, except when the illness is getting out of hands. Further revealed on the Table 2 are the cosmological and nosologically notions which ascribed etiology of diseases and ill-health to entities far beyond the realm of conventional medical diagnosis. Some illnesses were classified as “ordinary or common” while some were classified as “serious or severe”. The common ones were believed to be cured with traditional herbal medicine, while the serious ones shades into the belief that preternatural forces were responsible for such ill-health, and as such no known clinical solution could be offered except through consultation with gods that will help to appease the forces (26). This notion is affirmed by the belief of the majority of respondents on the influences of nosological notion and preternatural forces as it relates to health seeking behaviour. It is considered an abomination taking an injection while having measles, small pox or any viral disease, as they believed the diseases were caused by some spiritual beings, therefore they must be appeased by making sacrifices before they could be healed ( 27).

Rural people have close affinity to nature and their ancestry. The ancestral beliefs of people often influence their health seeking strategies. Some foods are forbidden in some households, and whoever contravene the ancestral belief would bear some consequences, and such an illness cannot be healed unless sacrifices are offered to the ancestors. This was also considered to influence health decision making and choices. It is worthy of note as affirmed by the respondents that herbs were considered more efficacious than mineral or chemical drugs, this notion often influence their health seeking behaviour.

Table 2. Health seeking behaviour of rural people in Oyo State

	Attitudinal statements	Responses			
		Usually	Rarely	Never	WMS
1.	Does your religion influence your decision on any health-related matter?	118	215	72	2.11
2.	When you are sick, do you attach any spiritual coloration to issue of sickness and as such	116	189	100	2.04

	affecting your decision on treatment?				
3.	When sick, do you seek spiritual solution?	112	217	76	2.10
4.	Do you believe in the classification of some illnesses as 'common and ordinary'?	349	45	11	2.83
5.	Does the consideration of your ancestral beliefs affect your decision to seek solution to illnesses?	76	93	236	1.60
6.	Do you believe in the influence of preternatural forces on illnesses?	328	35	42	2.70
7.	Do you believe that with proper examination and diagnoses, orthodox medicine can cure any sickness?	46	51	308	1.35
8.	Does using herbs and other plant derivatives more efficacious and effective in treating illnesses than orthodox drugs and medicines?	211	45	149	2.15
9.	Your preference for solution to sickness is always traditional medicine except when it might have gone beyond control?	197	83	125	2.18
10.	Do you believe that divination (consulting the oracles), confession, ritual sacrifices, incantations and potions made from plant and animal parts, are essential components of illness management?	285	16	105	2.44

### Rural People's Perception of COVID-19

From Table 3. It showed that the respondents held varying opinions or mental images on COVID-19. The majority of respondents held the belief that the old or aged people were the only category of people susceptible to Corona virus infection as revealed by the study. People seemed to be unperturbed and were not paranoid of contacting the COVID-19 as submitted by slightly above average (55.6%) of the respondents. They believed that the pandemic was hyped and the Africans could not contact it and that the people in the temperate region were only prone to it. This is in tandem with the outcome of the research carried out by (1) that people held a wrong perception on COVID-19, believing it was a ploy by politicians to syphon public fund, and as an international conspiracy to reduce the world population. The study further revealed that respondents were skeptical about the possibility of the transmission of the virus through physical contact. The respondents also perceived that disease can only transmit from those having symptom of it rather from asymptomatic patients. Different vaccines were discovered to stem the tide of COVID-19. From the Table 3, it was apparent that majority (74.8%) of the rural people had neither taken the first nor the second dose of the vaccine against the deadly disease, this was traceable to a number of factors such as distance to the health facility centres as submitted by 24% of the respondents, while 18.3% were indifferent to vaccination as it was said to be a taboo or an abomination. The finding is in tandem with (16) discovered that willingness to get vaccinated in Sub-Sahara Africa were deterred from coming to reality owing to shortage of vaccine supplies, poor access, social ties, perceptions as well as intra-household power relations.

Table 3. Rural people's risk perception of COVID-19

Perceptual Statement	Perceptual responses				Mean	Rank
	Very likely	Somewhat likely	Somewhat unlikely	Very unlikely		
COVID-19 is a disease that cannot affect people	111(27.4)	154(38.0)	72(17.8)	68(16.8)	2.76	2 <sup>nd</sup>

in the tropical region						
I am worried or paranoid of contacting COVID-19s	46(11.4)	58(14.3)	76(18.7)	225(55.6)	1.81	6 <sup>th</sup>
COVID-19 can transmit through physical contact with infected person	18(4.4)	34(8.4)	116(28.6)	237(58.5)	1.59	7 <sup>th</sup>
Only aged are prone to be infected by COVID-19	129(31.8)	110(27.1)	113(27.9)	53(13.2)	2.78	1 <sup>st</sup>
COVID-19 can spread through public transport/ gathering	63(15.6)	59(14.6)	126(31.1)	157(38.8)	2.07	3 <sup>rd</sup>
It can be transmitted through somebody without symptom	74(18.3)	23(5.7)	164(40.5)	144(35.6)	2.07	3 <sup>rd</sup>
Likelihood of death from COVID-19	54(13.3)	42(10.4)	149(36.8)	160(39.5)	1.97	5 <sup>th</sup>
Vaccination	Yes	No				
I have been vaccinated fully	69(17.0))	336(83.0)				
I have been partially vaccinated	33((8.1)	372(91.2)				
I would have taken vaccine but for distance to health facility	97(24.0)	308(76.0)				
Taken vaccine is an abomination	74(18.3)	331(81.7)				

**Adoption of Traditional Medicine for treatment of COVID-19 manifestations**

From the study, it showed that the use of medicinal herbs for treatment of diseases was integral in disease management in the study area. Majority (96.0%) of respondents used herbs for disease prevention and cure. The component of physical environment shapes and influences the general way of life of humans, hence the use of biodiversity for treatment of diseases in the study area. the assertion is corroborated in the submission of (1) that Southwest Nigeria, the use of herbs for the treatment and management of infections and diseases is part of their tradition and custom (1). The dependency on botanicals has been attributed to the availability of a diversity of medicinal plants in the lowland rainforest vegetation, presumed efficacy of herbal remedies in regimens with little or low side effect and affordability (12). Slightly above average (59.7%) used to combine herbal medicine with orthodox medicine. (10) discovered that occupation had significant influence in the level of herbal usage and its combination with orthodox medicine influence level of herbal usage and its combination with orthodox medicine. The table further revealed that most (91.9%) of respondents had the knowledge of herbal medicine preparation.

Table 4. Adoption of Traditional Medicine for treatment of COVID-19 manifestations

Statements	Responses	
	Yes	No
Do you use herbal medicine for therapeutic purposes	389(96.0)	16(3.9)
Do you use orthodox medicine together with herbs for therapeutic purposes	242(59.7)	163((40.2)



Do you have the knowledge of herbal preparation	372(91.9)	33(8.1)
Do you prefer herbal medicine to orthodox medicine for treatment of diseases?	231(57.0)	174(43.0)
Is mixing herbs together brings more effectiveness and efficacy?	248(61.2)	157(38.8)
Have you ever been a victim of side effects of herbal medicine?	26(6.4)	379(93.6)

### Medicinal plants recorded for treating COVID-19 manifestations

Ethnobotanical information was obtained from selected Traditional medical practitioners, Traditional pharmacy, farmers and other key informants across the study area, through focus group discussion and in-depth interview.

From the study, 23 medicinal plants species were discovered to be used for treating COVID-19 manifestations, some were for cough, some were used both for cough and flu, while some were used for feverish manifestation

The author searched for herbs and plant derivatives linked with antiviral treatment used for the treatment of COVID-19 manifestations across the study area through interactions with key informants and other custodian of traditional medical practitioners. The following herbs and plant derivatives were identified as being used mostly to treat different types of COVID-19 manifestations, which included; activities against difficulty in breathing, pleuropneumonia, breathing pains, fever, diarrhea, fatigue, and related cardiovascular diseases:

Table 5. Some medicinal plants used for the treatment of COVID-19 Manifestation

COVID-19 manifestations	Scientific name	Common name	Local name	Part of plant used	Administration
Cough, difficulty in breathing, sore throat	<i>Allium sativum</i>	Garlic	Ayu	Bulb	Nasal
Flu	<i>Alstonia booni</i>	Stool weed	Dokita igbo	Leaves of tree	Oral
Flu, fever	<i>Azadirachta indicus</i>	Neem	Dongoyaro	Leaves and back of tree	Oral
Cough and flu	<i>Citrus aurantiifolia</i>	Lime	Oronbo were	Juice extraction from fruit	Oral
Flu, difficulty in breathing	<i>Capsicum frutescens</i>	Pepper	Ataweere	Fruit of herbs	Juice extraction and used orally
Cough and flu	<i>Curcuma longa</i>	Tumeric	Ata'le	Rhizomes	Oral
Flue	<i>Gymnanthemum amygdalinum</i>	Bitter leaf	Ewuro jije	Leaves of shrubs	
Flu and respiratory tract infection	<i>Citrus lemon</i>	Lemon	Guinguin	Fruit	Oral
Fever and immune booster	<i>Drypetes gossweileri</i>	Horse radish tree	Ogano	Bark of the tree	Oral

Immune booster, cough, fever, headache	<i>Momordica charantia</i>	Bitter gourd leaf	Ejinrin	Leaves	Juice extracted from the leaf
Fever,	<i>Morinda lucida</i>		Oruwo	Bark	Oral
Flu, cough, upper respiratory disorder	<i>Aframomum melengueta</i>	Alligator pepper	Ataare		Oral
Cough, breathing difficulty	<i>Allium ascalonicum</i>	Spring onion	Alubosa elewe	Whole plant, leave and bulb	Pounding Oral
Fever, immune booster	<i>Crinum jagus</i>	Poison bulb	Ogede odo	Bulb and leaf	Pounding Oral
Fever, immune booster	<i>Elaeis guineensis</i>	Palm tree	Ope	Bark of the tree	
Immune booster, respiratory tract infections, Cough, Chest pains.	<i>Garcinia kola</i>	Bitter kola	Orogbo	Seed	Pulverizing Oral
Immune booster, respiratory problem, Cardiovascular issues	<i>Zingiber officinale</i>	Ginger	Ata ile	Rhizome	Oral
Cough, flu, respiratory disorder	<i>Capsicum annum</i>	Hot pepper	Ata ijosi	Seeds	Pulverizing Oral
Respiratory disorder, nasal discharge	<i>Piper nigrum</i>	Black pepper	Iyere	Seeds	Pounding Oral
Fever,	<i>Morinda lucida</i>	Brimstone tree	Oruwo	Leaf, bark	Decoction Oral
Cough and flu	<i>Allium cepa</i>	Onion	Alubosa	Pulverizing the bulb	Oral
Cough and flu	<i>Cymbopogon citratus</i>	Lemon grass	Ewe lemon	Grass decoction	Oral
Cough and flu	<i>Vitellaria paradoxa</i>	Shea butter	Ori	Frying	Oral
Flu	Corica papaya L. (Caricaceae)			Mainly leaf; Latex from fruit with candy (certain quantity) as juice	
Flu	<i>Daucus carota</i>	Carrot	root	As	Oral

	L.(Apiaceae)		vegetables	
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